

Strategies to Reduce Sound Levels Related to Airports
A Report Under New York City Administrative Code Section 24-205

March, 2010

At the signing of New York City's new noise code in 2005, Mayor Bloomberg stated:

Noise is New York's number one quality of life complaint and I am proud that my administration proposed, and now the Council has passed, the first comprehensive revision of the noise code in 30 years. The new code will make New York a quieter place to live and work by decreasing excessive and annoying noise. The new code will specifically decrease noise from construction sites, motorcycles, 'boom cars,' air conditioners and nightclubs by strengthening standards and implementing commonsense solutions.

Although not owned or operated by, or not otherwise within the direct jurisdiction of the City to regulate, noise from the City's transit systems and airports have long been a source of noise complaints from its citizenry. The City wanted to recognize this continuing issue and included a mandate in the new code which required the Department of Environmental Protection to "study and propose strategies to control and/or reduce sound levels associated with airports, rapid transit and railroad operations." Local Law 113 of 2005, sec. 3, codified at NYC Administrative Code §24-205.

This report recommends strategies to reduce sound levels related to airports in New York City.

I. Executive Summary

As required by Local Law 113 of 2005, the New York City Department of Environmental Protection (DEP) has prepared this report and recommendations to mitigate noise from airports. The proposed strategies contained in this report were developed primarily by corresponding with the FAA, the Port Authority and other airport authorities, non-profit noise advocacy organizations, airlines, and industry consortiums.

Concern about noise has a long history in New York City (NYC). In 1930, the Department of Health appointed the country's first Noise Abatement Commission to highlight the damaging effects of noise on the inhabitants of a dense urban landscape.

This concern continues today. In 2005, the City Council passed and Mayor Bloomberg signed the first comprehensive revamping of the Noise Code since 1975. The new legislation clarified the allowable decibel level for a variety of activities and made it easier to comply with and to enforce the law. In this report, DEP will discuss the health impacts of airport-related noise, a field excluded from the 2005 law, and recommend strategies for mitigation.

As the Port Authority of New York and New Jersey (PA) operates the LaGuardia (LGA) and John F. Kennedy (JFK) airports, the recommendations outlined in this report are intended for the consideration of that agency, as well as for federal and state legislators and agencies that can implement noise attenuation regulations and programs (see Appendix E for a summary of Port Authority Noise Mitigation Programs).

A great number of studies are available regarding the effects of noise. While it is beyond the scope of this report to synthesize all the noise (including airport-related) studies that have been completed, it is widely recognized that the effects of airport noise can be deleterious to human health. The World Health Organization (WHO) has stated that "noise can cause hearing impairment, interfere with communication, disturb sleep, cause cardiovascular and psycho-physiological effects, reduce performance, and provoke annoyance responses and changes in social behavior."¹

For example, in a fairly well-known study, researchers from several European countries concluded that "the HYENA (Hypertension and Exposure to Noise Near Airports) study found statistically significant effects on blood pressure of nighttime aircraft noise and average 24-hour road traffic noise exposure, the latter for men in particular."² (For more information regarding the health impacts of noise, including airport-related noise, see section II.)

¹ "Occupational and Community Noise," WHO, Fact Sheet 258, page 1, (Revised February 2001).

² "Hypertension and Exposure to Noise Near Airports: the HYENA Study," Environmental Health Perspectives, page 332 (March 2008).

The recommendations for mitigation in section III are intended to conform the Port Authority's airport operations in line with other quality of life initiatives concerning noise mitigation recently adopted in New York City. They are designed to focus on the health impacts of airport noise and to suggest a more transparent public discussion.

The most important recommendation is that the Port Authority complete a Part 150 noise study, which is a comprehensive strategic noise plan that is integral to obtaining Federal Aviation Administration (FAA) Airport Improvement Program ("AIP") funding for noise mitigation projects such as home insulation.

To further engage the public concerning noise issues surrounding airports, the Port Authority should publish a list of key noise performance indicators, and three year goals and yearly progress reports for these indicators. In addition, they should publish LGA and JFK "noise contours" on their respective websites to provide the public with a simple graphical summary of the noise levels near airports, and employ more noise meters. Other airport authorities publish noise contours on their web sites—see Appendix A for a sampling of airport noise programs.

Public awareness of the impacts of airport noise could also be enhanced through the use of the PA website which should also include statistics and ratings of airline noise, methodologies in use to calculate noise from aircraft (and more user friendly methodologies) and real time data from surrounding air monitoring stations. The public should also be able to make complaints on-line as well as through 311 which needs to be advertised more effectively by the Port Authority.

Finally, a more robust regulatory scheme, including incentives, for using greener and quieter aircraft technology, should be established by the PA as other major airport operators have done.

II. Health Impacts of Noise

In 1991 Dr. Alice H. Suter published a definitive, comprehensive report on the effects of noise which referred to over a hundred sources and/or research studies that existed at that time. Included in Dr. Suter's report was a reference to "six studies showing increases in blood pressure" but "questions whether these effects would be permanent."³ Suter also included data on a report which found (in a sample of elderly subjects) "significant increases in both systolic and diastolic blood pressure" after exposure to recorded aircraft sounds.⁴

In 1998 a research paper by Dr. Arline Bronzaft and colleagues found "higher systolic and diastolic blood pressure among schoolchildren living near the Los Angeles airport."⁵ The researchers also indicated that "a more recent study on children living near Munich's

³ "Noise and Its Effects," Administrative Conference of the United States, November 1991, page 25, by Dr. Alice H. Suter, Conference Consultant (Rehm 1983).

⁴ Ibid (Michalak et alia 1990).

⁵ "Aircraft Noise – A Potential Health Hazard," Environment and Behavior, page 104 (January 1998).

International Airport (Evans, Hygge & Bullinger, 1995) found a relationship between chronic noise exposure and elevated neuroendocrine and cardiovascular measures.”⁶ Further, “Evans et alia (1995) also found a relationship between chronic aircraft noise and deficits in a standardized reading test among children” (living near the same Munich airport).⁷

The World Health Organization (WHO) has indicated a weaker relationship between noise and hypertension: “The overall evidence suggests a weak association between long-term environmental noise exposure and hypertension.”⁸ Also, according to the WHO “Epidemiological studies show that cardiovascular effects occur after long-term exposure to noise (aircraft and road traffic) with LAeq, 24h values of 65-70 dB. However, the associations are weak. The association is somewhat stronger for ischaemic heart disease than for hypertension.”⁹

The Federal Interagency Committee on Aviation Noise (FICAN), states that “the most common claims are similar stress-related illnesses, including cardiac issues and increased blood pressure.” However, their website indicates that they have not identified any “long term statistical studies...that have found significant results”.¹⁰ FICAN has published numerous reports on the effects of airport noise including physiological effects, classroom learning and sleep disturbance.

FICAN also conducted a pilot study on the “relationship between aircraft noise reduction” and learning. It concludes: “that there is a strong relationship between noise reduction in schools and reduced failure rates (i.e. improvement) as measured by state mandated test scores, at the high school level”.¹¹ FICAN’s “membership” consists of the U.S. Air Force, Army and Navy, the Federal Aviation Administration (FAA), the National Park Service, the U.S. Environmental Protection Administration (EPA), the National Aeronautics and Space Administration (NASA), and the Dept. of Housing and Urban Development (HUD).

In terms of psychological and related effects, Dr. Bronzaft and colleagues also documented the results of a study on airport noise on Staten Island residents living in a flight pattern and Staten Island residents in a non-flight area. The flight pattern residents who identified themselves as more bothered and bothered by noise also “perceived themselves to be in poorer health,” and “more likely to report themselves as having sleep difficulty” respectively.¹²

Dr. Suter also refers to a study by Fidell et al. (1991) that studied California residents and found that at 60 dB (below the FAA’s presumed action level of 65 dB which requires various noise compliance) “as many as 70 percent of the Burbank population described themselves as highly annoyed and some 40 percent near the Orange County Airport.”¹³

⁶ Ibid.

⁷ Ibid.

⁸ “Guidelines for Community Noise,” WHO, Chapter 3, page 10 (as sourced from HCN 1994; Berglund & Lindvall 1995; IEH 1997).

⁹ Ibid, Chapter 4, page 5.

¹⁰ “Effects of Noise on People – Physiological Effects,” FICAN.org.

¹¹ “Effects of Noise on People – Effects on Learning,” FICAN.org.

¹² “Aircraft Noise – A Potential Health Hazard” page 110.

¹³ “Noise and Its Effects,” page 29.

Moreover, according to Time.com and the Aviation Environment Federation (see aef.uk.org) a soon to be published study commissioned by Germany's Federal Environmental Agency, based on data from more than 1 million residents near the Cologne-Bonn airport, indicates significantly higher risks for cardiovascular disease in males, and cardiovascular-related hospitalizations, stroke and depression in females for respect to residents living near that airport.¹⁴ We intend to include this airport study as an addendum to this report when it is available (publication was expected in January 2010).

