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AIRPORT AND AIRWAY DEVELOPMENT AND REVENUE ACTS AMENDMENTS OF 1971

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HEARINGS

BEFORE THE

SUBCOMMITTEE ON AVIATION

OF THE

COMMITTEE ON COMMERCE

UNITED STATES SENATE

NINETY-SECOND CONGRESS

FIRST SESSION

ON

S. 1437

TO AMEND THE AIRPORT AND AIRWAY DEVELOPMENT AND
REVENUE ACTS OF 1970 TO FURTHER CLARIFY THE INTENT
OF CONGRESS AS TO PRIORITIES FOR AIRWAY MODERNIZA-
TION AND AIRPORT DEVELOPMENT, AND FOR OTHER
PURPOSES

JUNE 22 AND 23, 1971

Serial No. 92-19

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CONTENTS

Opening statement by the chairman-----	Page 1
Text of S. 1437-----	4
Agency comments:	
Comptroller General-----	7
Department of the Treasury-----	8

CHRONOLOGICAL LIST OF WITNESSES

JUNE 22, 1971

Olsson, Hon. John P., Deputy Under Secretary, Department of Transportation, Washington, D.C.; accompanied by Hon. Kenneth Smith, Deputy Administrator, Federal Aviation Administration, Washington, D.C.; and J. E. Dow, Director of Budget-----	9
--	---

JUNE 23, 1971

Monroney, Hon. A. S. Mike, former U.S. Senator from Oklahoma-----	29
O'Donnell, John J., president, Air Line Pilots Association-----	40
Supplementary statement-----	58
Reilly, J. Donald, executive vice president, Airport Operators Council International (AOCI), Washington, D.C.; accompanied by Leo Seybold, vice president, Federal Affairs, Air Transport Association (ATA), Washington, D.C.; Edward W. Stimpson, president, General Aviation Manufacturers Association (GAMA), Washington, D.C.; J. J. O'Donnell, president, Air Line Pilots Association (ALPA), Washington, D.C.; Robert Monroe, director of congressional liaison, Aircraft Owners and Pilots Association (AOPA), Bethesda, Md.; Frank Kingston Smith, president; National Aviation Trades Association, Washington, D.C.; and Sieberg B. Poritzky, associate director, National Airspace System Engineering, Air Transport Association (ATA), on behalf of: American Association of Airport Executives (AAAE), Aerospace Industries Association of America (AIA), Air Line Pilots Association (ALPA), Association of Local Transport Airlines (ALTA), Airport Operators Council International (AOCI), Aircraft Owners and Pilots Association (AOPA), Air Transport Association of America (ATA), Air Traffic Control Association (ATCA), General Aviation Manufacturers Association (GAMA), National Aeronautic Association (NAA), National Air Carrier Association (NACA), National Association of Counties (NACO), National Aviation Trades Association (NATA), National Air Transportation Conferences (NATC), National Business Aircraft Association (NBAA), National League of Cities (NLC), National Pilots Association (NPA), Professional Air Traffic Controllers Organization (PATCO), and U.S. Conference of Mayors (USCM)-----	32

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For the purpose of this report, the following information was obtained from the files of the Department of the Interior, Bureau of Land Management, and the Bureau of Reclamation, and from the files of the Department of the Army, Corps of Engineers, and the Department of the Navy, Bureau of Naval Facilities.

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AIRPORT AND AIRWAY DEVELOPMENT AND REVENUE ACTS AMENDMENTS OF 1971

TUESDAY, JUNE 22, 1971

U.S. SENATE,
SUBCOMMITTEE ON AVIATION,
COMMITTEE ON COMMERCE,
Washington, D.C.

The subcommittee met at 10:04 a.m., in room 5110, New Senate Office Building, Hon. Howard W. Cannon (chairman of the subcommittee) presiding.

Present: Senators Cannon, Pearson, and Stevens.

OPENING STATEMENT BY THE CHAIRMAN

Senator CANNON. The hearing will come to order.

