

TRANSPORTATION AND AIRPORT NOISE BRUIT DE TRANSPORT ET DES AEROPORTS

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NEW CONSIDERATIONS AND TECHNIQUES IN AIRCRAFT NOISE ABATEMENT

During the last six years, planning for the abatement and mitigation of aircraft noise has changed significantly. A large portion of this change has been brought about by the failure of well-intentioned early plans to meet the general noise reduction goals anticipated by both planners and neighboring communities.

Early federally-funded attempts to establish noise compatibility programs at airports within the United States (as well as in many other countries) consisted, in many cases, of a menu of broadly defined measures affecting large groups of airport neighbors. Local disputes over project priorities, inadequacy of project funding to maintain hoped-for schedules, and changes of public perceptions as to what constitutes an "objectionable" noise level have frequently combined to result in less than expected levels of success.

The benefits of time and experience have led many airports to reevaluate their current programs. Sponsors have often broadened, eliminated or refined ongoing mitigation measures to better respond to the realities of implementation. The boundaries of areas eligible for mitigation programs such as acquisition or sound insulation have often been based on average noise levels grounded in imprecise estimates of future aircraft operational characteristics. Use of new and refined data acquisition and dissemination techniques such as Airport Noise and Operations Monitoring Systems, GIS land use tracking, and internet home pages are being coupled with better assessments of aircraft flight characteristics and more definitive applications of local surface conditions to result in more definitive mitigation than previously available.

While the DNL metric has remained the measure of choice in programs funded by the U.S. Federal Aviation Administration, community advocacy groups are making strong arguments for greater consideration of other measures. Single event L_{max} and SELs, as well as durations above predefined dBA levels are being introduced into many noise compatibility plan updates as tools to evaluate the effectiveness of alternatives or suitability for various types of mitigation.

The feasibility to implement desirable changes to the air traffic patterns at airports has not been thoroughly examined in most of the first round of planning studies. Although flight track changes are often recommended in abatement plans, their relocation is frequently impeded by broader issues of how those tracks feed into the regional airspace framework. The combination of noise modeling and airspace simulation modeling is in its infancy as a technique to evaluate regional noise issues. Work accomplished on the East Coast plan and underway in the Chicago metroplex is providing direction to these analyses.

This paper provides an overview of many of the changes which are taking place in the management of aircraft noise and its impacts on airport neighbors. Studies conducted by the author and/or his firm will serve as the focus for illustration, but will be supplemented by leading innovative techniques of aircraft noise assessment now being undertaken by others.