There are numerous other sources for research regarding the effects of noise beyond the examples cited above. As a starting point, we would suggest FICAN.org, the World Health Organization (see www.who.int), the FAA (www.faa.gov), and the EPA documents "Protective Noise Levels – Condensed Version of EPA Levels Document" (November 1978), and "EPA Identifies Noise Levels Affecting Health and Welfare" (see <http://www.epa.gov/history/topics/noise/01.htm>).

Non-profits such as the NYC-based Center for Hearing and Communication, the Natural Resources Defense Council (see "Flying Off Course," Environmental Impacts of America's Airports, January 29, 1998 version), and nonoise.org (Noise Pollution Clearinghouse) are also valuable sources. Willy Passchier-Vermeer's "Effects of Noise" (TNO Prevention & Health, Sept. 2000) and Dr. Alice Suter's "Noise and Its Effects" (Nov. 1991; see nonoise.org) both refer to numerous noise-related studies (see Passchier-Vermeer's paper for several airport studies).

III. Recommendations

The recommendations described below were compiled primarily by reviewing (1) available programs from government organizations such as the FAA, (2) noise control strategies used by various domestic and international airports, (3) current legislative, industry, trade association and consortium initiatives, (4) strategies and recommendations developed by non-profit and advocacy groups, and (5) aircraft equipment noise data. As indicated above, we have also reviewed various health-based studies that are available regarding airport noise, and Appendix A outlines and compares the noise attenuation strategies being undertaken by various domestic airports.

1) The PA should complete a Part 150 noise study (subject to available FAA funding for this program). The purpose of a Part 150 study is "to evaluate programs to reduce the impact of airport noise on neighborhoods adjacent to the airport. The study will identify existing noise levels and project noise levels in the future. It will also evaluate noise abatement and land use alternatives, and then recommend those programs that can be expected to reduce the number of people affected by noise."¹⁵ The FAA, as of Summer 2009, will pay for up to 75% of the costs to complete a Part 150 Study, subject to federal funds being available.

¹⁴ "Airport Noise Increase Risk of Strokes," Time.com, December 15, 2009, by Tristina Moore.

¹⁵ "LaGuardia Airport: Can the Airport and the Community Coexist?," page 16, Report by Congressman Joseph Crowley (see Appendix D).

The Part 150 study yields a “Noise Compatibility Program” (NCP), developed in consultation with local governments, affected communities and the FAA, which serves as a mechanism through which airport authorities develop a baseline of their noise issues. A Part 150 study also includes a public participation plan, noise exposure maps, noise mitigation alternatives (e.g. soundproofing etc.) proposals for incompatible land uses, and other zoning plans and strategies.

Moreover, Part 150 studies serve as critical mechanisms to obtain FAA Airport Improvement Program (“AIP”) funding for noise mitigation projects such as home and school soundproofing etc. The FAA has indicated that their agency can normally fund 80% or more of noise mitigation costs under a Part 150 program, subject to federal funding being available. Current federal legislation (as of Nov. 30, 2009) includes a provision for Part 150 Plans for LGA and JFK. In the fall of 2008 the FAA indicated that 238 airport sponsors in the U.S. have had Part 150 “noise compatibility programs” (NCP) approved by their agency. Airport sponsors that have prepared Part 150 plans include Hartsfield-Jackson Atlanta International, San Francisco International, Albany County Airport, Los Angeles International, and Syracuse-Hancock International.

- 2) As part of its prospective Part 150 study, the PA should publish a list of key performance noise indicators, and three year goals and yearly progress reports for these indicators. Metrics could include the overall percentage of Chapter 4 aircraft¹⁶, total area inside the ≥ 65 DNL, number of noise violations, and average noise ratings on nighttime flights.¹⁷
- 3) The PA should consider a home insulation program for citizens affected by noise from LGA or JFK, based on the results of a Part 150 study, and/or other guidelines or requirements, including FAA requirements. The PA has previously insulated several schools in flight paths. According to the FAA, funding for a new home insulation program can be obtained including by way of the following mechanisms:
 - As a result of a Part 150 Noise Compatibility Program, the FAA can potentially fund up to 80% of a home insulation program.¹⁸
 - A Passenger Facility Charge (PFC) can help fund noise mitigation projects including home insulation programs. Plans for home insulation under the PFC would typically have to be approved by the FAA.¹⁹ The PFC levy is basically a charge on airplane tickets that is passed on in whole or in part to the respective airport authority. From 1992 to 2007 about \$2.8 billion has been collected for noise mitigation measures nationwide.²⁰

¹⁶ Aircraft certified with a more stringent noise standard by the Int'l Civil Aviation Organization starting from January 1, 2006 (see ICAO's web site for details).

¹⁷ see Heathrow's noise “Action Plan” for further examples at <http://www.heathrowairport.com>).

¹⁸ FAA & “Hearing on Aviation and the Environment: Noise,” U.S. House of Representatives, Committee on Transportation and Infrastructure, page 6, 10-23-07; for “large and medium-hub airports”.

¹⁹ Ibid.

²⁰ Ibid, as sourced from the FAA.

- An AIP project can be created as part of an environmental assessment that documents noise impacts. Thereafter the airport authority would be potentially eligible for funds to perform a related home insulation program for affected properties.²¹

Boston Logan, San Francisco International, Buffalo-Niagara, Chicago O'Hare and other airports have undertaken extensive home insulation projects. San Francisco and Boston have insulated about 15,000 and 11,000 homes respectively. The San Francisco program cost about \$137 million. In a more aggressive measure to mitigate noise, according to their web site, Hartsfield-Jackson Atlanta has actually purchased 2,720 structures, presumably in "non-compatible" areas, and their Part 150 plan (as of January 2010) was recommending voluntary purchases of eligible single family homes (subject to funding).

- 4) The Port Authority (PA) should publish "noise contours" for the LGA and JFK airports on their website. These contours provide a graphical summary of noise levels adjacent to airports (e.g. areas at or above the 65 dBA "DNL," i.e. day night average). This data will enable homeowners, schools, businesses etc. to be more informed about noise levels near the NYC airports. Many airports such as Chicago O'Hare, Boston Logan, San Francisco International and Heathrow provide this feature.
- 5) The PA should explore the feasibility of providing noise data beyond the FAA noise "methodology". The FAA primarily utilizes a "day-night average sound level" or "DNL," to calculate noise. This system is limited as it only provides *average noise levels*, and basically does not specify single events. It uses a complicated formula that is not understood by most of the public. Moreover, peak noise periods tend to be "averaged out." Providing individual measurements of actual departing and arriving airplanes and peak period noise levels would provide more meaningful data for the public. This could be achieved with a robust noise monitoring program.
- 6) The PA should also provide other neighborhood noise data (e.g. average dBAs and exceedences above action levels) on the PA's web site for neighborhoods near LGA and JFK. This would allow the public to be aware of the noise environmental conditions in their neighborhoods. Chicago-O'Hare provides noise statistics for approximately 30 nearby neighborhoods and San Francisco International provides exceedance data, rates airlines on their noise performance, and provides other noise data (see http://www.flyquietsfo.com/fly_quiet.asp) to its communities.
- 7) The PA may have to increase the number of noise meters near and adjacent to LGA and JFK. For example, as of June 2009, both Boston-Logan and San Francisco International had approximately 30 noise monitors near their airports, and Chicago-O'Hare has approximately 37 monitors. According to the PA (as of late 2009) they have two fixed monitors for LGA, six fixed monitors for JFK, and 6 portable monitors that serve both airports.

²¹ See "Hearing on Aviation..." page 3, for elaboration on non-Part 150 AIP noise funding.

- 8) The PA should enhance the public's ability to communicate concerns regarding LGA and JFK noise issues. The PA has a telephone complaint line, but it appears to not be mentioned on their web site (or LGA's or JFK's web site, as of January 2010), and to find this number citizens may have to look in the phone book or call 411. This number should be prominently displayed on all appropriate PA web sites. Alternatively, the PA could publicize that the public could call 311 for noise complaints.²²
- 9) Following the Part 150 Plan, the PA should work in conjunction with other city agencies to determine impacts on land use issues, including near the NYC airports. In addition the revisions to the City Environmental Quality Review Technical Manual include guidance for applicants to employ FAA noise calculations where appropriate. The revisions also include resources regarding airport noise information.
- 10) The PA should encourage better compliance with LGA's voluntary 2400 to 0700 curfew for scheduled flights and require quieter planes during selected nighttime hours (e.g. 2200 to 2400). The 0700 curfew is not followed on certain days. Like Heathrow, LGA could also require quieter aircraft during selected nighttime hours. For example, Sydney Airport indicates that they can impose fines of up to \$550,000 on airlines that violate their curfew. (See Appendix B.)
- 11) The PA should encourage quieter aircraft technology and also consider implementing economic programs which would incentivize airlines to route greener and quieter planes to LGA and/or JFK. For example, Heathrow's "Night Quota" system motivates airlines to utilize their quieter aircraft during nighttime hours (and restricts louder aircraft during these hours), allowing for increased trips of quieter planes into LHR. The airport also charges lower landing fees for quieter aircraft.²³

San Francisco International also claims to have implemented "aggressive" restrictions on noisier aircraft (albeit with lost revenues).²⁴ John Wayne International (Orange County) requires that airlines subject their aircraft to noise testing before use at their facilities.