The hearing beginning today is on S. 1437, introduced by myself and others, legislation relating to preserving the integrity of the Airport and Airway Trust Fund established in the Airport and Airway Development Acts of 1970.

Today, we will hear testimony from the administration regarding this bill and its provisions and tomorrow we shall hear from a panel of representatives on behalf of 18 organizations representing the majority of diverse aviation interests in the United States.

It is with some chagrin that I scheduled these hearings on S. 1437 as the Airport and Airways Development Act and Revenue Act was enacted in May 1970. However, the administration has callously ignored the major provisions of that legislation—I may say, up until 5:55 p.m. last night—and has disregarded the intent of the Congress in seeking funds to implement the provisions of the act. In effect, the administration has broken faith with the Congress and with the users of our aviation system who sought together to develop a comprehensive program to provide for the capital investment needs of the airport and airways systems over the next decade.

In enacting that historic legislation, Congress acknowledged that the Nation's aviation system needed rapid modernization and expansion and determined that capital improvements to the airport and airway system—paid for by the users of the aviation system—should be accorded the highest priority in allocating the newly available financial resources and should be made as expeditiously as possible.

At the same time, it was recognized that the Federal Government, and the Nation as a whole, has an abiding interest in the continued development of air transportation. Accordingly, we contemplated that general treasury revenues would be used to fund routine FAA oper-

Staff member assigned to this hearing: Robert E. Ginther.

ations and administrative expenses, as well as a portion of research and development costs, at least until the capital investment effort to modernize the Nation's airports and airways was substantially underway.

The administration has mistakenly interpreted the Airport and Airways Act of 1970 to permit it to request appropriations less than the minimum levels for airport development and airways facilities specified in section 14 of title I of the Airport and Airway Development Act. Further, although Congress intended that the capital investment programs for aviation system modernization be fully funded from user tax revenues in the trust fund prior to the use of such funds for maintenance, operations, and administrative expenses, the administration has disregarded these statutory priorities and has given routine FAA expenses the same status as capital improvements.

For example, although the Airport and Airway Development Act clearly specifies that no less than \$295 million is authorized for airport construction and planning grants during each of the next 5 fiscal years, in its appropriation request for the current fiscal year the administration asked Congress for only \$50 million for this purpose. Furthermore, in choosing to ignore the specified level of funding for airport development, the administration proposed to spend more than \$200 million from user tax revenues to pay for the ordinary house-keeping programs of the Federal Aviation Administration. This diversion of funds from capital programs to pay for administrative programs long paid for from general tax revenues clearly violates the spirit of the act while ignoring the vital and pressing need for airport development in the United States. The Congress in approving appropriations for fiscal year 1971 did not approve the administration attempt to divert funds from capital programs and the result is that on July 1 there will be a \$402 million surplus in the trust fund.

In its request for funds for fiscal 1972, the administration again ignores the pressing airport needs of the United States and asks for only \$107 million in liquidating cash for airport programs while at the same time seeking to spend almost \$700 million in user charge tax revenues for the operations and maintenance of the Federal Aviation Administration. Again, I am hopeful that Congress will reject this request and will speedily enact legislation such as S. 1437 in order to preclude the administration from making similar proposals in the future.

In addition to the attempts to divert user charge revenues for non-capital purposes, the administration recently presented to Congress a proposal that would entirely abolish the airport grant-in-aid program established by the Airport and Airway Development Act.

The administration's transportation revenue sharing proposal would, if approved, turn over to the 50 States at least \$220 million per year in user charge tax revenues which Congress had intended to be reserved for airport grants. The proposal would allow the States to use that money for any transportation purpose; for operational expenditures as well as for capital investments. There would be no assurance that a single dollar of the user charge revenues would be used for airport construction in the United States.

