The noise generated by aircrafts is not only a source of annoyance but also a predictor of several health and economic problems, including sleep deprivation, cardiovascular diseases and property depreciation. There is spatial variation in the impact of noise in different areas along aircraft routes; some communities are more severely impacted than others. Chelsea and Belmont are two sample cities that have seen a rise in complaints related to aircraft noise due to the new runway 33. The Boston International Logan Airport has implemented the use of RNAV navigation technique that allows aircrafts to fly over a narrow path instead of the earlier fanned out path without any complications. However, this leads to intense noise being concentrated over some communities. The airport noise monitoring experts use Day Night Level as a noise metric. According to this metric, the noise exposure over Chelsea and Belmont is not significant enough to introduce a flight route change. However, the complaints by residents in these towns paint a different picture. Experts in the field suggest the use of a different metric like Level Weighted Population that takes into consideration the population highly annoyed by the noise exposure.

**REFERENCES AND ACKNOWLEDGEMENTS**

**Data Sources**
Aircraft noise data was procured from Boston Logan Airport Noise Study and demographic data from US Census 2010 and 2014 American Community Survey data.

**Demographic maps**
Race and ethnicity were used as the measure of demographic diversity in Chelsea and Belmont. Dot density technique was used to portray number of individuals from different races and choropleth map generated to show Hispanic origin.

**Noise exposure maps**
Choropleth maps were generated to visualize DNL noise exposure in 2010, 2012 and 2014 in Chelsea and Belmont.

**Flight routes maps**
Flight routes from ESRI were joined to Census Block level data.

**REFERENCES**


**ACKNOWLEDGEMENTS**
Thanks to Prof. Thomas Stopka, Ms. Anna Kaplan and Mr. Wig Zamore.

**DISCUSSIONS**

As the airport continues to push the RNAV technology forward, the effects of the narrow flight routes on communities remains to be taken into consideration. While Belmont faces lower levels of noise exposure from aircrafts than Chelsea, the residents of Belmont have voiced their concerns at these low DNLs of noise. Active representation in decision making bodies can be one reason for this. Using a fanned out pattern of flights can be a way of reducing intense noise faced by communities like Chelsea that are very close to the airport. Lack of use of contouring for DNL was a limitation of the analysis and should be considered in future analyses.