²² e.g., see <http://www.heathrowairport.com/portal/page/XYZHeathrowNoise> where the public can make a noise complaint, receive information on how to contact noise staff by telephone, and also see Heathrow's latest "Noise Action Plan".

²³ See Heathrow web site: "Heathrow Noise Action Plan consultation starts," press release of June 15, 2009.

²⁴ See <http://www.flyquietsfo.com/faq.asp>, under "Accomplishments and History".

GLOSSARY

“A” – the total sound level of all noise as measured with a sound level meter using the “A” weighting network. The unit of measurement is the [db(A)] dB(A).

“Ambient noise” – the all-encompassing noise associated with a given environment, being usually a composite of sounds from many sources near and far. The sound level at a given location that exists as a result of the combined contribution in that location of all sound sources, excluding the contribution of a source or sources under investigation and excluding the contribution of extraneous sound sources.

“Annoyance” – Any bothersome or irritating occurrence²⁵

“Cardiovascular” – Pertaining to the heart and blood vessels²⁶

“Day-Night Average Sound Level, DNL” – The Day-Night Average Sound Level (DNL) represents noise as it occurs over a 24-hour period, with the assumption that noise events occurring at night (10 p.m. to 7 a.m.) are 10 dB louder than they really are. This 10 dB penalty is applied to account for greater sensitivity to nighttime noise, and the fact that events at night are often perceived to be more intrusive because nighttime ambient noise is less than daytime ambient noise.”²⁷

“Decibel” – The decibel is one-tenth of a bel. Thus, the decibel is a unit of level when the base of the logarithm is the tenth root of ten, and the quantities concerned are proportional to power. Means the practical unit of measurement for sound pressure level; the number of decibels of a measured sound is equal to 20 times the logarithm to the base 10 of the ratio of the sound pressure to the pressure of a reference sound (20 micropascals); abbreviated “dB”.

“Epinephrine” – A hormone secreted by the adrenal medulla (inner or central portion of an organ) in response to stimulation of the sympathetic nervous system.²⁸

“Equivalent Noise Level (Leq)” – Leq is the sound level corresponding to a steady-state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.²⁹

²⁵ “General Health Effects of Transportation Noise,” U.S. Department of Transportation, Research and Special Programs Administration, John A. Volpe National Transportation Systems Center, June 2002, pages 3-6 (see “Terminology”), by Cynthia S. Y. Lee and Gregg G. Fleming.

²⁶ Ibid.

²⁷ Federal Interagency Committee on Aviation Noise (see fican.org, “What is Aircraft Noise”).

²⁸ Ibid, “General Health Effects of Transportation Noise,” C.S.Y. Lee & G. Fleming.

²⁹ “Cumulative Metrics,” FAR Part 150 Study, Hartsfield-Jackson Atlanta International Airport page B-6.

“Hearing Impairment” – A decreased ability to perceive sounds as compared with what the individual or examiner would regard as normal. The result is an increase in the threshold of hearing.³⁰

“Hertz” – (abbreviation Hz) Unit of frequency, the number of times a phenomenon repeats itself in a unit of time³¹

“Ischaemic heart disease” – Ischaemic or ischemic heart disease (IHD), or myocardial ischaemia, is a disease characterized by reduced blood supply to the heart muscle, usually due to coronary artery disease (atherosclerosis of the coronary arteries).³²

“Lmax” – The maximum measured sound level at any instant in time

“Noise” – Any unwanted sound³³

“Norepinephrine” – A hormone produced by the adrenal medulla similar in chemical and pharmacological properties to epinephrine, but chiefly a vasoconstrictor with little effect on cardiac output.³⁴

“Peak Sound Pressure Level” – Level of the peak sound pressure with stated frequency weighting, within a stated time interval.³⁵

“Sound Level Meter” -- any instrument including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement of noise and sound levels in a specified manner and which complies with standards established by the American National Standards Institute specifications for sound level meters S1.4-1971, as amended or S1.4-1983, as amended.

“Sound pressure level” – (**decibels**) a sound that is an expression of the acoustic pressure calculated as twenty times the logarithm to the base ten of the ratio of the root mean square of the pressure of the sound to the reference pressure, $[2 \times 10^{-4} \text{ microbars}]$ 20 micropascals.

Note: Some or all of the above definitions have been quoted verbatim (in part or in whole) from the referenced sources. In addition, definitions not noted by a footnote have been obtained (in part or in whole) from New York Administration Code, Title 24, Chapter 2 (“NYC Noise Code”), section 24-203 “General definitions.”

³⁰ Ibid, “General Health Effects of Transportation Noise,” C.Y.S. Lee & G. Fleming.

³¹ Ibid.

³² Wikipedia.org.

³³ Ibid, “General Health Effects of Transportation Noise,” C.Y.S. Lee & G. Fleming.

³⁴ Ibid.

³⁵ Ibid.

**Appendix A -- Comparison of U.S. Airport Noise Programs
(as of 7-31-09)**

Airport ⁽¹⁾	Dedicated 24/7 Hotline for Noise Complaints	Noise Contours on Web	Noise Data by Specific Neighborhood (on web)	Part 150 Noise Study Done	Approx. # of Noise Monitors	Current School Insul. Program	Current House Insul. Program
LGA	Y -- voicemail* <i>*718-244-3881</i>	N	N	N	~ 2 perm.*	Y	N
JFK	Y -- voicemail* <i>*718-244-3881</i>	N	N	N	~ 6 perm.*	Y	N
				*also has 6 portable for LGA/JFK			
HJAIA	Y -- (mostly voicemail;email also)	Y*	Y*	Y	16+4 portable	Y(planned)	Y(planned)
	<i>*see Part 150 Plan, incl. data by schools etc.</i>					10,150 "structures" done @~174.5 mil.	
BOS	Y -- staffed (business hrs)	Y	Y (complaints)	N	30	Y(~40/\$10mil; "we are done")	Y (~11k dwel/\$160mil)
SFO	Y -- staffed (business hrs)* <i>* can email also</i>	Y	Y (complaints)	Y	29+4 portable	Y (~7/\$12.6 mil.)	Y (~15K homes/\$137 mil)
ORD	Y (to their "311"; can email also)	Y	Y ⁽²⁾	N	33	Y (~114 @~\$260 mil)	Y (~5918 @~\$180 mil.)
BNIA	N	Y	N	Y	0 (had 13 before)	Y*	Y*
					<i>*~1750 projects incl. 1 school/1 church total ~\$76 mil.</i>		
(1) LGA=NY/LaGuardia; JFK=NY/Kennedy; HJAIA=Hartsfield-Jackson Atlanta International; BOS=							
Boston-Logan; SFO=San Francisco International; ORD=Chicago O'Hare; BNIA=Buffalo Niagara International							
(2) night dBA trends & complaints; see "FlyQuiet" report 1st Qtr. 2008							

above data based on airport web sites, airport staffs the FAA

APPENDIX B

"Aircraft noise is a major issue for airports around the world, and much work has been done at Sydney to reduce this impact on our neighbours."

*Lisa Smith
Manager Environment & Community
Sydney Airport*



Much work has been done at by the aviation industry over the past several decades to reduce aircraft noise. At Sydney, this includes the development of strict planning controls, housing insulation, revised flight path arrangements, and controls on the types of aircraft using the airport, and the hours in which the airport operates.

Flight Paths - In order to address the noise problem at our airport, the Federal Government introduced a policy of 'sharing the noise'. Under this policy, a flight path plan was developed, which aims to place flight paths over water and non-residential areas wherever practical. Where this is not practical, the second principle of this plan is that the noise burden should be shared equally over the surrounding suburbs. Importantly, a system of rotating runway operating modes is also in place to provide suburbs with breaks (or respite) during the day from aircraft noise.

Monitoring - Two independent bodies have been established to monitor the flight path plan; these bodies have representation from the aviation industry, local, State and Federal government and the community.

Our airport also has one of the largest and most geographically spread Noise and Flight Path Monitoring Systems, that monitors where aircraft fly and the noise levels that they create. In addition, a dedicated telephone service is available to record and address community concerns. To call this service, telephone 1300 302 240.

Insulation - The Sydney Airport Noise Amelioration Program is one of the most comprehensive airport insulation programs in the world. It provides for the insulation of homes and public buildings such as schools, pre-schools, churches and health care facilities within aircraft noise boundaries set by the Federal Government, and the purchase of the most seriously affected properties. Up to May 2002, the Commonwealth Government has spent \$390 million on this program.