While I am not greatly concerned that Congress will approve this scheme, it is a dramatic indication of the administration's disinterest

in providing high priority to the development of a modern aviation system to meet our air transportation needs of the 1980's. While other transportation programs are urgently needed in the United States and should be funded on their own merits, the Nation's airline passengers, shippers, the airline companies and owners and operators of private aircraft were all assured that the additional tax burdens imposed upon them by this program would result in a dramatically better air transportation system in the future.

In testimony before the Congress in 1969 the administration stressed that at least \$5 billion worth of airport development was urgently required in the United States in the next 10 years.

In addition the administration estimated that the Federal contribution to this development requirement should be at least \$250 million per year or \$2.5 billion over the 10-year period.

In adopting those estimates, the Congress tried to fashion a program that would guarantee that funds would be available for these purposes and generally constructed the program along the lines of the administration's proposal.

It now appears, less than 2 years later, that the President is abandoning his support of the airport and airways development program and in effect proposing to turn over to the States user charge revenues without any requirement that they be invested in airport facilities. The President's proposal makes it all the more urgent that Congress quickly consider and adopt legislation such as that we are considering today in order that we reassure those who are now bearing a special tax burden that their aviation needs will be met in a timely and coordinated manner.

Let us make it absolutely clear the objective S. 1437 is designed to achieve. First, the administration will be required to request and the Congress appropriate not less than \$280 million per year for airport development grants and, second, the administration will be required to request and the Congress appropriate not less than \$250 million per year for air navigation facilities. Then and only then will user charge-derived trust fund revenues be available for the other purposes specified in the act.

I may say that after I prepared my remarks and at 5:55 last night, I received a call from the Office of Management and Budget advising that an additional \$75 million has now been released to the FAA for the airport development program. That would bring the level up to \$280 million, the amount authorized, exclusive of the planning grants. However this is kind of a hard way to get it, to wait until the last minute after legislation is initiated and hearings set before OMB will get off the dime and release these funds that should have been requested and released long ago.

These amendments are designed to insure that first and foremost, the user charge-derived revenues will be allocated to meet the minimum capital needs of the system and that they may not be used for any other purposes until the minimum authorized amounts have been requested and appropriated. That will assure that the highest priority is given to capital development and improvement and will result in a minimum amount of investment in the system in each of the years for which the program is authorized.

(The bill and agency comments follow :)

92^d CONGRESS
1st SESSION

S. 1437

IN THE SENATE OF THE UNITED STATES

APRIL 1, 1971

Mr. CANNON (for himself, Mr. MAGNUSON, Mr. PEARSON, and Mr. SPONG) introduced the following bill; which was read twice and referred to the Committees on Finance and Commerce, jointly

A BILL

To amend the Airport and Airway Development and Revenue Acts of 1970 to further clarify the intent of Congress as to priorities for airway modernization and airport development, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 SHORT TITLE

4 SECTION 1. This Act may be cited as the "Airport and
5 Airway Development and Revenue Acts Amendments of
6 1971."

II

1 TITLE I—AIRPORT AND AIRWAY

2 DEVELOPMENT

3 SEC. 101. Section 14 of title I of the Airport and Air-
4 way Development Act of 1970 (84 Stat. 219, Public Law
5 91-258) is amended by adding thereto the following new
6 subsection:

7 “(e) PRESERVATION OF FUNDS AND PRIORITY FOR
8 AIRPORT AND AIRWAY PROGRAMS.—

9 “(1) Amounts equal to the minimum amounts author-
10 ized for each fiscal year by subsections (a) and (c) of this
11 section shall remain available in the trust fund until appro-
12 priated for the purposes described in such subsections.”

13 “(2) No amounts transferred to the trust fund by sec-
14 tion 208 (b) of title II of this Act (relating to aviation
15 user taxes) may be appropriated for any fiscal year to carry
16 out the activities enumerated in subsection (d) of this sec-
17 tion (relating to administrative, research and development,
18 maintenance and operating expenses) unless at least the
19 minimum amounts for airport development established by
20 subsection (a) of this section and at least the minimum
21 amount for airways facilities established by subsection (c)
22 of this section have been appropriated for any such fiscal
23 year.”

