Aviation System Capital Investment Plan

Identification of High-level Functional/system Requirements for Future Civil TransportsFAA Vertical Flight Bibliography, 1962-2001United States Code Service, Lawyers EditionMonthly Catalog of United States Government PublicationsTransportation SafetyGovernment Reports Announcements & IndexCatalog of Products & ServicesCalifornia Aviation System PlanThe FAA's Capital Investment PlanImpacts of Technology on the Capacity Needs of the U.S. National Airspace SystemFederal Aviation Administration key issues in ensuring the efficient development and safe operation of the Next Generation Air Transportation System : testimonyAeronautical engineeringCost EngineeringAviation System Capital Investment Plan 1996Aviation Safety and SecurityAviation System Capital Investment Plan, U.S. Department of Transportation, June 1995Journal of the Senate of the United States of AmericaStories from the FieldThe Journal of Air Traffic ControlCalifornia Aviation System PlanNASA SP.Future Federal Aviation Administration Telecommunications PlanRotorcraft Low Altitude IFR Benefit/cost AnalysisCoordinated Parallel Runway ApproachesCatalog of Products & ServicesInfrastructure Report SummariesGovernment Reports Annual IndexGovernment Reports Annual IndexAnnual Air Traffic Control Association Fall Conference ProceedingsNational Aviation System Planning SymposiumPetroleum Marketing Annual (1992)Commercial Aviation Safety108-1 Committee Print: Compilation of Selected Aviation Laws Etc., (108-1), April 2003, *Flight Management SystemsNational Airway SystemNew Serial TitlesOregon Aviation System Plan: Main bodyAviation System Capital Investment PlanAir transportAviation Law Reporter

Identification of High-level Functional/system Requirements for Future Civil Transports

This bibliography has been assembled as an aid to those who are interested in research, engineering, and development pertaining to vertical flight aircraft (including helicopters, tiltrotor, and tiltwing vehicles) and their integration into the National Airspace System (NAS). The intended audience includes people within the Federal Aviation Administration (FAA), in industry, and in state and local governments Reports in this bibliography are documents specifically related, in whole or in pan to vertical flight aircraft and the infrastructure that supports their operation in the National Airspace System (NAS). These documents have generally been sponsored or authored by the research, engineering, and development elements of the FAA. This is the eighth and probably the last version of this bibliography. It addresses approximately 440 reports published from 1962 to 2001.

FAA Vertical Flight Bibliography, 1962-2001

Key features include: safety data analysis - all tables and discussion relating to commercial aviation accident statistics

current through 1999; analysis of major accidents and safety trends evolved since writing of last edition revised and expanded; advances in air traffic system becoming operational - current review and discussion applied; current and future developments in aircraft technologies included; interface between maintenance/engineering and flight operations presented; NTSB safety initiatives evolved since second edition in response to major aircraft accidents; a new chapter takes on recent most significant changes in direction and emphasis ever to affect aviation security; and international scope.