Older Aircraft - There are virtually no older, noisier aircraft (known as Chapter 2 aircraft) that use our airport. A complete ban on these aircraft will come into effect from 2002.

Curfew - A jet curfew exists at Sydney Airport between the hours of 11pm and 6am. Fines of up to \$550,000 can be imposed on aircraft that fail to comply with the curfew.

Planning - Local Councils surrounding the airport are supplied with information to allow them to incorporate aircraft noise into land use planning. Land use planning around airports is also covered by an Australian Standard (AS2021).

environment: aircraft noise

For further information please contact feedback@syd.com.au

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APPENDIX C

Quota count system

From Wikipedia, the free encyclopedia

Quota count is a system used by London's Heathrow, Gatwick, and Stansted airports to limit the amount of noise generated by night-time aircraft movements.

Description

From 1962 until 1993, operations at Heathrow were subject to a simple limit on the number of aircraft movements that were allowed to take place during the night period.

In 1993 a new quota count system was introduced based on aircraft noise certification data. Each aircraft type is classified and awarded a quota count (QC) value depending on the amount of noise it generated under controlled certification conditions. The quieter the aircraft the smaller the QC value. Aircraft are classified separately for landing and take-off.

Aircraft were originally divided into six QC bands from 0.5 to 16, but following a review by the Department for Transport^[1] a seventh category - Quota Count 0.25 - was added in March 2007.^[2]

Noise Classification	Quota Count
84 - 86.9 EPNdB	0.25
87 - 89.9 EPNdB	0.5
90 - 92.9 EPNdB	1
93 - 95.9 EPNdB	2
96 - 98.9 EPNdB	4
99 - 101.9 EPNdB	8
Greater than 101.9 EPNdB	16

The quota count doubles with each increase of 3 dB which corresponds to an approximate doubling of noise power. However, due to the logarithmic nature of human aural perception, this 3dB change is only perceived as a small change in the noise level.^[3]

Airports operating the system have a fixed quota for each of the summer and winter seasons. As each night-time aircraft movement takes place, an amount of this quota is used depending on the classification of the aircraft. For example, the Boeing 747-400 is classed as QC/2 on landing and QC/4 on takeoff, while the much larger Airbus 380 is rated QC/0.25 on landing and QC/0.5 on takeoff. The quieter A380 aircraft therefore use up an airport's noise quota at an eighth of the rate of the 747, thus providing airlines with an incentive to operate quieter types of aircraft.^[4]

Subject to some limited carry-over provisions, when the airport's quota has been fully used up, no more night-time movements are allowed to take place. In practice, the airport spreads the quota so that it is used evenly across the season.

The quotas allocated to each airport operating the system are gradually reduced year-on-year in order to achieve long-term reductions in the impact of night-time aircraft noise. (e.g. [1]

(http://www.gatwickairport.com/assets/B2CPortal/Static%20Files/NightFlights.pdf))

London Heathrow Airport prohibits aircraft noisier than QC/2 to operate at night. As this is more stringent than the ICAO's Chapter 4 limits, QC/2 has become a de facto aircraft noise standard.

The quota count system has been adapted for use in Madrid and Brussels.

Notes and references

- [^] National Air Traffic Services (02-2003) (PDF). *Review of the Quota Count (QC) System used for Administering the Night Noise Quotaa at Heathrow, Gatwick and Stansted Airports* (http://www.dft.gov.uk/pgr/aviation/environmentalissues/coll_nightnoisequotasatheathrowg/nightnoisequota sprintversion). http://www.dft.gov.uk/pgr/aviation/environmentalissues/coll_nightnoisequotasatheathrowg/nightnoisequotas printversion. Retrieved on 2007-10-28.
- [^] National Air Traffic Services (2007-02-02) (PDF). *London Heathrow, London Gatwick and London Stansted Airports Noise Restrictions Notice 2007* (http://www.boeing.com/commercial/noise/notamfeb2007.pdf). http://www.boeing.com/commercial/noise/notamfeb2007.pdf. Retrieved on 2007-10-28.
- [^] http://en.wikipedia.org/wiki/Sound_pressure#Examples_of_sound_pressure_and_sound_pressure_levels
- [^] http://www.britishairways.com/travel/cnoise/public/en_gb

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Categories: Aviation terminology | Noise | Noise pollution

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LaGuardia Airport: Can the Airport and the Community Coexist?



By:

Congressman Joseph Crowley

Overview

New York City's LaGuardia Airport was built in the late 1930's to provide safe and convenient access to one of the world's great business and financial centers. In recent years, however, LaGuardia has become infamous for its long delays, noise and air pollution.

In 1999, Congress began considering the Aviation Investment Reform Act for the twenty-first century (AIR-21). Though the nascent form of this legislation contained some valuable improvements for the aviation infrastructure in this country, it also contained a provision detrimental to one of the nation's busiest airports, LaGuardia Airport.

The early versions of this bill contained language that would lift the High Density Rule at LaGuardia Airport. This would essentially allow airlines to have unrestricted access to the airport by eliminating the slots. In an airport that is already completely saturated, the inclusion of this provision would have been disastrous for the airport, the residents in surrounding communities, and travelers who wish to fly into LaGuardia.

In order to preserve the High Density Rule, the overwhelming majority of Congressional Members of the Queens delegation negotiated a compromise that would keep the High Density Rule in place through 2007. The compromise, however, allowed for exemptions to the High Density Rule to be filed by airlines seeking to have regional jet service to under-served airports. Unfortunately, the intent of this compromise was not realized.

The current situation at LaGuardia need not exist. This report will begin by providing a comprehensive overview of the physical characteristics of the airport which lead to the logistical constraints with which it must grapple on a daily basis. In addition, the report will explore the events that have caused the airport to be in its current state, and the effect on the communities surrounding the airport. This report will conclude by offering recommendations to resolve these critical issues.

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I. LaGuardia Airport Facts

Location:

LaGuardia Airport (LGA) has been operated by The Port Authority of New York and New Jersey under a lease with the City of New York since June 1, 1947.

The airport is located in the Borough of Queens, New York City, bordering on Flushing Bay and Bowery Bay, eight miles from midtown Manhattan. It occupies 680 acres of land, hosting 72 aircraft gates.

History:

The site was first occupied by Gala Amusement Park. Transformed in 1929 into a 105-acre private flying field, it was first named Glenn H. Curtiss Airport and later North Beach Airport. Taken over by New York City, it was enlarged by purchase of adjoining land and by filling in 357 acres of waterfront along the east side.

Ground was broken on September 9, 1937 for a new airport, which was built jointly by the city and the Federal Works Progress Administration. It was dedicated on October 15, 1939 as New York City Municipal Airport. On November 2, 1939, the name was changed to New York Municipal Airport--LaGuardia Field. On December 2 of that year, it was opened to commercial traffic.

In 1947, the year the airport was leased to the Port Authority, it was renamed LaGuardia Airport. A new Central Terminal Building was opened in 1964 and enlarged in 1967 and 1992.

Original construction by the City of New York cost \$40 million. The Port Authority's total capital investment in LaGuardia Airport as of December 1997 was approximately \$791 million.

There are over 9,000 persons employed at the airport. LGA contributes \$5.7 billion in economic activity to the NY/NJ metropolitan region, generating 63,000 jobs.

By the end of the decade combined Port Authority and airline investment for the LaGuardia Redevelopment Program is expected to exceed \$800 million. The redevelopment program includes expanding and modernizing the Central Terminal Building, reconfiguring and widening roadways, improving runways and taxiways, a recently completed passenger terminal in the east end, airline modernization of gate areas and passenger service areas and other rehabilitation projects.

Dedicated on April 17, 1964, the Central Terminal Building (CTB) serves most of the airport's scheduled domestic airlines. Originally constructed at a cost of \$36 million, the six-block-long structure consists of a four-story central section, two three-story wings and four concourses leading to 38 aircraft gate positions. The Central Terminal Building is nearing completion of a \$340 million expansion and modernization. The centerpiece, a \$47 million project for a complete redevelopment of the center section, including new elevators and escalators to accommodate the elderly and disabled, is complete. The redesign of the center section provides space for a broader range of retail and food business services and improves pedestrian traffic flow within the terminal.

The expanded and modernized ticketing and arrivals areas of the CTB's West Wing were completed in 1992. The expansion of the lower or arrivals level of the CTB by 55 feet added 56,000 square feet of space for passenger meeting and greeting areas, larger baggage belts, improved passenger services and ground transportation information counters.

Work on Concourse C's security checkpoint, connector and the west wing of the CTB by United has been completed and TWA has also completed its area. The Port Authority has commenced modernization of the balance of the east wing departures and arrivals areas and common use areas.

American Airlines:

American Airlines has already completed a \$32 million renovation and expansion project that included its gate boarding areas in the west end of the CTB, baggage claim, ticketing counters and a new Admirals Club. US Airways modernized its ticketing and baggage areas and also completed other improvements in the West Wing before it left the CTB.