1 TITLE II—AIRPORT AND AIRWAY REVENUES

2 SEC. 201. Paragraph (1) of subsection (f) of section
3 208 of title II of the Airport and Airway Revenue Act of
4 1970 (84 Stat. 237, P.L. 91-258) is amended to read as
5 follows:

6 “(1) AIRPORT AND AIRWAY PROGRAMS.—Amounts
7 in the trust fund shall be available, as provided by ap-
8 propriation Acts, for making expenditures after June 30,
9 1970, and before July 1, 1980, to meet the obligations
10 of the United States authorized under title I of this
11 Act.”

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., June 23, 1971.

HON. WARREN G. MAGNUSON,
Chairman, Committee on Commerce, U.S. Senate.

DEAR MR. CHAIRMAN: Reference is made to your letter of April 14, 1971, requesting our comments on S. 1437 which would amend the Airport and Airway Development and Revenue Acts of 1970 to further clarify the intent of the Congress as to priorities for airway modernization and airport development.

Primarily, the bill would amend section 14 of title I of the Airport and Airway Development Act of 1970, by adding thereto a requirement that amounts equal to the minimums authorized in each year by subsections (a) and (c) of section 14 shall remain available in the trust fund appropriated for the purposes described in those subsections (airport development grants and for airway facilities).

Whether the Congress intended to require that the minimum amounts specified in section 14 of the 1970 act be expended or reserved in the trust funds before monies in the fund could be expended for other purposes has been the subject of considerable controversy between the Administration and the Congress. Accordingly, it would appear desirable that the intent of the Congress in this matter be clarified.

We wish to point out that if S. 1437 is enacted in its present form, it will be necessary for FAA to resubmit its fiscal year 1972 budget request. In its present form, FAA's budget request calls for the expenditure of a minimum of about \$700 million of trust fund monies to cover operating expenses in fiscal year 1972 even though the minimums authorized in section 14 were not met in fiscal year 1971 and would not be met in 1972. If S. 1437 is enacted, a substantial portion of this amount will have to be reserved in the trust fund to cover section 14 minimums with a corresponding need for an appropriation from the general fund to cover planned 1972 operating expenses.

In our letter to you of December 2, 1969, B-77406, we furnished our comments on H.R. 14665, 91st Congress. This bill subsequently was enacted into law and title I thereof is cited as the "Airport and Airway Development Act of 1970."

A portion of that letter reads as follows:

"Paragraph 10 of section 18 of H.R. 14465 provides that as a condition precedent to his approval of an airport development project, the Secretary shall receive assurances in writing, satisfactory to him, that the airport and all airport records will be available for inspection by any duly authorized agent of the Secretary upon reasonable request. In order to avoid any possible conflict of the intent of this paragraph with the provisions of section 27(b) concerning audit and examination, we believe that paragraph 10 of section 18 should be amended by inserting 'and of the Comptroller General' after the word 'Secretary' on line 21 of page 29 of the bill.

"Section 27(c) of H.R. 14465 requires that in cases where an independent audit is made of the disposition of proceeds of a grant received by an airport sponsor, the sponsor shall file a certified copy of such audit with the Comptroller General.

"We believe that copies of such audit reports should be submitted to the Secretary since they would be directly related to his responsibility for the effective utilization of the funds authorized by the proposed legislation. If our Office should desire these audit reports, we can readily obtain them from the Secretary.

"Section 27(c) of H.R. 14465 requires that the Comptroller General report to the Congress annually on the results of each audit conducted or reviewed by him under this section during the preceding fiscal year. We believe that this requirement should be fulfilled by the Secretary because the review of such reports is part of his statutory function to monitor all aspects of grants to sponsors. The placement of this requirement on the Secretary would be a logical extension of the requirement in section 25 that the Secretary furnish the Congress an itemized statement of expenditures. Also, the filing of independent audit reports with the Secretary would enable him to take timely and effective action on any adverse audit findings.

