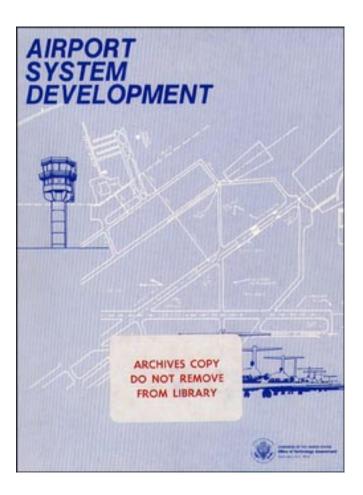
Airport System Development

August 1984

NTIS order #PB85-127793



Recommended Citation:

Airport System Development (Washington, D. C.: U.S. Congress, Office of Technolog, Assessment, OTA-STI-231, August 1984).

Library of Congress Catalog Card Number 84-601101

For sale by the Superintendent of Documents U.S. Government Printing Office, Washington, D.C. 20402

Foreword

The United States has the largest and most technologically advanced system of airports in the world. These airports support an air transportation network that links all parts of the Nation to the rest of the world and enables over 300 million passengers each year to undertake journeys—many of great length—with ease, comfort, and safety. One measure of the excellence of this system is that over 98 percent of all airline flights arrive within 15 minutes of schedule.

Still, there is cause for concern about the future adequacy of the airport system. On one hand, there is need to accommodate expected growth in air travel demand at major airports, several of which are now experiencing severe congestion at periods of peak use. On the other, there is also need to assure access to airport facilities by private and business aircraft operators, who are fast becoming the predominant users of airports and the most active sector of civil aviation. Community concern about noise and land use limit the ability of airport planners and managers to provide additional facilities or, in some cases, to accommodate more traffic at existing facilities.

Undertaken at the request of the House Committee on Public Works and Transportation, this study examines present conditions and future needs of the Nation's airports, with emphasis on possible solutions to problems of operational capacity and air travel delay. The range of remedial actions considered includes improved airport and air traffic control technology, revised procedures for airport and airspace use, economic and regulatory measures to reduce demand during peak periods, and managerial approaches to make more efficient use of existing airport facilities. Special attention is given to issues of airport planning and funding methods at Federal, State, and local levels.

OTA was assisted in this assessment by an advisory panel reflecting a broad range of interests and expertise, ably chaired by Dr. Don E. Kash of the University of Oklahoma. OTA is greatly indebted to the advisory panel and to many others in the aviation community for their generous contributions. Their participation does not necessarily constitute consensus or endorsement of the content of the report, for which OTA bears sole responsibility.

One notable feature of this assessment is that it is a cooperative effort by the Office of Technology Assessment and the Congressional Budget Office, in which CBO provided detailed analysis of airport financial management, funding methods, and capital investment.

John H. Libbour

JOHN H. GIBBONS Director

OTA Airport System Development Advisory Panel

Don E. Kash, Chairman Director, Science and Public Policy Program University of Oklahoma

James H. Anderson *Director, Office Building Division* General Services Department I.E. Dupont DeNemours

Joseph Blatt Consultant

Clifford W. Carpenter *Manager, Airport Development* Boeing Commercial Aircraft Company

Pierre Champagne Director of Airport Planning Transport Canada

H. McKinley Conway *President* Conway Publications

Charilyn Cowan Staff Director, Committee on Transportation, Commerce and Technology National Governors' Association

Thomas J. Deane *Vice President, Operating Facilities* Avis Rent-A-Car, Inc.

John W. Drake *Professor* Purdue University

William Garrison *Professor* University of California, Berkeley

Aaron Gellman **President** Gellman Research

John Glover *Supervisor, Transportation Planning* Port of Oakland

Leonard Griggs *Airport Director* Lambert St. Louis International Airport Richard L. Harris *Vice President, Public Finance* First Boston Corporation

John Hoyt* **Principal Project Manager** Ralph M. Parsons Company

Jack R. Hunt** **President** Embry-Riddle Aeronautical University

Richard Judy Director *of Aviation* Dade County, Florida

Alfred Kahn **Professor** Cornell University

Leonard Martin Vice President, Passenger Services Piedmont Airlines

Dorn McGrath **Professor, Department of Urban and Regional Planning** George Washington University

Sonny Najera *Director, Division of Aeronautics* State of Arizona

Edmund Nelle, Jr. *President* Butler Aviation International

Jan Roskam Ackers Distinguished Professor of Aerospace Engineering University of Kansas

William Supak Aviation Director Port of Portland

William Wilson Vice President, Properties and Facilities Federal Express Corporation

● Replaced Forrest C. Six, Vice President, Ralph M. Parsons Co., who was transferred overseas. ● *Deceased.

expressed in this report.