US Airways:

East end airport roadways were reconfigured and expanded to handle the increased traffic at that end of the airport where the new, 12-gate US Airways Terminal opened on September 12, 1992. The \$250 million, 300,000-square-foot terminal connects to US Airways' Shuttle Terminal and adjoins its lobby and check-in areas.

In addition, US Airways purchased a portion of Continental's slots at LaGuardia and its lease for the new terminal adjoining the shuttle terminal at the east end of the airport.

The eight-gate, \$25 million US Airways Shuttle Terminal serves passengers on hourly shuttle flights to Boston and Washington, D.C. It has been operated by US Airways since April 1992.

Delta Airlines:

The Delta Air Lines terminal at the east end of the airport opened in June 1983. The terminal has ten aircraft gate positions. The cost of the new terminal was approximately \$96 million. Delta's redevelopment of their food and retail concessions is underway.

Marine Air Terminal (MAT):

Once called the Overseas Terminal, this was the original airport terminal building, built near the bay to serve the flying boats that dominated international air travel in the '30s and '40s. In 1995 the Marine Air Terminal was designated an historical landmark.

It is two-storied and domed, with an interior rotunda. It is used by commuter airlines, air taxis, private aircraft, Signature Flight Support--a fixed-base operator, and a private weather service. On September 18, 1980, the James Brooks mural entitled "Flight," which was originally completed in 1942, was rededicated by the Port Authority. The mural, the largest created under the WPA Art Program (the WPA Program ended in the 1940's) helped earn the MAT its designation as a New York City historic landmark.

On October 1, 1986, Pan Am opened its shuttle operation in its new addition to the Marine Air Terminal. The new terminal section houses six aircraft gates from which Delta Air Lines now operates hourly shuttle service to Boston and Washington.

Control Tower:

The 150-foot-high control tower, Building 88, began operations in May 1964.

Parking:

The airport provides a total of 10,400 parking spaces. This includes employee parking and 7,500 public spaces--including hourly, metered and parking garage spaces.

Completed at the end of 1976 at a cost of \$30 million, the five-level Parking Garage can accommodate approximately 3,000 cars. In addition to ground-level access to the Central Terminal Building (CTB), there are two sheltered connectors equipped with moving walkways that lead to the third level of the CTB.

Roadways:

An alternate exit roadway leading to 94th Street and the Grand Central Parkway from the Garage Plaza was completed in September 1983, and a new direct entrance to the garage from the airport's 94th Street entrance was constructed in the fall of 1988.

In 1991, the upper or departure level roadway to the CTB was widened with three new lanes to handle peak period passenger drop-off traffic and to eliminate traffic backing up onto the Grand Central Parkway, and the roadways were realigned to ease traffic flow.

Parking lots 4 and 4a were combined into one lot and Parking Lot 3 was reconfigured. The two lots are now surrounded by a one-way, two-lane roadway loop. In 1994 the arrivals-level roads were expanded to three separate roadways accommodating eight lanes for smoother traffic flow.

An attractive, new fence of "Big Apples," designed by New York artist David Saunders, graces the pedestrian islands and sidewalks at both ends of the CTB. A canopy over the two pedestrian islands on the arrivals level and walkways from the parking garage to the terminal now offers passengers protection from the weather.

Fuel Storage Facility:

There are eight above-ground tanks, with a total capacity of approximately 5,130,000 gallons. Fuel is delivered by pipeline from supply sources in Linden, New Jersey. Operations began in 1975.

Runways:

There are two main runways, 4-22 and 13-31. Each is 7,000 feet long by 150 feet wide. The first 330-foot-long section of the safety overrun for Runway 13/31 opened for use before the 1994-95 snow season. Part of a massive engineering effort, the safety overrun is now 460 feet long by 740 feet wide and provides added access to the safety area for emergency equipment and personnel.

In 1994 both runways and sections of the taxiways were re-paved and new aeronautical signage (distance markers) were installed. Taxiway surfaces were re-paved in 1995.

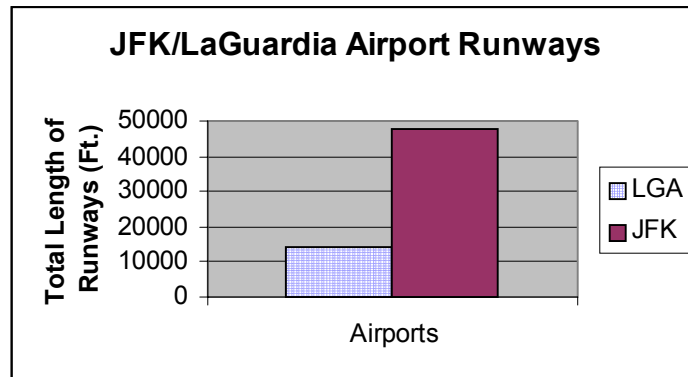
In a \$40 million project completed in 1967 by the Port Authority, both runways were extended over water to 7,000 feet by 150 feet wide. The extensions were built on a 50-acre, L-shaped pile-supported concrete structure ranging in width from 700 to 900 feet.

The northerly 2,000 foot (by 150 feet wide) extension to Runway 4-22, complete with taxiway and holding pad, was built into Rikers Island Channel and opened to air traffic in March 1966.

Similarly, the westerly 1,035-foot (by 150 feet wide) extension to Runway 13-31, with its parallel taxiway, was extended into the Channel and opened to air traffic in November 1966.

Two 3,000-foot piers were constructed beyond the ends of the runway extensions to support an Approach Lighting System with sequenced flashers. A ship channel was dredged between Rikers Island and South Brother Island to replace the Rikers Island Channel, which was closed. The ship channel is maintained by the federal government.

As a point of reference, the runway system at JFK consists of two pairs of parallel runways set at right angles. JFK's total runway length is nearly nine miles.



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Runway 4-22:

A bi-directional instrument runway, Runway 4-22 is grooved and equipped with centerline and edge lighting. Takeoffs are permitted with visibility lower than a quarter of a mile, and landings on Runway 22 with visibility less than half a mile.

Navigational aids in the 22 approach include an Instrument Landing System (ILS), an Approach Lighting System (ALS), Touchdown Zone Lighting (TDZ), Runway End Indicator Light System (REILS), and Visual Approach Slope Indicator System (VASI). Runway 4 is equipped with an ILS, an Approach Lighting System (ALS), and Precision Approach Path Indicator (PAPI).

Runway 13-31:

Runway 13-31 is equipped with REILS at both ends, an ILS, and Approach Lighting System (ALS) serving Runway 13, a VASI (3 bar for wide-bodied aircraft) system serving Runway 31, and conventional VASI serving Runway 13. The runway is equipped with centerline and edge lighting, and like Runway 4-22 is grooved for added traction during wet weather.

Takeoffs are permitted with visibility lower than a quarter of a mile, and landings on Runway 13 with half a mile visibility.²

Taxiways:

All taxiways are equipped with centerline lights except for Taxiways "AC" and "R"

¹ Source: Port Authority of New York/ New Jersey

² Information from the Port Authority Website (www.panynj.gov)

(between Runways 22 and 13).

Nine additional aircraft parking spaces have been constructed at the end of Taxiway "E."

LAGUARDIA AIR TRAFFIC STATISTICS				
Year	Plane Movements	Passengers	Air Cargo (tons)	Air Mail (tons)
1949*	159,465	3,284,214	36,061	14,585
1960	191,736	4,227,755	30,672	13,466
1970	297,652	11,845,141	39,815	24,119
1980	317,633	17,467,962	35,257	47,654
1988	362,072	24,158,780	56,489	60,591
1989	349,054	23,158,317	63,504	54,729
1990	356,358	22,764,604	70,792	58,033
1991	326,776	19,682,256	52,002	53,597
1992	332,353	19,745,847	55,205	60,005
1993	337,139	19,804,566	46,488	62,254
1994	337,739	20,730,467	40,375	62,371
1995	345,488	20,599,210	30,484	71,928
1996	345,647	20,699,136	27,690	67,972
1997	354,921	21,596,893	26,652	66,083
1998	358,157	22,849,071	23,863	51,972
*First full calendar year of Port Authority Operations				

II. Recent History

The Aviation Investment and Reform Act for the twenty-first century (AIR-21), H.R. 1000 sought to phase out the High Density Rule in selected airports throughout the nation. Title II of the bill explicitly calls for “the eventual termination of requirements prohibiting the increase or decrease by the FAA Administrator in the number of takeoffs and landings (High Density Rule) at O’Hare International Airport, Reagan National Airport, LaGuardia Airport, or Kennedy International Airport.”³

On June 15, 1999, the House of Representatives passed H.R. 1000. However, Congressman Crowley and members of the Queens delegation, were successful in adding language to a manager’s amendment, to delay the elimination of slot restrictions that limit flights to Kennedy, and LaGuardia airports.