United States Code Service, Lawyers Edition

Monthly Catalog of United States Government Publications

Introduction: Air passenger traffic in the United States showed remarkable growth during the economic expansion of the 1980's. Each day a million and a quarter passengers board commercial flights. The boom coincided with the advent of airline deregulation in 1978. This drastic change in the industry has inspired professional and newspaper articles, graduate student theses, and books which have discussed the causes, effects, costs, and benefits of deregulation with predictably mixed conclusions. Economists, who like to predict the future by exercising econometric models, are finding that conditions in air transportation have become too dynamic (chaotic?) for their models to cope. Certainly the future of the air transportation industry is unclear. There has been, however, an unmistakable trend toward oligopoly, or, as industry spokesmen describe it, "hardball competition among the major airlines." This trend has been accompanied by formations of hub fortresses owned by these survivors. Air traffic has always been concentrated in a few large cities; airplanes will go where there is a demand for them. But airline (rather than traffic) hubs have created artificial demand. Up to seventy percent of travellers boarding airplanes in the hub cities do not live anywhere near these cities - in fact, they may have no idea at which airport they are changing planes. Most passengers do not care, while travel cognoscenti soon learn to avoid certain airports (and airlines which frequent these airports). A hub airport is a frenzy of activity for short periods of time during the day, as complexes of airplanes descend, park and interchange passengers, and take off. Then the airport lies quietly. If observers were to arrive at a major hub between times of complexes, they would be perplexed to hear that "this is one of the most congested airports in the world." Thus congestion and its evil twin, delay, are not constants in the system. Rather, they appear only if a number of conditions conspire to manifest themselves simultaneously, or nearly so. First, the weather must deteriorate from visual flight conditions to instrument flight conditions. Then, this must occur near peak demand conditions at the airport. Of course, some airports in the Unites States are always near peak conditions, among them the so-called slot constrained airports: New York's La Guardia and Kennedy, Washington's National, and Chicago's O'Hare. When weather goes bad at these airports or other major hubs during complexes, ripple effects start nearly all over the country, because some airlines have now designed schedules to maximize utilization of their airplanes.

Very little slack time is built into the schedules to account for potential delays, although "block-time creep" exists: the phenomenon that travellers discover when they arrive at their destinations ahead of schedule (if they happen to leave on time). This "creep" protects the airlines from being branded as laggards by the DOT's Consumer On-Time Performance Data hit list. Thus a combination of management practices by airlines (which place great demand on terminal airspace over a concentrated period of time) and mother nature (which provides currently unpredictable behavior of weather near the airport) conspire to limit the capabilities to handle arrivals and departures at various airports below the numbers that had been scheduled. Travellers complain that the schedules aren't being met, and if enough people complain to Congress, or if the travellers themselves happen to be members of Congress, a national problem appears. How much of a problem is this? In 1988 there were 21 airports, according to the FAA, which exceeded 20,000 hours of annual aircraft delay, perhaps 50,000 hours per year, or 140 hours per day. (One, Chicago's O'Hare, exceeded 100,000 hours.) These airports, in turn, averaged 1,000 operations (arrivals and departures) per day, so that each operation would have averaged about 8 minutes of delay. At O'Hare, for example, 6% of all operations experienced in excess of 15 minutes of delay. (In excess means just that - there is no knowledge of how much "in excess" is.) Conversely, this means that at that most congested airport in the United States, 94% of all airplanes arrive or depart with less than 15 minutes of delay. However, airline delay statistics may be similar to the apocryphal story of the Boy Scout troop which drowned wading across a creek which averaged two feet in depth. There are estimates that on a dollar basis, delay accounts for a $3 billion cost to airlines, or a net societal cost of $5 billion if travellers' wasted time is included. Since in their best years U.S. airlines make about $3 billion in profit, reducing delay is a sure-fire way for airlines to climb out of their all too frequent financial morasses, as well as diminishing their passenger frustrations. Even though all of the numbers mentioned in the paragraphs above are subject to substantial caveats, it is indisputable that on certain days during the year the air transportation system seems to come to a crawl, if not a halt. Travellers either find themselves sitting at airport lounges observing cancellation and delay notices appearing on the departure and arrival screens, or sitting in airplanes (on runways or at gates) being told that there is an "air traffic delay." Old-timers grumble that the only difference twenty years of technology improvements has made to the U.S. airspace system is that the wait is now on the ground instead of circling in the air near their destinations. To the casual observer, it would appear that a number of solutions exist to solve this problem. The most obvious is to pour more concrete: more airports, more and longer runways, more taxiways, more gates and terminals. This is analogous to widening highways and building more interstates for ground transportation congestion. The concrete solution, alas, runs into both financial and citizen roadblocks. It is very expensive - the latest airport coming off the drawing boards (Denver International) carries a tag of some $2 billion, with about $400 million of that in bonds being backed by a new funding creature, the Passenger Facility Charge (a head tax of up to 3 dollars assessed to every passenger enplaning at an airport - voluntary or not). The citizen roadblock is community objections to airport noisiness. The bill creating the PFC in 1990 also carried with it a mandate for the FAA to create a national noise policy so that individual airports would not wreak havoc with the whole system by creating their own local operational rules, such as curfews. The bill also attempted to pacify airport neighborhoods by setting a deadline for all U.S. aircraft to be quiet(er) - complying with Stage 3 regulations by the year 2000. More damaging