"With regard to audits conducted by the General Accounting Office, our Office already makes available to the Congress the results of such audits through individual audit reports and by our annual reports to the Appropriations and

Government Operations Committees and our annual report to the Congress. Moreover, the results of audits by our Office could be included in the annual report on the results of audits which, as suggested above, should be submitted by the Secretary.

"Section 27(d) of H.R. 14465 provides that the Secretary or the Comptroller General shall not withhold information from the duly authorized committees of the Congress. Since our Office is an arm of the Congress and our information is always available to its committees, we believe that the reference to the Comptroller General in this section is unnecessary and should be deleted."

While the provisions of section 27 of H.R. 14465 are now set forth in section 26 of the Airport and Airway Development Act of 1970, the above comments on H.R. 14465 are otherwise equally applicable to that act.

Accordingly, we recommend that S. 1437 be revised by adding thereto amendments to the Airport and Airway Development Act of 1970, as follows:

1. Amend paragraph 10 of section 18 by inserting "and of the Comptroller General" after the word "Secretary."

2. Amend subsection 26(c) to read as follows:

"(c) AUDIT REPORT.—In any case in which an independent audit is made of the accounts of a recipient of a grant under this Act relating to the disposition of the proceeds of such grant or relating to the plan or program in connection with which the grant was given or used, the recipient shall file a certified copy of the audit report with the Secretary not later than six months following the close of the fiscal year for which the audit was made. The Secretary's review of any such independent audit report and the results of any audit by the Comptroller General of the United States pursuant to subsection (b) of this section, on which reports have been issued to the Congress or to the Secretary, shall be included in the Secretary's report to the Congress required by section 25 of this Act.

"The Secretary shall include in the report action taken or contemplated with respect to the recommendations made by the independent auditors and the Comptroller General in their reports."

3. Amend subsection 26(d) to read as follows:

"(d) WITHHOLDING INFORMATION.—Nothing in this section shall authorize the withholding of information by the Secretary, or any officer or employee under his control from the duly authorized committees of the Congress."

Sincerely yours,

R. F. KELLER,

Assistant Comptroller General of the United States.

THE GENERAL COUNSEL OF THE TREASURY,

Washington, D.C., August 31, 1971.

HON. WARREN G. MAGNUSON,
*Chairman, Committee on Commerce,
U.S. Senate, Washington, D.C.*

DEAR MR. CHAIRMAN: Reference is made to your request for the views of this Department on S. 1437, "To amend the Airport and Airway Development and Revenue Acts of 1970 to further clarify the intent of Congress as to priorities for airway modernization and airport development, and for other purposes.

The bill would amend the Airport and Airways Development Act of 1970 to provide that receipts in the Airport and Airway Trust Fund derived from aviation user taxes may not be appropriated for any fiscal year to carry out activities relating to administration, research and development, and maintenance and operation of air navigation facilities unless at least the minimum amounts for airport development grants and acquisition of airway facilities established in sections 14(a) and (c) of the Act have been appropriated for such fiscal year.

The apparent intent of the bill is to require the spending of the amounts authorized in the 1970 enabling legislation for airport development grants and acquisition of airway facilities. The Department has generally opposed proposals which would require authorized amounts to be spent on the grounds that such proposals are contrary to the principles of efficient program administration and would limit flexibility to establish priorities in the allocation of scarce budgetary resources in response to rapidly changing domestic and national security needs. The Department understands that the Department of Transportation in testimony before the House Committee on Interstate and Foreign Commerce opposed enactment of H.R. 7072, a similar bill.

In view of the foregoing, the Department would be opposed to the bill.

The Department has been advised by the Office of Management and Budget that there is no objection from the standpoint of the Administration's program to the submission of this report to your Committee.

Sincerely yours,

CHARLOTTE TUTTLE LLOYD,
Acting General Counsel.