For Kennedy and LaGuardia airports, the total elimination of slot rules would be delayed until Jan. 1, 2007. Prior to that time, however, beginning on March 1, 2000, flights could

³ Aviation Investment and Reform Act for the 21st Century, H.R. 1000, 1999

be added without restriction for regional jets having 70 seats or less that provide service to small or medium sized non-hub airports.

In August 2000, the House and Senate went to conference over the AIR 21 bill. The Senate conferees added language, which would also give exemptions to the High Density Rule (HDR) for new entrant carriers and limited incumbent carriers, which included airlines having less than 20 slots at airport. Traditionally, this definition was applied to airlines with less than 12 slots. The House conferees fought for the number to remain at 12, however, the Senate insisted on 20. Furthermore, all exemptions must be Stage III Regional Jet aircraft. New entrant and Limited Incumbent applicants are limited to 20 slots in total at the airport.

Under the law, applications for exemptions under this law must be submitted 30 days following the enactment of AIR-21. This led to nearly 600 new applications for flights at LaGuardia. If these applications were not submitted in a timely fashion, they could not use the exemption provisions.

Common sense dictates that LaGuardia cannot handle the 300 additional daily flights, as this works out to an additional 7 ½ hours of flights a day. There simply is not time during peak hours—where the demand for flights is concentrated. The FAA recommends no more than 75 operations per hour in ideal weather conditions. According to the air traffic controllers, there have been as many as 96 operations an hour at LaGuardia.

The tremendous influx of applications can also be explained by competition between airlines. Currently, U.S. Airways basically dominates the market on flights to small, underserved areas. Delta and Continental, particularly Continental, are trying to break into this market. By taking advantage of the exemptions provided in AIR-21, airlines can increase their share of the total number of slots at LaGuardia, thereby increasing their share in the overall profits.

The effects of this feeding frenzy by the airlines have put the future of LaGuardia Airport in great peril. With over 300 new flights resulting from the 600 exemption applications, the situation at LaGuardia continued to deteriorate. Recent data indicates that nearly a quarter of all flight delays in the country occur at LaGuardia airport. In response to the gridlock at LaGuardia, the Federal Aviation Administration announced that it would conduct a slot lottery to stem the delays at LaGuardia.

**Summary Departure Statistics: New York, La Guardia as Origin Airport
Late Flights, December 2000**

Peak Time	Destination Airport	Total Number Of Flights	Average Minutes of Departure Delay	Average Minutes Taxi-out Time	Average Minutes from Scheduled Departure to Take Off
8:00 a.m.-9:59 a.m.	All Airports	233	48.8	34.9	83.8
	Top 29 Airports	200	49.0	34.8	83.8
5:30 p.m.-8:59 p.m.	All Airports	897	68.8	33.4	102.2
	Top 29 Airports	581	69.6	33.9	103.5

**Summary Arrival Statistics: New York, La Guardia as Destination Airport
Late Flights, December 2000**

Peak Time	Origin Airport	Total Number Of Flights	Average Minutes of Arrival Delay	Average Minute s Taxi-in Time	Average Minutes of Airborne Time
8:00 a.m.-9:59 a.m.	All Airports	223	10.5	14.0	100.1
	Top 29 Airports	141	11.2	14.5	100.7
5:30 p.m.-8:59 p.m.	All Airports	1,006	33.3	15.0	113.0
	Top 29 Airports	670	31.4	15.2	117.4

Source: U.S. Department of Transportation, December 2000

III. Exploiting AIR-21

The compromise reached during the conference on AIR-21 had four primary goals. First, it sought to preserve the HDR through 2007. Second, it would increase access to LaGuardia from small and medium sized non-hubs. Third, it would spark competition between airlines at the airport. Finally, it would create much-needed routes from underserved communities in upstate New York to New York City. That was the intent of the compromise. What was the result?

The moment AIR-21 became law, the airlines submitted over 600 applications for exemptions to the High Density Rule at LaGuardia. These applications requested flights for regional jets 70 seats and less. Exemptions filed for service to and from places such as Saratoga Springs, Buffalo and Rochester were forced to take a backseat to cities such as Chattanooga and Richmond that already have a sufficient level of service.

In response to a significant increase in exemption operations under AIR-21 beginning in late summer (from 53 operations in August 2000 to 192 operations at the end of September), the Port Authority of New York and New Jersey (Port Authority) issued a letter on August 2 to all carriers filing for AIR-21 exemptions requiring 45 days advance notice of new operations at the airport under AIR-21. On August 21, the Port Authority issued a second letter to carriers planning to initiate service under AIR-21 exemptions requesting that the carriers schedule their flights outside of the most congested hours in order to mitigate the delays generated by additional flights. On September 19, the Port Authority, answering concerns from community groups and the Queens Congressional Delegation, announced a temporary moratorium on new flights. In that letter, the Port Authority stated its intent to replace this moratorium as soon as possible with a measure that will prevent an unlimited increase in operations at LaGuardia, and at the same time fairly accommodate Federal interests in competition and in service to small hub or non-hub airports as provided in AIR-21.

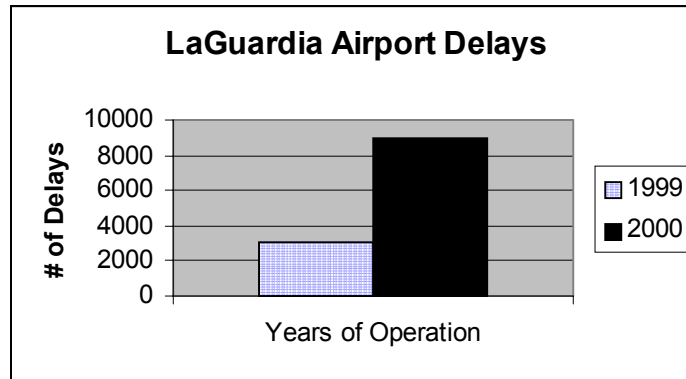
To that end, the Port Authority has proposed to the FAA the imposition of a limit on the number of AIR-21 exemption flights at LaGuardia, and the allocation of those flights to eligible carriers through a lottery procedure to address, in the short-term, the current situation at the airport.

IV. Factors Leading to Slot Lottery

The following factors describe the current operating conditions experienced at LaGuardia:

- There were more than 9,000 flight delays at LaGuardia in September 2000, up from 3,108 in September 1999. In September 2000, 25% of the flight delays in the U.S. were at LaGuardia. In September 1999, the figure was 12%.⁴

⁴ Aviation Delays in 2000, FAA, January 31, 2001



- Average delays for many afternoon flights at LaGuardia in September 2000 exceeded 48 minutes. The average delay for all flights that month was 43 minutes.
- LaGuardia has recently experienced as many as 600 delayed flights on a day when there is good weather and no other significant problems in the air traffic control system.
- Some flights at LaGuardia have experienced average ground delay time that exceeds scheduled flight time.
- Air carriers routinely cancel scheduled flights, especially in afternoon and evening hours, due to aircraft positioning and other operational issues related to excessive delays.

Since AIR-21 was enacted on April 5, 2000:

- Carriers have filed exemption requests for more than 600 new flights a day at LaGuardia.
- As of November 1, over 300 new flights are operating under AIR-21 exemptions.
- Carriers have published schedules for 28 new flights in December and 23 more new flights in January 2001.
- In April 2000, the number of scheduled operations at LaGuardia was 1064. As of November 1, that number was 1344.
- If the flights published for December and January began operation, there would be approximately 1395 scheduled operations each day at the airport, an increase of 30% in less than a year at an airport that was already one of the top two delay airports in the U.S.

V. Federal Aviation Administration's Slot Lottery

The FAA announced that as of January 1, 2001, scheduled operations at La Guardia would be limited to 75 per hour to limit daily and hourly demand on airport facilities and the air traffic control system. The FAA believes that this number of flights can be accommodated in good weather conditions and at the same time, will provide access for AIR-21 exemption flights. As a result, the number of AIR-21 slot exemptions at LaGuardia would be limited to approximately 150 a day between the hours of 7:00 a.m. and 9:59 p.m. (the actual hourly total is 159). Also on January 1, 2001, the FAA would reissue AIR-21 exemption slots and operating times to eligible carriers in accordance with the results of the slot lottery. The FAA further proposed that carriers eligible for participation in the lottery would be those carriers that have applications on file with the Department, fulfilled the certification requirements, and would have commenced operations by January 1, 2001. Lastly, the agency proposed that independently owned carriers that had obtained AIR-21 certification in their own name could participate in the lottery separately, regardless of whether the service is under that carrier's name or under a code-share arrangement.⁵

On December 4, 2000 at the FAA office in Washington, DC, FAA officials conducted the LaGuardia slot lottery. The names of the 13 eligible airlines were placed into capsules, then drawn at random to determine the order of the slot selection. Only New entrants and Limited Incumbents were allowed to make selections in the first round. Small hub/Non-hub airlines were not permitted to make a first round selection. The subsequent rounds followed the order determined by the random drawing until all 159 slots were selected. The airlines selected slots in the time slot of their choice, until the slots in that time frame were no longer available.