than financial difficulties are the anti-noise sentiments, and the concomitant not-in-my-backyard syndrome, that are at the forefronts of protests of either an alert citizenry, or New Age Luddites, when any expansion plans are made public. Whatever one's view, it is a crowd vocal and seemingly powerful enough in local political circles to stop any large- scale progress to ground solutions of the congestion problem. That, then, leaves the air. It is intuitive that if airplanes were closer spaced than they are now, much more traffic would move through a given area in the same amount of time, and consequently airplanes would land (and take off) quicker, reducing any waiting (queue) time. This obviously increases airport noise levels. There are two problems with this approach. The first trick is to accomplish this safely. Safety has at least two dimensions: there is the physical, i.e., airplanes should not run into each other (or the ground, as a result of weather disturbances and wake vortices); and pilots (and controllers) should feel they are still in control of the situation, even after separation standards are reduced. The first aspect is mostly a matter of technology, the second mostly a matter of human factors. But if traffic moved quicker and noise of the aircraft is not reduced, the same citizens who had vehemently opposed the construction of additional ground facilities would once again rise in righteous anger and demand a stop to the more efficient techniques of flying airplanes which have caused an increase in the noise levels in their neighborhood. They, too, must be considered. This report will attempt to address some of the issues outlined above. The focus will be on technology and where it is best suited to provide an equitable and efficient expansion of capacity in the air transportation system. Ultimately, the discussion will be centered on NASA's potential contributions to solving the capacity problem.

Transportation Safety

Contains statistical data on a variety of crude oils & refined petroleum products. Presented are crude oil costs & refined petroleum product sales for 1992. Data on crude oil includes considerable cost & sales information.

Government Reports Announcements & Index

'The benefit of teaching life skills is that I also changed. If I can make a difference in the life of just one child, I will be happy' When we think about Africa, we often recall pictures of a wild countryside, rivers, forests, deserts, buzzing markets and media stories of poverty, devastation and hunger - a prime continent where branches of human justice are still thin and often absent. Those of us who have made Africa our destination are witness to a different experience as we meet people who charter a life of resilience and construct a social world of their own. Extended family ties stretch far and deep and so do family feuds, political turmoil and the many manifestations of poverty - painting a human canvas on which development programs (including sport-for-development) need to blend in strokes for reciprocal change. The GIZ/YDF program is possibly one of the most significant programs in terms of philosophy, methodology and scope that sheds light on development work

as it is embraced, transformed and assimilated into real-life experiences. It is at this embedded level of social uptake that the selected 15 stories in the text and the detailed 45 stories on the CD articulate real-life experiences as told by program participants, peer- educators and YDF partners who took up the responsibility and challenge to change lives for the better. Multiple voices give an expression to the meaning and dynamics of sports-related interventions as they affect individuals within a myriad of social relationships and contexts. The uniqueness of this publication is that it not only captures all these voices to constitute stories from nine African countries, but validates a ripple of impact where context is a prism for seeing and knowing. How do real people see and benefit from a sport-for-development program? How does the North meet the South in partnership and trust? After reading these stories, you will not merely see young boys or girls kicking a ball and appreciate the novel aesthetics, but you will smell the dust and know it is a family and community at play. You will realize that aspirations and expectations are born from a need for entitlement in a field where the pitch is only the beginning of a journey. May this brief encounter do justice to all who shared their lives with such honesty and hope.

