

2015

Airport
Impact
Relief
Incorporated

AIR Inc.



Community Airport Health Briefing

Citing scientific evidence of airport health impacts, AIR INC., East Boston and concerned Metropolitan Boston communities are organizing against airport expansion plans and calling for a strategic partnership to identify, establish and implement a regional airport impact reduction strategy

Introduction to the Logan Airport Health Study (LAHS)

Since the beginning of the airport expansion era in the 1960's, East Bostonians have believed that the airport causes disease. But airport health impacts are difficult to measure, leaving residents without proof. By 2000, public pressure finally prompted the Massachusetts Department of Public Health (DPH) to conduct the Logan Airport Health Study (LAHS), a telephone-based survey which took 14 years to complete.

Issue Background

Public health departments do not normally conduct primary research; in fact, LAHS is the first and only study of its kind. So while the Massachusetts DPH is to be commended, as this telephone survey of 6000 adults in 17 communities within a 5 mile radius of Logan reported

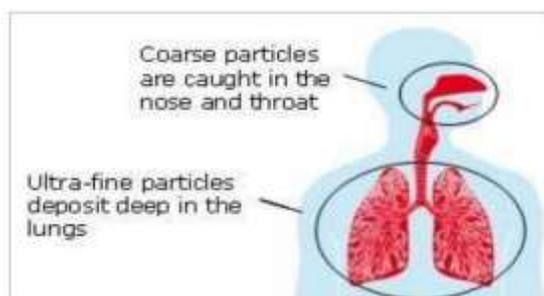


Figure 1: Areas of the respiratory system affected by Ultra-fine particles

significant rates of childhood asthma and COPD which is consistent with other research, LAHS *did not* find higher rates of other illness where they have been consistently found in other scientific research.

A growing body of scientific evidence suggests that exposure to airport air and noise pollution is serious drivers of a far longer list of disease. Of particular concern is the question of the impacts of Ultra-fine Particulate Matter (UFP), which have been proven to penetrate deeper into the lungs than traditional pollutants (see figure 2) and are produced in greater quantities, and at smaller (and potentially more dangerous) sizes by jet engines.

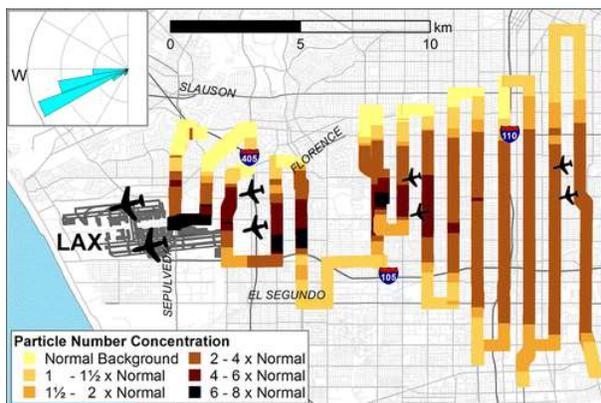


Figure 2: The plume of airport-profile pollution measured in Los Angeles showed elevated particulate matter as far as 10 miles from LAX

Alarming, significantly elevated levels of these deeper-lung-penetrating smaller UFPs have been detected in multiple research studies as far as 10 miles away from runway ends along and perpendicular to flight paths.

However, since tests have produced dissimilar results in attempts to characterize UFPs at various engine power levels, and since these initial tests have been relatively short, far more extensive research has been strongly recommended.

Reaction to LAHS

When complete in 2014, LAHS showed *some, but not all* of the health impacts residents had suspected. Public reaction was subdued, with most comment questioning the validity of the study.

Massport quickly established an early detection program for childhood asthma then embraced the lower-than-feared findings, running a series of ongoing full page advertisements in local newspapers characterizing airport contributions to regional air pollution as minor, with graphics showing downward pointing arrows and explaining how green technologies and sustainability efforts make Logan cleaner.

The EH&E Review: A Closer Look at LAHS

With the important evidence LAHS had provided, but concerned over the incomplete results, Airport Impact Relief Incorporated (AIR INC.), an East Boston-based watchdog group, consulted Dr. Jack Spangler, Director of the Environmental Science and Engineering Program at the Harvard School of Public Health, asking him to recommend an environmental engineering firm qualified to review and report on LAHS. Dr. Spangler recommended Environmental Health and Engineering, Inc., (EH&E), a Needham consulting firm.



Figure 3: The EH&E report commissioned by AIR INC.