⁵ Federal Aviation Administration Website (www.faa.gov)

Slot Breakdown by Hour	
<u>Hourly Period</u>	<u>Number of Exemptions</u>
0700	16
0800	11
0900	9
1000	8
1100	8
1200	13
1300	14
1400	8
1500	12
1600	7
1700	2
1800	7
1900	7
2000	6
2100	31 ⁶

The results of the slot lottery at LaGuardia were implemented as an interim solution to remain in effect through September 15, 2001, when the FAA plans to announce the permanent strategy for stemming congestion and delays at the airport.

VI. Congressional Response

Reports have indicated that the Federal Aviation Administration will be unable to meet the September 15, 2001 deadline to issue a permanent solution at LaGuardia. Current law states that the results of the slot lottery will also expire on September 15, 2001. In response to the impending deadline, Congressman Crowley and Congresswoman McCarthy introduced the Airport Congestion Relief Act (H.R. 757) that seeks to accomplish the following:

- Call upon Secretary of Transportation, in consultation with the Port Authority of New York and New Jersey to continue to conduct a comprehensive study on remedies needed to alleviate the concerns of aviation consumers and the community surrounding LaGuardia Airport associated with increasing the number of flights at the airport.
- Extend the FAA deadline for completing its report to September 1, 2002.⁷

⁶ Federal Aviation Administration (www.faa.gov)

⁷ Source: H.R. 757, House of Representatives, February 27, 2001

VII. LaGuardia's Effect on Surrounding Communities

The problems associated with traffic, flight delays, and air safety comprise one facet of the situation at LaGuardia Airport. Air and noise pollution have a significant impact on the surrounding communities, and must be addressed in any future recommendations regarding a long-term solution for the airport.

Air Pollution:

Airport air pollution is similar in scope to that generated by local power plants, incinerators, and refineries, yet is exempt from many of the rules other industrial polluters must follow.

Many airports rank among the top 10 industrial air pollution sources in their respective cities. Nationwide, planes at airports emit more than 1 percent of smog-forming gases. But while pollution from other sources is stabilizing or decreasing, the pollution from planes at airports continues to grow due to the tremendous growth in air travel and the lack of controls on airport pollution.

For example, one 747 arriving and departing from an airport in New York City produces as much smog as a car driven over 5,600 miles, and as much polluting nitrogen oxides as a car driven nearly 26,500 miles. While the government has effectively required cars to undergo emissions inspections (with resulting improvements in emissions and efficiency), airplanes have not received the same scrutiny. Meanwhile, air travel is increasing in popularity twice as fast as car travel and is projected to double within the next 20 years.⁸

Federal regulators, airline representatives, and airport officials began negotiating policies for reducing air pollution from airplanes and airports in February 1998.

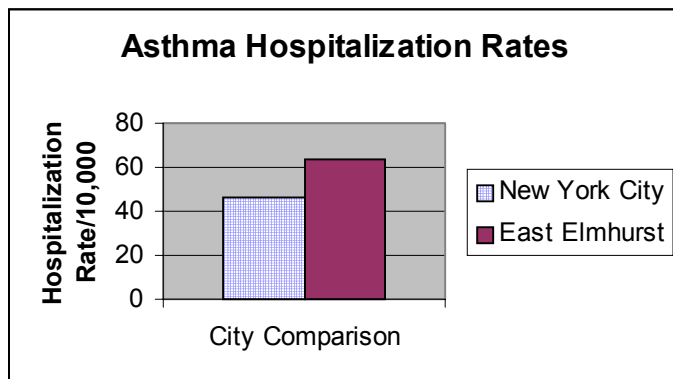
Negotiators are focusing on baseline emissions for airports and potential pollution control technologies and policies. Industry and government officials, along with state and local officials, are negotiating the voluntary emission reductions under the National Stakeholder Process for Aircraft/Airport Emissions, sponsored jointly by EPA and the Federal Aviation Administration.⁹

Pollution produced by LaGuardia Airport is a significant contributor to the overall asthma rates in the communities surrounding the airport. According to the American Lung Association's estimates of the prevalence of lung disease, there are 80,105 adults with asthma in Queens and there are 27,588 kids with asthma. Additionally, according to a study done by Department of Community Medicine, Mount Sinai Medical Center, the zip

⁸ Based on [*FLYING OFF COURSE: Environmental Impacts of America's Airports*](#), report by the Natural Resources Defense Council.

⁹ The Bureau of National Affairs, Inc, March 6, 2000

code areas around LaGuardia Airport all appear to have asthma hospitalization rates in excess of the New York City Average.¹⁰



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Noise Pollution:

Aircraft noise disturbs the normal activities of airport neighbors--their conversation, sleep, and relaxation--and degrades their quality of life. Depending on the use of land contiguous to an airport, noise may also affect education, health services, and other public activities.

In response to the issue of noise pollution in the communities surrounding LaGuardia airport, members of the Queens Congressional delegation introduced legislation that would mandate quieter aircraft engines. The Silent Skies Act of 1999, called on the Department of Transportation to the standard for Stage 4 aircraft - the next generation of quieter engines and mandates that all aircraft to in compliance with Stage 4 noise levels no later than the year 2012.

Stage 3 legislation, passed in 1990, mandated that all aircraft use engines at the Stage 3 noise level by the end of 1999. In the past decade, under Stage 3 requirements, aircraft engines have become 50 % quieter. With the Stage 3 goal achieved, members of the delegation seek to push for further restrictions on aircraft noise with the Silent Skies Act, which would reduce aircraft noise by an additional 40%.¹²

Airlines have sought to sidestep the Stage 3 requirements by fitting aircraft with hush kits. A hush kit forces engine exhaust through a nozzle into an ejector shroud, decreasing the velocity of the exhaust and thus theoretically making it quieter. The reality is that hush kits induce weight and performance penalties, which translate into 50 percent more fuel consumption on take-off and significantly worse noise standards than current technology aircraft.

¹⁰ Source: Department of Community Medicine, Mount Sinai Medical Center

¹¹ Department of Community Medicine, Mount Sinai Medical Center

¹² Source: Silent Skies Act, House of Representatives, 1999

The Passenger Facility Charge (PFC) is a fee imposed on air travelers departing from LaGuardia Airport. This \$3 fee can be used by the Port Authority for airport and other transportation related improvements. Though part of this revenue is being used for the construction of the JFK AirTrain, some consideration of these funds should be given for noise abatement strategies. The Port Authority is eligible for approximately \$5 million per year from the Federal Aviation Administration for noise mitigation.¹³

Other airports in the country have already initiated aggressive noise abatement programs. For example, in February 1992, the Metropolitan Airports Commission (MAC) of Minneapolis-St. Paul commenced residential sound insulation program to preserve and improve neighborhoods, while making the internal environment of the home compatible with the exterior aircraft noise. From 1992 to 1999, the MAC has insulated more than 5,300 homes at a cost to the MAC of \$127.6 million. An average of \$33,500 was spent on each home. The MAC Part 150 study was funded from airport and airline generated funding sources, including passenger facility charges and federal Airport Improvement Program (AIP) funds. No general fund, property taxes or state income taxes are used for the program.¹⁴

¹³ Port Authority of New York/New Jersey, Airtrain

¹⁴ Source: Minneapolis-St. Paul International Airport, Sound Insulation Program

VIII. Recommendations

- **FAA Part 150 Study at LaGuardia:**

The purpose of a Part 150 study is to evaluate programs to reduce the impact of airport noise on neighborhoods adjacent to the airport. The study will identify existing noise levels and project noise levels in the future. It will also evaluate noise abatement and land use alternatives, and then recommend those programs that can be expected to reduce the number of people affected by noise.¹⁵ Other U.S. airports such as Minneapolis-St. Paul, Phoenix and Seattle-Tacoma have all completed successful Part 150 studies. The Port Authority of New York/New Jersey has yet to request a Part 150 study for LaGuardia Airport.

Required Elements:

1. **Inventory of Existing Conditions** - This task primarily gathers land use and zoning maps from municipalities surrounding the Airport in order to assess which uses are currently compatible with existing noise levels and which are not.
2. **Noise Measurements** - An extensive noise measurement program has been designed using a combination of the permanent noise monitoring system, several semi-permanent sites to be used for two week periods four times a year, and several temporary sites to be moved around as needed.
3. **Future Noise Reduction Alternatives** - Based on the information gathered, determine possible actions to reduce noise impact will be generated, analyzed and assessed for feasibility.
4. **Recommended Noise Compatibility Plan** - The most promising noise abatement programs and land use compatibility options will be combined into a recommended program.
5. **Port Authority and FAA Approval** - Recommendations from the Study will be presented to the Port Authority for approval. Those recommendations, which the Port Authority chooses to adopt, will be submitted to the FAA for approval. Land use and zoning actions as a general rule are the purview of individual municipalities, or the County to implement if they desire.¹⁶

¹⁵ Source: Seattle-Tacoma International Airport

¹⁶ Source: Sea-Tac Part 150 Study

- **Environmental Protection Agency Study**

In 1997, the U.S. Environmental Protection Agency (EPA) Region 2 completed its review of the New York State Department of Environmental Conservation (NYSDEC) program to identify facilities with major violations of their permits for air emissions and bring them into compliance. Specifically, EPA looked at how well NYSDEC identifies these major violators, referred to as significant violators, how well it reports these violators to EPA and how effectively it addresses the violations.¹⁷

Given that this report is nearly five years old, the Environmental Protection Agency should commence an updated study to devise a strategy that will identify the major violators and to mitigate the impact of the air pollution on the health of men, women and children in Queens County.

