

**Boston Logan International Airport Runway 33L
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Table 4.3

2015 Proposed Action Alternative Population Exposed to Aircraft Noise

DNL Range (dB)	Estimated Population	Percentage of Total
Less than 45	2,179,819	68.4%
45 to less than 50	640,539	20.1%
50 to less than 55	262,448	8.2%
55 to less than 60	67,456	2.1%
60 to less than 65	35,750	1.1%
65 to less than 70	2,680	0.1%
70 to less than 75	200	0.01%
Greater than or equal to 75	0	0.0%
Total	3,188,892	100%

Note: Totals may not equal 100% due to rounding.

Source: HNTB Analysis, 2012, U.S. Census 2010.

Table 4.4

**Change in Noise Exposure Between
2015 No Action and Proposed Action Alternatives**

DNL Range (dB)	Estimated Change in Population
Less than 45	Increase of 67,846
45 to less than 50	Decrease of 63,552
50 to less than 55	Decrease of 7,736
55 to less than 60	Increase of 2,784
60 to less than 65	Increase of 658
65 to less than 70	No Change
70 to less than 75	No Change
Greater than or equal to 75	No Change

Source: HNTB Analysis, 2012, U.S. Census 2010.

The FAA recognizes and is responding to the CAC's and general public's desire to understand changes in noise exposure by community as a result of the ongoing BLANS. To that end, although not usually disclosed at this level of detail in a NEPA analysis, **Table 4.5** presents the range of noise exposure and change in noise

exposure by community. **Table 4.6** presents the range of population exposed to DNL levels above 45 DNL under the No Action and Proposed Action Alternatives. As stated previously, none of these changes meet the threshold of significance or reporting criteria as listed in Table 4.1.

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Table 4.5
**Noise Results (2015 No Action and 2015 Proposed Action)
for Populated 2010 Centroids Above 45 DNL**

Town	No Action Range of DNL Values	Proposed Action Range of DNL Values	Range of DNL Increase	Range of DNL Decrease
Arlington	45 to 48.6	45 to 49.9	0.6 to 1.9	-
Belmont	45 to 47.7	45.2 to 48.7	0 to 2.0	-0.6 to 0
Boston, Allston/Brighton	45 to 48.1	45.1 to 45.6	-	-2.7 to -2.5
Boston, Back Bay	45.1 to 48.3	45 to 48.1	-	-0.6 to -0.2
Boston, Bay Village	48.4 to 50.4	48.3 to 50.3	-	-0.2 to -0.1
Boston, Beacon Hill	47.4 to 49.6	47.1 to 49.5	-	-0.4 to -0.2
Boston, Charlestown	50.1 to 54.9	48.6 to 53.9	-	-2.2 to -0.9
Boston, Chinatown	50.3 to 52.3	50.2 to 52.2	0 to 0	-0.1 to 0
Boston, East Boston	54.7 to 65.9	54.2 to 66	0 to 0.3	-0.9 to 0
Boston, Fenway/Kenmore	45 to 46.8	45 to 46.4	-	-0.6 to -0.3
Boston, Financial District	49.7 to 53.8	49.6 to 53.8	0 to 0	-0.2 to 0
Boston, Government Center	50.3 to 50.6	50.2 to 50.4	-	-0.2 to -0.2
Boston, Harbor Islands	54.7 to 58.3	54.7 to 58.2	-	0 to 0
Boston, Hyde Park	45 to 45.4	45 to 45.2	-	-0.2 to -0.2
Boston, Jamaica Plain	45 to 48.3	45 to 48	-	-0.7 to -0.3
Boston, Mattapan	45 to 48.8	45 to 48.6	-	-0.5 to -0.2
Boston, North Dorchester	48.1 to 57.9	47.8 to 57.9	- to -	-0.3 to 0
Boston, North End	50.3 to 53.2	49.9 to 53.2	-	-0.6 to -0.1
Boston, Roslindale	45 to 47.8	45 to 47.5	0 to 0.1	-0.4 to 0
Boston, Roxbury	46.5 to 51.8	46 to 51.8	-	-0.5 to 0
Boston, South Boston	50.3 to 64.5	50.3 to 64.5	0 to 0.1	-0.1 to 0
Boston, South Dorchester	46.8 to 59.4	46.4 to 59.4	-	-0.4 to 0
Boston, South End	46.8 to 53	46.4 to 53	0 to 0	-0.4 to 0
Boston, West End	48 to 50.3	47.6 to 49.8	-	-0.5 to -0.4
Boston, West Roxbury	45 to 45.5	45 to 45	-	-0.4 to -0.4
Braintree	45 to 45.4	45 to 45.3	0 to 0	-0.2 to -0.1
Cambridge	45 to 50.4	45 to 50.4	0 to 1.4	-3.1 to 0
Canton	45 to 46.6	45.1 to 46.9	0.3 to 0.4	-
Chelsea	47.6 to 62.2	47.9 to 62.7	0 to 1.6	-0.8 to 0
Cohasset	45 to 45.8	45 to 45.7	-	-0.1 to 0
Everett	45.7 to 57.2	46 to 57.9	0.1 to 1.9	-0.6 to 0
Hingham	45.1 to 46.5	45 to 46.4	-	-0.1 to 0
Hull	45.1 to 55.7	45 to 55.7	-	-0.1 to 0
Lynn	45 to 53.8	45 to 53.8	-	-0.2 to 0
Malden	45 to 51.5	45 to 53.2	0 to 2.0	-0.2 to 0
Medford	45 to 54.6	45.1 to 54.9	0 to 2.1	-0.7 to 0
Melrose	-	45.3 to 45.3	0.4 to 0.4	-
Milton	45 to 56.8	45 to 56.8	0 to 0.5	-0.4 to 0
Nahant	45 to 48.2	45 to 48.2	-	-0.1 to 0
Newton	45 to 45.6	45 to 45.6	0 to 0.4	-0.4 to 0
Peabody	45 to 47.7	45 to 47.6	-	-0.1 to 0
Quincy	45 to 58.2	45 to 58.1	- to -	-0.4 to 0
Randolph	45 to 47.7	45 to 47.9	0.1 to 0.4	-

