Airport-Related Air Pollution and Health Hazards

* The health risks from air pollution due to aircraft emissions are well substantiated in the scientific literature. The FAA itself sets forth the serious air pollution issues related to aircraft that must be studied in any environmental assessment addressing air pollution.[1]

* According to a major EPA-funded government study conducted in 2003, airport-related activities result in the emission of a host of air pollutants adversely affecting public health and the environment, including nitrogen oxides (NOx), hydrocarbons (HC), particulate (pm), carbon monoxide (CO), and toxics. NOx and HC are precursor emissions of ground level ozone, which causes lung irritation, aggravating diseases such as asthma, chronic bronchitis and emphysema.[2]

* Airport related activities result in the emission of a host of air pollutants that adversely affect public health and the environment, including nitrogen oxide (NOx), hydrocarbons (HC), particulate matter (PM), carbon monoxide (CO), and toxics. NOx and HC are precursor emissions of ground level ozone, which causes lung irritation and aggravates asthma, chronic bronchitis and emphysema. Toxics such as benzene and formaldehyde are known or probable human carcinogens.[3]

* NOx emissions are expected to increase at all airports and from most categories of aircraft. NOx increases are partially due to the introduction of quieter engines to meet the stage 111 noise standards that generally emit more NOx than louder engines. Performance deterioration has diminished very slightly with the new engines, but the magnitude of the resultant NOx emissions could be larger, since newer engines emit more NOx at their higher temperatures and pressures**.** Significant improvements in aircraft engine design have been demonstrated by a number of manufacturers to reduce the NOx emission by 40%. However, the time required to develop the technology could take from 5 to 25 years. It could also take years for the emission benefits to accrue, given the slow turnover in the aircraft fleet.[4]

* Nationally the number of aircraft operations has grown from 15 million in 1976 to almost 30 million in 2000, a cumulative growth of about 105%.[5]

* Lack of federal control programs for aircraft engines is resulting in increased pollution from airports.[6]

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[1] See FAA Air Quality Handbook at http://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/

[2] See Northeast States for Coordinated Air Use Management and Center for Clean Air Policy, "Controlling Airport-Related Air Pollution," June 2003 ("NESCAUM")(funded by the U.S. Environmental Protection Agency and financial support from the German Marshal Fund-U.S.), available at www.areco.org/NESCAUM%20report%206.03.pdf.

[3] NESCAUM Executive Summary.

[4] See NESCAUM.

[5] NESCAUM Executive Summary.

[6] NESCAUM Executive Summary.

* States [like Georgia] in non-attainment of criteria pollutant National Ambient Air Quality Standards are required by Federal law to reduce the ambient levels of these pollutants.[7]

* Toxic plume contamination from jet aircraft is 12 miles long for approaches and 6 miles long for takeoffs.[8] There are numerous nursery, daycare, elementary, middle, and high schools, as well as nursing homes and several major hospitals, both public and private, within a 12-mile radius of PDK.

* The enormous amounts of car and truck pollution in Metro Atlanta are harming the health of Georgians, but according to UN studies, aircraft operations may account for up to half of our total pollution problem. Busy airports can produce ozone and particle pollution comparable to large stationary sources like factories and power plants.[9]

* Unlike car and truck fuels, the gasoline used by general aviation aircraft contains **lead additives**. The US EPA estimates that 75% of the lead is released while 25% of the lead is retained in the engine system.[10]

* DeKalb County is rated #13 nationwide for counties with the worst Particle Pollution (PM2.5 24 Hour and Annual Averages). The American Lung Association gives DeKalb an "F" rating and reports that 37% of DeKalb's population as described below is at the greatest health risk from particulate pollution: pediatric asthma (no. of children impacted =14,327); adult asthma (# = 35,374); chronic bronchitis (# = 19,299); Emphysema (# =5,886); cardiovascular disease (# =146,496); Diabetes)# = 28,401).[11]

* The Georgia Department of Natural Resources reported that in the last seven years, DeKalb County averaged 37 days a year where it exceeded the eight-hour ozone pollution Hazard standard and ten days a year for the One-hour Ozone Pollution Standard.[12]

* Atlanta is the 9th most polluted area in the United States.[13]

* Children in communities with higher levels of urban air pollution have decreased lung function growth.[14]

* In Atlanta, summertime children's emergency department visits for asthma increased 37% after 6 days when ozone levels exceeded 0.11ppm. Recent studies of hospitalizations for

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[7] NESCAUM, Executive Summary.
[8] Donaldson, Wallace R., U.S. Department of Commerce. Air Pollution by Jet Aircraft at Seattle-Tacoma Airport ESSA Technical Memorandum, WBTM WR 58. Oct 1970
[9] See NESCAUM.
[10] See NESCAUM.
[11] See American Lung Association State of the Air 2005, available at http://lungaction.org/reports/SOTA05_stateozone.html?geo_area_id=13.

[12] Georgia Department of Natural Resources Ambient Monitoring Program.
[13] See American Lung Association State of the Air 2005, available at http://lungaction.org/reports/SOTA
[14] AAP, Pediatrics, Vol. 114, No 6, Dec. 2004 , "Environmental Health Perspectives 2000;" 108 (supp. 3): p. 1700.

respiratory tract illness in young children suggest the effects of ozone may occur at ambient concentrations below 0.09ppm.[15]

* Airport Noise impairs children's memory and reading ability (excessive noise, such as jet aircraft flying overhead.[16]

* People exposed to average aircraft noise levels of 55 decibels or higher were 60% more likely to report a diagnosis of Hypertension (high blood pressure). Those with exposures exceeding 72 decibels were 80% more likely to report high blood pressure.[17]

--Compiled by Norma Herd and Open DeKalb, Inc., Volunteers, April 2006

Further resources are available at www.areco.org/studies.htm and www.epa.gov/ebtpages/air.html.

[15] Am. J. Epidemiology 2001;153:444-452.

[16] Journal of the American Psychological Society, Sept 5, 2002, Vol. 13: Issues 5, pp. 469-474.

[17] Occupational and Environmental Medicine, "Increased prevalence of Hypertension in a population exposed to aircraft noise," 2001.