Catalog of Products & Services

California Aviation System Plan

This work describes the historical evolution of a critical aspect of aerospace technology--avionics and navigation systems--as it relates to aeronautics, flight management, and spaced flight development.

The FAA's Capital Investment Plan

Impacts of Technology on the Capacity Needs of the U.S. National Airspace System

A selection of annotated references to unclassified reports and journal articles that were introduced into the NASA scientific and technical information system and announced in Sscientific and technical aerospace reports (STAR) and International aerospace abstracts (IAA)

Federal Aviation Administration key issues in ensuring the efficient development and safe operation of the Next Generation Air Transportation System : testimony

Aeronautical engineering

Cost Engineering

Aviation System Capital Investment Plan 1996

Aviation Safety and Security

Aviation System Capital Investment Plan, U.S. Department of Transportation, June 1995

The official Fed. Aviation Admin. capital investment plan based on mission needs and future concepts. Covers: service areas (airport, terminal, aircraft and aircrew); communications (voice switches, telecomm satellite); facilities (flight service, power systems sustained support); mission support (aircraft fleet modernization, precision automated tracking system); navigation and landing (direction finder, instrument landing system); surveillance (terminal radar program, precision runway monitor); and weather (weather radar, airport surveillance radar).

Journal of the Senate of the United States of America

"The Rotorcraft Master Plan advocates the establishment of additional communications, navigation, and surveillance (CNS) facilities, as well as the analysis and development of systems to satisfy the increasing demand for widespread IFR rotorcraft operations within the NAS. The objective of this study is to determine if there is an economic basis for improvement of these low altitude instrument flight rules (IFR) services within the National Airspace System (NAS) in order to better support rotorcraft IFR operations. The findings of this study will aid FAA decisionmaking in that regard. In view of prior implementation decisions on Loran-C, the emphasis in this effort is on communications, surveillance, procedural changes, and avionics. This report is one of a series of three reports that address rotorcraft low altitude IFR benefit/cost analysis. The other two are: 1) Rotorcraft Low Altitude CNS Benefit/Cost Analysis: Operations Data, DOT/FAA/DS-89/9, 2) Rotorcraft Low Altitude IFR Benefit/Cost Analysis: Methodology and Applications DOT/FAA/R D-89/1 1. This second interim report defines operational requirements and constraints for selected rotorcraft missions. A candidate list of 50 sites around the country, selected for their potential to benefit from increased low altitude IFR services, is presented. Radar and communications

coverages in those areas are then identifed. CNS improvements to be provided by implementation of the NAS plan, relevant FAA policies, ATC procedures, and avionics improvements are analyzed for their potential to benefit low altitude rotorcraft IFR operations. Last, a benefit/cost methodology to determine where the most benefits would accrue from improvements in rotorcraft low altitude IFR services or changes in ATC procedures is presented."--Report documentaion page.

Stories from the Field

The Journal of Air Traffic Control

California Aviation System Plan

NASA SP.

Future Federal Aviation Administration Telecommunications Plan

Rotorcraft Low Altitude IFR Benefit/cost Analysis

A union list of serials commencing publication after Dec. 31, 1949.

Coordinated Parallel Runway Approaches

Catalog of Products & Services

Infrastructure Report Summaries

Government Reports Annual Index

Government Reports Annual Index

Annual Air Traffic Control Association Fall Conference Proceedings

National Aviation System Planning Symposium

Petroleum Marketing Annual (1992)

Commercial Aviation Safety

108-1 Committee Print: Compilation of Selected Aviation Laws Etc., (108-1), April 2003, *

Flight Management Systems

National Airway System

New Serial Titles

Oregon Aviation System Plan: Main body

Aviation System Capital Investment Plan

Air transport

Sections 1-2. Keyword Index.--Section 3. Personal author index.--Section 4. Corporate author index.-- Section 5. Contract/grant number index, NTIS order/report number index 1-E.--Section 6. NTIS order/report number index F-Z.

Aviation Law Reporter