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Table 4.5
**Noise Results (2015 No Action and 2015 Proposed Action)
for Populated 2010 Centroids Above 45 DNL**

Town	No Action Range of DNL Values	Proposed Action Range of DNL Values	Range of DNL Increase	Range of DNL Decrease
Revere	45 to 65.9	45 to 65.9	0 to 0.3	-0.2 to 0
Salem	45.1 to 48.5	45.1 to 48.4	-	-0.1 to 0
Saugus	45 to 47.9	45 to 47.7	-	-0.3 to -0.1
Scituate	45 to 46.1	45 to 46.1	0 to 0	0 to 0
Somerville	47.5 to 53.9	45.7 to 53.3	0 to 1.6	-3.0 to 0
Stoneham	45 to 45.1	45 to 46.1	0.2 to 1.1	-
Swampscott	45 to 45.8	45 to 45.7	-	-0.1 to -0.1
Waltham	-	45 to 46.5	0.9 to 2.1	-
Watertown	45 to 47.8	45 to 47.5	0 to 1.6	-1.9 to 0
Winchester	45 to 45.6	45 to 46.3	0.1 to 1.3	-
Winthrop	51.4 to 71.9	51.4 to 71.9	0 to 0	0 to 0

Notes:

- DNL values represent the cumulative noise level from all operations on all runways.
- Ranges of DNL values are reported for populated family and non-family households based on US Census Block centroids within each community.
- No significant impact, per FAA Order 1050.1E would result from the Proposed Action.

Source: HNTB Analysis, 2013

Table 4.6
**Population Results (2015 No Action and 2015 Proposed Action)
for Populated 2010 Centroids Above 45 DNL**

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
Arlington	42,552	16,219	20,298	4,079
Belmont	24,537	20,703	23,308	2,604
Boston, Allston/Brighton	65,425	33,118	0	(33,118)
Boston, Back Bay	16,053	14,643	11,880	(2,762)
Boston, Bay Village	2,392	2,392	2,392	0
Boston, Beacon Hill	9,603	9,603	9,603	0
Boston, Charlestown	16,309	16,309	16,309	0
Boston, Chinatown	4,345	4,345	4,345	0
Boston, East Boston	40,283	40,283	40,283	0
Boston, Fenway/Kenmore	22,312	9,151	5,091	(4,059)
Boston, Financial District	3,755	3,755	3,755	0
Boston, Government Center	62	62	62	0
Boston, Harbor Islands	0	0	0	0
Boston, Hyde Park	31,596	881	264	(617)
Boston, Jamaica Plain	38,457	28,290	18,830	(9,461)
Boston, Mattapan	34,144	30,070	27,703	(2,367)
Boston, North Dorchester	26,431	26,431	26,431	0
Boston, North End	11,211	11,211	11,211	0

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Table 4.6
**Population Results (2015 No Action and 2015 Proposed Action)
for Populated 2010 Centroids Above 45 DNL**