OTA Airport System Development Assessment Staff

John Andelin, Assistant Director, OTA Science, Information and Natural Resources Division

William F. Mills* and Nancy Carson Naismith, ** Program Manager Science, Transportation and Innovation Program

Larry L. Jenney, Project Director

M. Karen Gamble, Analyst

Jameson R. Miller, Research Assistant

Marsha Fenn, Administrative Assistant

R. Bryan Harrison, Office Automation Systems Analyst

Betty Jo Tatum, Secretary

Consultants

David W. Bluestone Jonathan L. Gifford Richard P. Krinsky Peter Schauffler Jac D. Watson

Contractors

C. A. C. I., Inc.–Federal Gilbert Murray and Jac D. Watson

Landrum & Brown Mark D. Conway and Stuart S. Holder

Simat, Helliesen & Eichner, Inc. Lois Kramer and William C. Spaeth

Congressional Budget Office

This assessment is a cooperative effort by the Office of Technology Assessment and the Congressional Budget Office. CBO'S work, which forms an integral part of this study has also been published by them in *Financing U.S. Airports in the 1980s*, April *1984*. OTA is particularly indebted to David Lewis, Richard R. Mudge, and Suzanne Schneider of CBO for their participation in this assessment.

'Through September]983 * 'After September 1983

Acknowledgements

During this assessment, OTA consulted with Federal, State, and local airport officials and many others in the aviation community. We appreciate their advice and comment, which broadened and strengthened our thinking on airport issues.

Gary Adams Arizona Department of Transportation

Bonnie Allin Tucson Airport Authority

John Auer Nebraska Department of Aeronautics

Johannes G. Augustinus Port Authority of New York and New Jersey

H. A. Bertholf, Jr. Phoenix, Sky Harbor

Walter Burg Tucson Airport Authority

Glenn Cate Scottsdale Municipal Airport

Richard J. Cirre Kentucky Department of Transportation

Kim Clemans California Department of Transportation

John J. Corbett Airport Operators Council International

William Cousins III Georgia Department of Transportation

Norman Crabtree Ohio Department of Transportation

Robert M. Cusumano City of Chicago, Division of Aviation

George F. Doughty Cleveland Hopkins International Airport

Ed Dunn Phoenix, Sky Harbor

George H. Edmondson Truckee Tahoe Airport District

Arnold D. Feener San Francisco International Airport

Sheldon R. Fein San Francisco International Airport

Lawrence Goldman Southern California Association of Governments

J. L. Graham City of Los Angeles, Department of Airports Ronald Greer Omaha Airport Authority

George Gundersen Wisconsin Department of Transportation

Dan G. Haney Peat, Marwick, Mitchell & Co.

Robert F. Holscher Greater Cincinnati Airport

Al Hoover Iowa Department of Transportation

Shelton Jackson U.S. Department of Transportation

Carl Johnson Federal Aviation Administration Great Lakes Region

Thomas Kapsalis City of Chicago, Division of Aviation

Henry A. Kazimier Indiana Department of Transportation

Richard B. Keinz Minnesota Department of Transportation

Laurence J. Kiernan Federal Aviation Administration

James D. Kitchel Phoenix, Sky Harbor

Harold R. Lagasse Stellar Executive Air Services

F, G. Lemke California Department of Transportation

Joseph G. Mason National Association of State Aviation Officials

H. C. McClure Federal Aviation Administration Western-Pacific Region

Burdsall D. Miller California Department of Transportation

Mark F. Mispagel California Department of Transportation

Owen Miyamoto Hawaii Department of Transportation Robert Monroe Aircraft Owners and Pilots Association

Clifton A. Moore City of Los Angeles, Department of Airports

James V. Mottley Federal Aviation Administration

Byron Osterloh Phoenix, Sky Harbor

Willard G. Plentl, Sr. Department of Aviation Commonwealth of Virginia

Willard G. Plentl, Jr. North Carolina Department of Transportation

Siegbert B. Poritzky Federal Aviation Administration

J. Donald Reilly Airport Operators Council Internat

Allan Samuels Arizona Department of Transportation

Roy Samuels San Francisco International Airport Spyridon N. Sideris California Departme**nt** Transportation

Fred Stewart California Departme**nf** Transportation

Henry M. Streb Merrill C. Meigs Airport, Chicago

Jack L. Tippie Los Angeles County, Airports Division

T. James Truby Maryland State Aviation Administration

Earl Tucker California Department of Transportation

Vincent Volpicelli Port Authority of New York and New Jersey

George H. Watson Oakland International Airport

Clay A. Wilkins Texas Aeronautics Commission

James R. Wood Dayton International Airport