

## **OVERVIEW**

As part of its effort to adapt our air transport system to the relentless increase in demand for capacity, the Federal Aviation Administration (FAA) is redesigning our national airspace to improve its operational efficiency and planning airport capacity enhancements. This effort is essential to our national economic well-being, competitiveness, security and emergency response capabilities. This paper focuses on non-operational issues arising in connection with the FAA Airspace Redesign program. It contemplates remedial legislative as well administrative actions.

Unfortunately, the approaches and procedures being followed by the FAA in its Airspace Redesign program raise serious concerns. Among these concerns are that (i) the true costs and impacts have not been adequately evaluated, e.g. noise on educational development, air emissions on health, adverse effects on property values, and increased risks in ground safety **(1), (2), (3), (4)**; (ii) the benchmarks, tools, methodologies and models employed are flawed or inadequate **(5)**; and (iii) the Airspace Redesign program is driven by aviation operational efficiency considerations, even though Federal NEPA directives state “FAA’s decision making process for airport projects must consider the environmental, social, economic, and technical factors of a proposed action **and** those reasonable alternatives that meet the purpose and need.” (emphasis added) **(6)**. Noise abatement was originally included in the Purposes and Needs defined in the NY/NJ/PHL Airspace Redesign. It should to be restored. Furthermore, the FAA needs to conform to NEPA-implementing instructions for airport projects **(6)**.

It is essential that: i) sound, long-term planning for aviation occur in the context of the broader national transportation policies and other policies and strategies, including noise abatement; ii) externalities, including social costs, be calculated, iii) the value of expected benefits be documented in detail, and iv) full mitigation be provided to those who will suffer the adverse impacts from changes.

### **Comprehensive Long Term Planning**

Air transportation planning should provide for the full projected need and make use of all available resources. In the greater Philadelphia region, demand for air transport is expected to increase by 50% in the next 20 years. The FAA’s Capacity Enhancement Programs and the Airspace Redesign together are expected to increase capacity by only 30%. The shortfall is not addressed.

In meeting increased demand, the proposals do not take advantage of substantial unused airport capacity in the region, available particularly if certain current aviation activities at PHL were encouraged to move to other regional aviation facilities. Further, the NY/NJ/PHL Airspace Redesign DEIS reveals the lack of serious attention to surface transportation alternatives that could reduce aviation demand. The “stovepiped” Federal approach to transportation planning undoubtedly contributes to this situation. We need to return to the concept originally embodied in ISTEA (1991) and expand it to include aviation. Unfortunately, in the years since ISTEA, intermodal planning has weakened, to the detriment of reasoned transportation infrastructure investment planning.

### **Noise**

Noise is disruptive sound. The FAA measures sound (in decibels) using flawed models lacking adequate calibrations and metrics that mask the existence of intermittent and annoying sound. It does not then take the next step of effectively determining the disruptive effects of that sound. It relies on the defective Schultz Curve. Even transportation experts in the U.S. DOT’s in-house “think tank,” the John A. Volpe National Transportation Systems Center, have faulted these metrics, models and processes. Extensive studies exist concerning noise, its measurement, its impact on public health and its impact on the ability of humans to carry out cognitive tasks. These studies should be evaluated and used appropriately. It is not satisfactory to dismiss certain costs because they are thought to be difficult to measure. Restoration of a national noise policy—an updating of the defunct Noise Control Act of 1972—would encourage due attention to noise effects on human health and the quality of life.

### **Air Quality**

Changes in airspace usage will have air emissions impacts. In regions such as greater Philadelphia, which is already in severe Clean Air nonattainment status, the totality of these impacts must be evaluated. The FAA makes questionable assumptions that the entire aircraft fleet will switch to cleaner models in the near term and aircraft idling will be drastically cut. It does not address at all the consequential impacts of ground support and airport connective activities. More flights mean increased ground transportation congestion and increased emissions.

The Clean Air Act criteria pollutants do not include carbon dioxide but growing concern with climate change will increase focus on aviation's carbon emissions. Several Western states have already agreed to set regional standards for carbon emissions. Aviation emissions will be included. The EU is well along with plans for reducing carbon emissions. The U.K. has implemented carbon charges and noise assessment fees on internal flights since 2003 (7).

### **Ground Safety**

Redirecting aircraft over heavily populated areas exposes more people to safety risk. Further, the safety risk can be expected to increase with take offs that proceed rapidly to steep trajectories. If the ground safety risks of redirecting aircraft over heavily populated areas are not or cannot be satisfactorily determined, alternative routes should be seriously considered.

### **Cumulative Effects**

Multiple aviation-related projects in a region need to be viewed in totality not in isolation. The consequential impacts of ground support and airport-connective activities must be included as well. In the Philadelphia example, the FAA has redesigned primary airspace routes in and out of PHL without calculating the overlay effects of significant additional aircraft using new PHL runways or the sound and air pollution effects of ground support and airport-connective activities. The effects of concurrent actions must be determined and presented to the public at the earliest opportunity.

### **Mitigation Issues and Responsibilities**

Community impact assessment and likely mitigation costs should be critical elements in the selection of the "preferred alternative." These should not be addressed after the selection of a "preferred alternative" made solely on the basis of aviation operational efficiency considerations. In order to understand the costs and benefits of alternative actions, it is imperative that both be fully assessed. This requires application of full cost accounting principles. Full cost accounting has been defined as "an attempt to do a complete accounting of all of the consequences of an activity." (Polasky) (8).

Another serious mitigation issue is the separation of the identification and assessment of impacts to be mitigated from the actual implementation of mitigation planning. For PHL, mitigation is determined by the FAA within the EIS but implementation is up to the airport. PHL is entirely owned by the City of Philadelphia although much of the property is actually located in Delaware County. The result is that impacted communities in Delaware County have no voice in any of the airport's decisions.

## **ACTION PLAN AND RECOMMENDATIONS:**

- 1. Create a truly intermodal national transportation policy, including aviation,** setting priorities for infrastructure investments.
- 2. Reinstitute a national noise policy,** updating the Noise Control Act of 1972 and refunding the EPA's Office of Noise Control.
- 3. Review GAO report and existing legislation concerning aviation and environmental impacts:**  
(a) GAO Report: "Aviation and the Environment: Airport Operations and Future Growth Present Environmental Challenges" (GAO/RCED-00-153). *(This 2000 report addresses many issues still confronting us).* (b) Aviation Development Streamlining Act. (U.S. Code (49 U.S.C. ' ' 47141et seq). *(This legislation gives the Secretary of Transportation or his agent, the FAA Administrator, the exclusive authority to define the purpose and need for each new aviation project and to limit the alternatives for consideration in the project development process).*
- 4. Build a credible noise impact model** that uses actual sound measurement readings correlated to observed and related impacts on people. *(The current work of the FAA's Center of Excellence (COE) on Aviation Noise and Emissions is a step in the right direction but still relies too much on indirect and engineering approaches to social and economic problems, especially effects on people).*
- 5. Build a tool kit** of resources to assist in the process of quantifying social costs and externalities that should be included in a full cost-benefit analysis of airspace and airport changes.

## APPENDIX

### REFERENCES AND SOURCE MATERIALS

#### **(1) Educational Development Impacts**

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information is useful for determining how much area surrounding airports should be development-free and further out, what "aviation-compatible land uses should be allowed. Property value studies can then be performed to determine what the cost of removal of incompatible land uses would be)..

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