- **Efforts to Reduce Airplane Congestion**

Congestion Pricing:

Just like automobile traffic on a highway, air traffic at any major airport has "rush hours." The trouble is the way that airports usually charge for takeoffs and landings gives airlines, passengers, and private pilots little incentive to shift their use to other airports or to less congested times of the day or days of the week. Under current federal regulations and practices, airports charge the same price for landing regardless of the time of day. (Although the emphasis here is on the fact that landing fees and gate rental charges do not vary with time of day, it should be noted that airports generally undercharge for these services at all times of the day, creating a general incentive to overuse the airport system. Because fees are calculated on the basis of historical costs rather than replacement costs, they tend to understate actual airport costs substantially. Most airports, moreover, base their fees mainly if not exclusively on weight, charging more for heavier craft. Larger, heavier planes required wider, longer, thicker runways. Today, however, costs do not vary as significantly with the weight of a plane.

Indeed, a large jet actually may cost less to take off or land if it can get off the runway sooner, making way for another plane. Pricing based primarily on the weight of the plane encourages inefficient use of major airports by smaller planes that could easily land elsewhere at smaller airfields.

If airports were free to charge premium prices to any airplane taking off or landing during "rush hours," or on particularly busy days, then some travelers would choose to fly at other, less congested times when landing fees, reflected in the prices of airline tickets, were lower. Likewise, those who now fly smaller private airplanes into major airports might instead choose to land at nearby smaller airports where landing fees were lower. Or

¹⁷ Source: EPA New York State Pollution Enforcement Program, 1997

they could fly on commercial airliners instead of in their own planes; this would be the air-travel equivalent of taking a bus or subway instead of driving alone in a car.¹⁸

The implementation of congestion pricing at LaGuardia Airport will serve as an incentive to shift scheduling away from the peak hours, thereby alleviating many congestion problems that occur during “rush hour” everyday.

Extend Slot Lottery:

On December 4, 2000 at the FAA office in Washington, DC, FAA officials conducted the LaGuardia slot lottery. The names of the 13 eligible airlines were placed into capsules, then drawn at random to determine the order of the slot selection. Only New entrants and Limited Incumbents were allowed to make selections in the first round. Small hub/Non-hub airlines were not permitted to make a first round selection. The subsequent rounds followed the order determined by the random drawing until all 159 slots were selected. The airlines selected slots in the time slot of their choice, until the slots in that time frame were no longer available.

Take active steps to ensure that the Airport Congestion Relief Act (H.R. 757) becomes law. This legislation would extend the results of the slot lottery for an additional year, or until the Federal Aviation Administration devises a permanent long term strategy.

Burden Sharing:

Devise a long-term strategy to divert a portion of LaGuardia traffic to John F. Kennedy International Airport and Newark by supporting logical and convenient transport methods to and from the airports such as the AirTrain from Manhattan to JFK.

Jet Blue has been successful at taking advantage of the untapped market at JFK. It provides low-fare service, increased competition and better access to New York for travelers in many communities. With the AirTrain scheduled for completion in 2003 and the additional flights to upstate New York, JFK will have the mechanism in place to begin sharing LaGuardia’s congestion burden, thereby creating an equilibrium between New York’s airports that is to the advantage of passengers, airlines, and the residents of New York.¹⁹

- **Curfew**

Require the airport and the Port Authority to enforce an 11:00p.m. curfew on flight operations at LaGuardia. The need for this curfew clearly exists. Continental Airlines flight 1960 from Houston, Texas arrives at LaGuardia airport at 1:55a.m. on a regular

¹⁸ Source: “How to Improve Air Travel in America”, William G. Laffer III, 1995

¹⁹ Port Authority of New York/New Jersey, Airtrain

basis.²⁰ These types of flights unnecessarily cause further disruptions to over 150,000 residents in Queens.

- **Ban Hush Kits**

A hush kit forces engine exhaust through a nozzle into an ejector shroud, decreasing the velocity of the exhaust and thus theoretically making it quieter. The reality is that hush kits induce weight and performance penalties, which translate into 50 percent more fuel consumption on take-off and significantly worse noise standards than current technology aircraft.

Therefore it is essential that there is an elimination of the use of hush kits on all aircraft. Furthermore, we must ensure that all aircraft are Stage 3 compliant.

Call upon Congress to move legislation requiring airplanes to become Stage 4 compliant within 10 years.

IX. LaGuardia Airport Summit:

In May 2001, Congressman Crowley will host a LaGuardia Airport summit that will bring together experts, federal and local officials, community leaders, and other interested parties to discuss the most pressing issues affecting LaGuardia Airport and the surrounding community. This summit will focus on topics such as combating air and noise pollution, airport delays, airplane safety, and burden sharing.

²⁰ Source: Continental Airlines Flight Schedule

APPENDIX E

THE PORT AUTHORITY OF NEW YORK & NEW JERSEY

AIRCRAFT NOISE MITIGATION PROGRAMS

Departure Noise Limit

The Port Authority of New York and New Jersey, as the airport operator of John F. Kennedy International (JFK), LaGuardia (LGA) and Newark International (EWR) airports, has a long history of actions taken to reduce the impact of aircraft noise on the residential areas around each airport. The longest lived of these actions are the restrictions adopted in the late 1950's which require that aircraft be operated so as not to exceed 112PNdB in the nearest community under the flight path.

As part of the "Terms and Conditions for the Operation of Jet Aircraft" at JFK, EWR, and LGA, takeoffs are permitted only if they are conducted so that the noise level of 112PNdB is not exceeded. It is the responsibility of each air carrier to determine methods of compliance, such as thrust reduction, turns away from the community, limitations of gross weight, or utilizing aircraft with quieter engines. At JFK, permission to operate jet aircraft is given with the understanding that a charge of \$250.00 will be assessed for every jet aircraft, which exceeds a noise level of 112PNdB during takeoff operation.

Preferential Runway Systems

Preferential runway systems are in place at each of the airports, which attempt to minimize the use of the most noise-sensitive runways. In this concept, an airport's runways are ranked on the basis of noise annoyance they cause. Therefore, an attempt is made to use those runways that cause the most annoyance least frequently and conversely, to use those that cause the least annoyance most frequently.

School Soundproofing Program

The Port Authority has implemented a school-soundproofing program under which 78 schools in high noise-impacted areas have been selected for treatment. Since the Program's inception in 1983, total authorization for this program has reached \$226 million. School soundproofing work has been completed at 34 schools and actual noise measurements, taken before and after the work, have shown a reduction in aircraft-noise intrusion levels of at least 50 percent in the classroom. The Port Authority under the Airport Improvement Program (AIP) funds this program with the approval of the Federal Aviation Administration (FAA).

Air Traffic Control Procedures

Air Traffic Control (ATC) procedures and techniques are also used to reduce community noise by directing the flow of traffic away from densely populated areas and by distributing over-flights over various communities. Although the residential areas surrounding each airport are densely populated, they are also adjacent unpopulated areas. Water, park areas, wetlands and industrial areas at each airport present an opportunity to avoid or reduce the extent to which residential areas are over-flown. Working with the operating airlines and the FAA, a number of noise-abatement approach and departure procedures have been developed and implemented.

Aircraft Noise Abatement Monitoring System

In order to monitor airline adherence to noise abatement departure and arrival procedures, the Port Authority has installed a new Aircraft Noise Abatement Monitoring System (ANAMS). The new ANAMS extracts aircraft identification and flight track data for virtually all landings and takeoffs at each of the Port Authority's airports from the FAA Air Traffic Control radar system. This data is combined with noise-event information from a conventional airport noise monitoring system. This system:

- 1) Automates compliance with the Port Authority's departure noise limits.
- 2) Monitors airline adherence to prescribed noise abatement procedures.
- 3) Provides a flight track database that is useful in replying to complaints from elected officials, regulating agencies, community groups.etc.
- 4) Leads to the development of new and improved noise abatement procedures.

Ground Run-up Restrictions

The Port Authority has implemented aircraft ground run-up restrictions at each airport to minimize run-up noise impacts in the nearby residential areas. The Port Authority must approve run-up locations and aircraft orientation. During the nighttime hours, no air carrier may conduct more than one run-up at a time, and no more than one engine may be run-up at full power for more than one minute.