Senator CANNON. Our witnesses today are Mr. John P. Olsson, Deputy Under Secretary, Department of Transportation, and Mr. Kenneth Smith, Deputy Administrator, Federal Aviation Administration.

Senator Pearson, do you have any comments?

Senator PEARSON. No, Mr. Chairman. Let us go ahead.

Senator CANNON. We would be happy to have you proceed, Mr. Olsson.

**STATEMENT OF HON. JOHN P. OLSSON, DEPUTY UNDER SECRETARY,
DEPARTMENT OF TRANSPORTATION, WASHINGTON, D.C.; AC-
COMPANIED BY HON. KENNETH SMITH, DEPUTY ADMINISTRA-
TOR, FEDERAL AVIATION ADMINISTRATION, WASHINGTON, D.C.;
AND J. E. DOW, DIRECTOR OF BUDGET**

Mr. OLSSON. Senator Cannon, Senator Pearson, I am pleased to again be before this subcommittee.

As you mentioned, on my right is Mr. Kenneth Smith, Deputy Administrator of the Federal Aviation Administration. On his right is Mr. James Dow, the budget director for the FAA.

Mr. Chairman, there are some changes in my final statement which are of some significance, and when I come to those points I will point them out in specific detail.

I appreciate this opportunity to appear before you today to discuss S. 1437 and similar bills amending the Airport and Airway Development and Revenue Acts of 1970.

The thrust of these bills is to preclude the use of moneys in the airport and airway trust fund to meet expenses attributable to research and development and the operation and maintenance of the airway system each year in which appropriations are not made of the minimum amounts for airport development and airway facilities specified in section 14 of the act. The Department opposes the enactment of these bills. We do not believe they are necessary to the achievement of the long-range goals established in the Airport and Airway Act, and we believe that, in some instances, the rigidity they would impose might be harmful to the effective administration of the airport and airway program.

Senator PEARSON. Let me just interrupt you there—if I might, Mr. Chairman?

Senator CANNON. Certainly.

Senator PEARSON. Have you had an occasion to look back through the legislative history and the hearings before this committee and the Finance Committee concerning the intent of Congress and the representations made by members of this committee to aviation in general? Have you had a chance to look back through that record?

Mr. OLSSON. Yes, I am generally familiar with the record on the committee hearings.

Senator PEARSON. The reason I ask you is the strong assurances were made by a number of people, and I was one of them speaking and seeking to get the support of general aviation in particular. And you know what their attitude has been through the years. I just want to be sure as you go into this testimony that you understand what we consider to be representations made to the industry and what we intended.

We had a very difficult time. This bill was not passed for about 12 months because of opposition, and much of it from general aviation. It was finally acquired through some statements of policy and legislative intent, that this fund would be secure, and I just want to find out now whether or not you are aware of that as you continue with your testimony.

Mr. OLSSON. Thank you.

Senator PEARSON. Are you?

Mr. OLSSON. Yes, I am familiar with the earlier congressional hearings and the extensive record that was built up on this matter.

I have also had discussions with the industry groups, and I am familiar with their viewpoints on the bill.

We have had hearings, as you may know, 2 weeks ago on the House side on the same matter, and I think I have had a very clear expression of their intent when they enacted the legislation there.

Senator PEARSON. If the administration opposes this bill, do you not believe that the industry generally will feel that we have broken faith with them?

Mr. OLSSON. We intend, Senator Pearson, to carry out both the facilities and equipment program. Just to review those for a moment, the act provides for a level of \$250 million for facilities and equipment, starting with fiscal year 1971. Our program provides for a funding level in 1971 of \$238 million, and then in 1972, \$250 million. Our intention is to carry out that aspect at that level into the future.

In regard to the airport development grants, as you know, the act provides for \$280 million.

There is a lower figure if the program is carried out in the first year; namely, 1971, of \$170 million for the development grants, and \$10 million for planning grants.

But as Senator Cannon mentioned a moment ago, there has been an administration decision to increase the 1972 program level to the full \$280 million.

Senator PEARSON. We are grateful for that.