AIR INC. asked EH&E to conduct a professional review with the goals of:

- Informing community members about the strengths, limitations and value of the LAHS
- Reviewing and briefing community members on the most up to date relevant research
- Analyzing potential next steps in air quality and noise related airport research

EH&E scientists reported that LAHS had raised questions for future studies; its findings on the impact of airport pollution on childhood asthma and Chronic Obstructive Pulmonary Disease (COPD) were valid, and that findings which did not show associations between airport pollution other illnesses such as cardiac disease, stroke, cancer, sleep disturbance, hypertension, stress, hearing impairment and impaired learning in children were inconsistent with other scientific evidence and were *attributed to study design and sample size limitations*.

Ultimately, EH&E termed LAHS 'an important first step', but concluded, "These findings suggest that *the impacts of airport-related pollution on cardiac health warrant further study in neighborhoods surrounding Logan.*"

Upon receiving the EH&E report, AIR INC. invited Massport to review the report with EH&E staff and top air quality and pollution scientists. After an initial pause, in October of 2015 Massport staff agreed and joined in a detailed review of the EH&E findings with the highly credentialed group of scientific consultants AIR INC. had assembled.

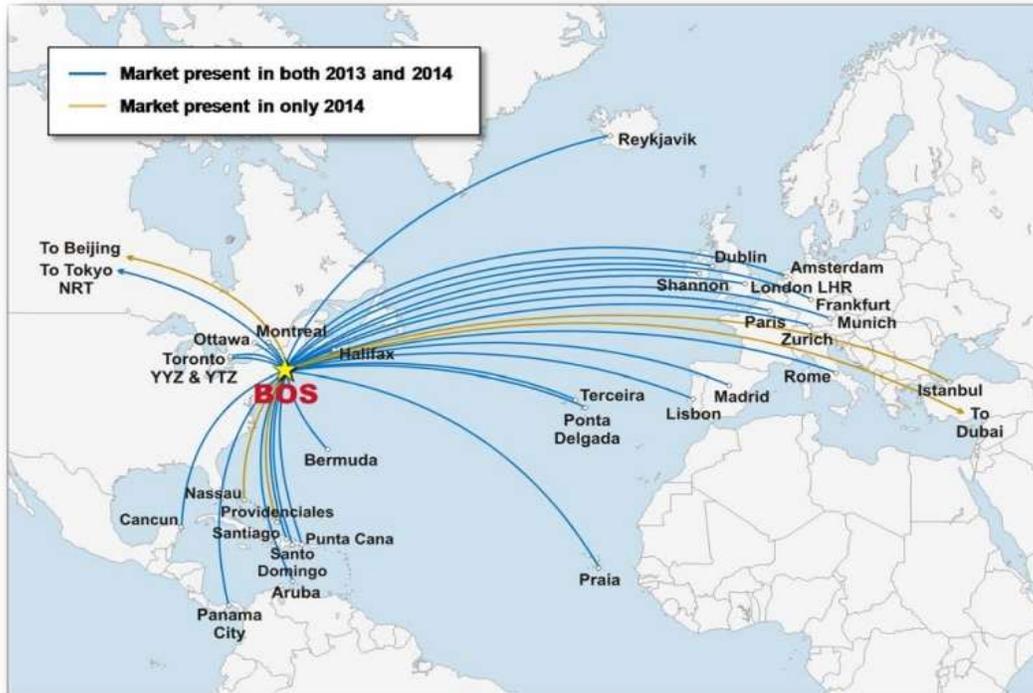


Figure 4: A Massport Graphic showing international markets they are expanding into

Obsessed with Expansion

While the air travel industry has been rebounding from the downturn after 9/11 and the economic recession, Massport has been planning major expansions. Massport's 2015 Terminal E Modernization Environmental Assessment (EA) envisions an international terminal capable of handling 12 million passengers per year by 2030, up from 4 million in 2013. They claim the 8 million passenger surge of international travel will lead the way in growth from Logan's current levels of 30 million passengers per year in 2013 to an estimated 43 million in 2030. This is a projected expansion in passenger growth nearly doubling, adding 43% over the next 15 years.

At the same time, Massport is actively courting international airline carriers, landing Middle Eastern and Asian business recently increasing international passenger levels by almost 25% to nearly 5 million passengers per year today.

Confusion amidst Crisis

Changes in the air travel industry have created a complex backdrop for those attempting to understand noise and pollution. Improved, more efficient and quieter jet engines; a significant shift from general aviation (small aircraft) to commercial jet traffic over the past 15 years at Logan, an industry-wide focus on efficiency and over-booking to maximize passengers per flight, and; satellite guided navigation tracks (RNAV procedures) increasing noise over some places, but decreasing it in others, confuse an already complicated technical and regulatory issue.