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
Boston, Roslindale	31,765	23,192	22,665	(527)
Boston, Roxbury	59,174	59,174	59,174	0
Boston, South Boston	33,022	33,022	33,022	0
Boston, South Dorchester	59,258	59,258	59,258	0
Boston, South End	31,555	31,555	31,555	0
Boston, West End	4,479	4,479	4,479	0
Boston, West Roxbury	29,785	556	106	(450)
Braintree	35,199	0	0	0
Cambridge	88,057	87,487	60,402	(27,085)
Canton	21,246	173	245	72
Chelsea	34,496	34,496	34,496	0
Cohasset	7,463	4,044	3,723	(321)
Everett	41,466	41,466	41,466	0
Hingham	21,893	1,148	1,145	(3)
Hull	10,294	9,359	9,359	0
Lynn	89,498	74,765	73,243	(1,523)
Malden	59,073	44,941	46,394	1,453
Medford	54,233	53,569	53,713	144
Melrose	26,716	0	0	0
Milton	25,488	16,890	15,970	(920)
Nahant	3,357	1,687	1,636	(51)
Newton	78,048	3,417	2,934	(483)
Peabody	50,739	7,908	7,708	(200)
Quincy	90,875	28,830	25,896	(2,934)
Randolph	31,783	3,129	3,725	596
Revere	51,469	50,894	49,241	(1,653)
Salem	39,570	1,814	1,629	(185)
Saugus	26,306	3,550	2,013	(1,537)
Scituate	17,947	4,635	4,428	(207)
Somerville	73,481	73,481	73,481	0
Stoneham	21,194	0	0	0
Swampscott	13,609	639	402	(237)
Waltham	53,952	0	6,584	6,584
Watertown	31,691	29,346	30,857	1,511
Winchester	21,051	3,103	8,912	5,809
Winthrop	17,445	17,445	17,445	0
	1,776,148	1,076,919	1,009,073	(67,846)

Notes:

- DNL values represent the cumulative noise level from all operations on all runways.
- DNL values are reported for populated family and non-family households based on US Census Block centroids within each community. Those residing in group quarters are not included in this analysis.
- No significant impact, per FAA Order 1050.1E would result from the Proposed Action.

Source: HNTB Analysis, 2013

4.2 Compatible Land Use

Compatibility of land uses surrounding airports is usually determined by the extent of the airport's noise impacts. Existing land use in the Study Area is discussed in Chapter 3, *Affected Environment*, Section 3.1.4. Because the Proposed Action Alternative does not result in significant noise impacts (as measured by an increase of noise exposure in populated centroids), it can be concluded that there will be no impacts to compatible land use. Additionally, existing non-compatible land uses currently exposed to noise levels greater than or equal to 65 DNL will not experience significant increases in noise levels as a result of the Proposed Action Alternative, as discussed in Section 4.1 of this chapter.

4.3 Section 4(f) and 6(f) of the DOT Act

The primary basis for determining the effect of the undertaking on potential impacts to Section 4(f) and Section 6(f) resources was based on the magnitude of the increase in aircraft noise exposure level between the No Action and the Proposed Action Alternatives. **Figures 4-5** and **4-6** depict noise exposure greater than 45 DNL at parks, forests, wildlife refuges and wilderness areas in the Study Area for the No Action Alternative in 2015, while **Figures 4-7** and **4-8** present noise exposure at Section 4(f) resources with implementation of the 2015 Proposed Action Alternative.

The Proposed Action Alternative does not include any land-based impacts as there is no physical disturbance or land acquisition. Therefore, the Proposed Action Alternative does not result in a direct use of any Section 4(f) property.

Adverse *indirect impacts* including noise may constitute a "constructive use" of a Section 4(f) property. When considering the potential for constructive use of a Section 4(f) property, the FAA must first determine if the possibility of adverse indirect impacts (constructive use) exists. If so, the FAA must consult with officials of the 4(f) resource to determine whether noise increases would result in the substantial impairment of the resource.

Section 4(f) properties were evaluated to identify potential noise increases that may represent an adverse impact or constructive use of the property. While a 1.5 DNL increase within the 65 DNL may result in a constructive use to all types of 4(f) properties, reportable impacts (increases of 3.0 DNL between the 60 and 65 DNL or 5.0 DNL between the 45 and 60 DNL) are intended to address those section 4(f) properties with a quiet setting as an attribute. Noise exposure was calculated for over 22,000 points representing Section 4(f) resources. Noise exposure levels were calculated for grid points at equal intervals throughout the larger Section 4(f) properties. Grid spacing was 1,000' for potential Section 4(f) resources with a size of 100 acres or more. For those less than 100 acres, (i.e., smaller parks and monuments), noise exposure was calculated as a single point located in the center of the park.

There is no possibility of constructive use of a Section 4(f) resource, such as any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance or land from an historic site of national, State, or local significance. No significant noise impact to lands devoted to traditional recreational activities, including national