Mr. OLSSON. And it would be the intention of the administration to continue the program in the future beyond 1972 at that level of \$280 million.

Senator PEARSON. Thank you very much. You go ahead with your testimony. I just wanted to understand at the outset whether or not you understood the history, the attitude of the industry and the people involved and the attitude of this committee.

Mr. OLSSON. Yes, sir.

Senator CANNON. I think it would be well to emphasize what the legislative history was at this point. I want to read into the record a paragraph from the report on the bill that we passed; it states as follows:

The reported bill allocates, for specific capital investment purposes, portions of the total user charge-derived revenues and provides that no other user charge-

derived trust fund revenues should be obligated for other purposes until the minimum amounts have been allocated to the capital investment portions of the program. Therefore, if the Secretary at any time fails to obligate for expenditure these allocated revenues, they will remain in the trust fund unavailable for other uses. Therefore, the bill provides that the Secretary must allocate annually at least \$250 million of user charge-derived trust fund revenues for acquiring, equipping and establishing air navigation and air traffic control facilities, and the Secretary must allocate annually at least \$300 million (later changed in the Conference Committee to \$280 million) per year of user charge-derived trust fund revenues to airport development grants.

It seems to me that that is a pretty clear statement of what the congressional intent was; and it also seems pretty clear to me that the administration had no intention to carry out the congressional intent up until 5:55 p.m. last night when they phoned here to say they were releasing these additional moneys. I am sure they did this because they were dragged, kicking and screaming, to the witness table, as you people are in here to talk to us, as you were in the House not long ago.

Mr. OLSSON. May I respond to that, Mr. Chairman?

Senator CANNON. Yes, sir.

Mr. OLSSON. I think the only major area of difference has been on the airport grant program. I think we have been on target with the facilities and equipment programs. We have been over target on the funding levels that has been provided for research and development. I have to admit in all candor that the amount provided in 1971 on the grant program was less than was the amount specified as the authorized level in the act. The program level would be carried out at \$170 million; \$280 million was the amount specified in the act.

I think it is fair to say, however, that the prior program never exceeded \$75 million in authorizations. Some years appropriations didn't even reach that amount. Now, I think it is difficult to go from a position of \$75 million to \$280 million in 1 year.

It was a considered judgment on the part of the administration that there was a need to scale up the program as efficiently as possible, and that was the intention followed here.

When it was shown that the Federal Aviation Administration could carry out effectively a full program of \$170 million in 1971—and, as you may recall, that program level had been increased earlier this year from \$100 million to \$170 million—there was an increase to the full level.

From 1972 on, we think that the full spirit and intent of the act is being met by the administration.

Senator CANNON. I would agree with you that there were some real problems in connection with 1972, in moving from such a low level up to a greatly expanded level, but the failure to move up to that level is not what really disturbs me at this time. It is the fact that there was an attempted, unauthorized invasion of the moneys in the trust fund for other purposes, before the terms of the act had been met. That is more disturbing to me than the fact that FAA has yet to fully establish the airport grant program.

Mr. OLSSON. I will be touching on this point later in the statement.

Senator PEARSON. Let me understand something at this point. You said something that gave me the impression that if the trust fund amounts should come in and reach a level where you could make your full commitments to the airways and to the airports and surpluses

then remained in, that those should be made available for these other purposes. Did you mean to indicate that?

Mr. OLSSON. I do not think I made that statement. I think what I was referring to was that in 1972 the full amounts of the programs authorized under the act would be met. That was my earlier reference.

As far as the trust fund operations are concerned, I think, Senator, that Chairman Cannon referred to that point. If I could comment on that, I think the problem resulted from the initial year 1971 in which a very small amount of the funds from the trust fund were actually utilized. We had a much larger facilities and equipment program and a much larger airport grant program that were not financed except to a minor extent from the airport-airway trust fund. And in order to correct the imbalance resulting from the problems associated with the operation of the trust fund in the first year, these corrections were made in the second year. This is where a great number of these matters that we have discussed occurred.