Unfortunately, Massport claims of progress in reduced flights, quieter planes and better health outcomes are misleading. Flights *may be down* and *new jets may be quieter* than older ones, but jets are also louder than smaller general aviation aircraft, so the shift toward jets even with fewer flights could lead to more noise.

Airport staff produce sound contour maps (figure 7) which show shrinking numbers of households experiencing specific levels of noise. Again, these maps are misleading as 1) the increased volume of commercial jet air traffic following RNAV tracks over *never varying patterns* has also caused dramatic increases in annoyance and complaints over the past few years in further-out communities 2) the specific levels of noise being mapped are arbitrary snapshots which don't reflect the total noise fairly and 3) that low frequency sound energy is not measured by the modeling system that airports and the FAA (Federal Aviation Administration) use.

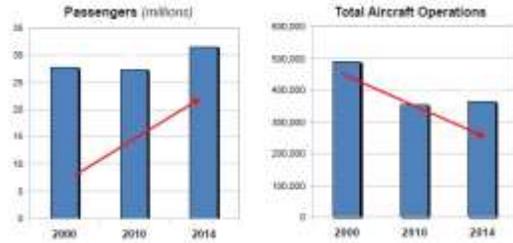


Figure 5: A Massport graphic touting increased efficiency



Figure 6: Massport sound contour maps showing shrinking impacts

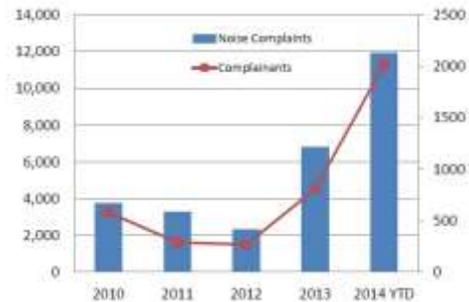


Figure 7: Massport graphic showing increased complaints

Slick Math on Sick People

According to the Center for Disease Control and Prevention, 9.3% of American children have asthma. If there are 45,000 residents of East Boston and 15% of them are children, there are 6750 children in East Boston. If, following national averages, 9.3%¹ of them have asthma, 627 children in East Boston would be diagnosed with asthma.



Figure 8: A child undergoing a nebulizer treatment for asthma-like symptoms

However, not all disease is diagnosed; research suggests that between 30%² and 50%³ of asthma is undiagnosed. Assuming a baseline rate of non-diagnosis of 40%, East Boston might be expected to have as many as 250 additional children suffering from probable but undiagnosed asthma.

However, LAHS reported elevations in probable asthma in children living in high airport pollution exposure areas surrounding Logan, *with children in these areas 3.6 times more likely to suffer from undiagnosed asthma*. Given these findings, Logan Airport pollution in East Boston would add an additional 652 cases, for a total of 902 probable but undiagnosed cases of asthma. If only half of the community is within the high risk

area, then according to LAHS, half of the 652 additional cases, 326 are attributable to Boston Logan Airport related air pollution.

Likewise, the Center for Disease Control and Prevention places national average rates of Chronic Obstructive Pulmonary Disease (COPD) at 2.9%⁴ of the population. LAHS reported that COPD risk in high vs. low airport pollution areas was elevated to nearly twice average levels. Once again, national average COPD rates applied to East Boston's estimated 45,000 populations would result in an estimated 1305 cases of a disease. LAHS findings report that we can expect an additional 1305 cases. If only half of East Boston falls within the high pollution area, then over 652 additional cases of COPD could be associated to Logan airport pollution.

Next Steps

Clearly, as concluded by EH&E, 'Continued efforts should be undertaken to further assess the impacts of Logan Airport on the health of surrounding populations...' With this goal in mind, AIR INC. is proposing to coordinate a regional coalition of communities representing not only

1 <http://www.cdc.gov/nchs/fastats/asthma.htm>

2 <http://www.bmj.com/content/316/7132/651.short>

3

http://fampra.oxfordjournals.org/content/11/2/133?ijkey=579cb285c95a5b4ae0d297cf426c2f56194885dc&keytype2=tf_ipsecsha

4 <http://www.cdc.gov/nchs/fastats/copd.htm>

the heavily impacted in-close communities of East Boston, Winthrop, Chelsea, Revere and South Boston, but also communities further downwind along Logan's flight paths, such as Everett, Roxbury, Somerville, Jamaica Plain, Dorchester and Milton to share the EH&E analysis and discuss the latest scientific research on airport health impacts and determine next steps.

AIR INC. has long called upon Massport to take up a leadership position on airport impact reduction. Together, we pioneered soundproofing in Boston; we signed the first ever community mitigation agreement and through that, we have innovated new ways to make important quality of life improvements which do not eliminate but at least partially alleviate some of the harm done to impacted communities. Now, with credible evidence that Logan airport pollution as measured in in 2005 for LAHS is potentially a driver of 652 cases of COPD and 326 cases of undiagnosed childhood asthma, AIR calls upon Massport to:

1. Halt Expansion

LAHS and other scientific research suggest that airport related pollution is creating a public health crisis, creating thousands of cases of avoidable disease in East Boston and possibly 10's of thousands throughout the region. No amount of economic development is worth making people sick. Given the evidence, no further expansion should occur unless Massport is willing to work collaboratively with impacted communities to effectively address these impacts by:

2. Engaging with Community and Academic Sector Partners

With the Boston region's unparalleled community and academic university resources, AIR INC. sees that Massport has the opportunity to develop a global leadership position among airports by working to develop a model airport related air pollution research design which will provide the critical knowledge about and definitive answers on true combined airport air and noise health impacts. We have invited Massport to join this effort as a full partner and sponsor.

3. Design a Regional Mitigation Plan

AIR INC. is prepared to assist Massport in developing a map-based mitigation tool which will help them fairly and effectively mitigate current impacts in East Boston and beyond

4. Establish airport air pollution and noise impact reduction goals

Without annual impact reduction goals, Massport cannot effectively address the serious impacts it creates. The current lack of effective impact reduction planning in noise abatement planning processes has produced disastrous results, with the 14 year long Runway Use Plan

(RUP) development process required by the 2002 Record of Decision by the FAA dragging on endlessly and producing an RUP which does not even have targeted noise reduction goals. Massport must take an assertive and responsible role in directing mitigation and impact

reduction efforts if it is to make significant progress.

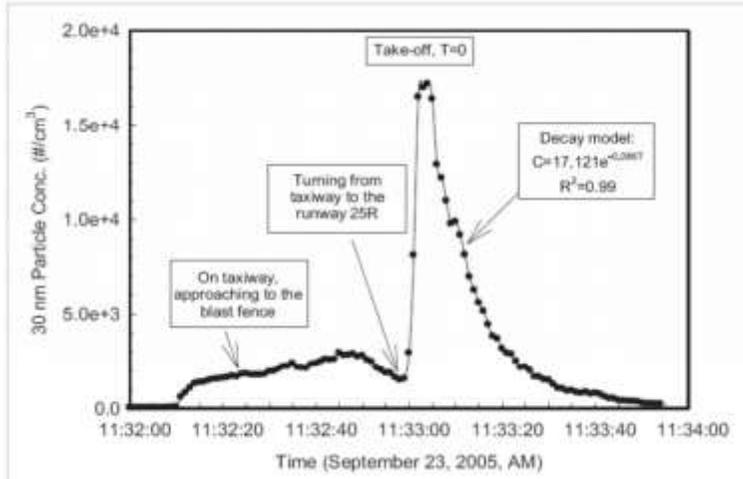


Figure 9: A plot of the spike in airplane pollution measured downwind of a single take-off in Santa Monica, CA

AIR INC. will work with East Boston Environmental and Grupo Ambiental Latino, East Boston-based community environmental interest groups with over 1000 resident members, coordinated by Neighborhood of Affordable Housing's (NOAH) Community Building and Environment Department to design a community presentation tour by the NOAH Youth who last year successfully presented solutions for reinstating Head to Head Operations at Logan in an

exhaustive study and community campaign.

Today, with the release of EH&E's industry leading professional analysis and opinion on LAHS, Logan Health risk and next steps by way of the LAHS Report, AIR INC. is announcing plans to hold a regional symposium on Airport related noise and air pollution to build public understanding of airport health impacts and to build consensus on next steps. AIR INC.'s goal is to create strong community engagement and inclusion on this important airport issue to assure that East Boston and regional community residents are well-informed and able to advocate for the airport impact reductions which are warranted.

It is AIR INC.'s position that scientific evidence indicates that Logan International Airport is responsible for far greater public health impacts than reported in the DPH LAHS. We oppose all further airport expansions unless Massport can engage in effective community collaborations to consider, address and reduce the negative health impacts of Logan airport.