Senator CANNON. Mr. Olsson, if I may interrupt, there is a vote. We will go to the Senate and vote and be back as quickly as we can.

The hearing will be temporarily recessed.

(Recess.)

Senator CANNON. The hearing will come to order.

You may proceed, Mr. Olsson.

Mr. OLSSON. Thank you, Mr. Chairman.

Just last month we marked the first anniversary of the enactment of the Airport/Airway Act. At the time the act was passed, we regarded it as the most significant legislation in the aviation field since the enactment of the Federal Aviation Act in 1958. The act was needed to give us during the decade of the 1970's the means for improving and expanding our airports and for upgrading and modernizing the airway system to insure the safe and efficient movement of air traffic. The act fulfilled that need most satisfactorily, and established firmly in the field of aviation the principle that those receiving special benefit from the aviation services provided by the Government—the users of the airport and airway system—should pay through special charges sums needed for the development and operation of the system. Let me say that our enthusiasm over the enactment of the act is as keen on its first anniversary as it was on the day the President signed it into law.

We recognize that controversy exists respecting the administration of the act, particularly with respect to funding the development of airports and the installation and improvement of airway facilities, and that this has contributed impetus to the introduction of the amendments in the bills before the committee. Therefore, I would like to take a brief look at our funding to date, our future funding plans, and how these square with the long-range funding goals of the act, as well as discuss the general operation of the trust fund during fiscal years 1971 and 1972.

The next section is a significant change from the earlier draft of my statement, copies of which were distributed earlier.

First, let us look at the funding for airport development. You will be pleased to know that the administration plans to obligate \$280 million for airport development in fiscal year 1972. This represents an

increased of \$75 million over the \$205 million previously planned for fiscal year 1972. We are proud that we are able to obligate \$170 million in fiscal year 1971, considering the late start. It would be the intention of the administration to continue the program at the \$280 million level. Thus, after the first year startup, our plans call for making funds available at the annual obligation levels authorized by the act. We will be requesting appropriations for the cash payments to meet these obligations as required. We believe that the true program level for the airport program is best measured by the obligations made during a given fiscal year, rather than by the liquidating appropriations in that year.

Now let us turn to the funding on the airway side. The act states that the annual obligational authority during the period July 1, 1970, through June 30, 1980, for the establishment and improvement of air navigational facilities should be no less than \$250 million. The Department's budget for airway facilities contained \$238 million for 1971 and \$250 million for 1972. Our planning for the subsequent 3 fiscal years calls for the obligation of at least \$250 million for each of those years. Thus, the total amount we would obligate for airway facilities for the 5-year period is expected to be at least \$1.250 billion which, again, is on schedule from the standpoint of meeting the 10-year goal of \$2.5 billion contemplated by the act.

In the area of research and development, we are exceeding the annual amounts stated in the legislative history of the act. At the time of the hearings on the bill we contemplated an annual program of some \$50 to \$60 million. For fiscal year 1971 our budget for research and development was \$62 million, and for fiscal year 1972 it is \$73 million. The larger outlays we will be making for research and development early in the 10-year program should enable us to achieve greater cost effectiveness from our capital investments for airway facilities than otherwise would be possible as we move through the 1970's.

Mr. Chairman, I have here for the record a table which shows these funding levels by major category for the fiscal years 1971 and 1972, which is affixed to the statement.

Now I would like to discuss the manner in which we are applying to our airport/airway program the sums in the trust fund available from the aviation user taxes and from the general fund of the Treasury.

There has been considerable confusion and misinformation prevalent concerning the operation of the trust fund. Let me take just a minute here to clarify the situation and hopefully put things into the proper perspective.

First, there are certain expenditures which cannot be funded out of the trust fund. These include both the operations aspects of safety regulations and enforcement, and the associated research and development. Another non-trust-fund item is the operation of National and Dulles Airports. These programs are financed by separate appropriations from the general fund of the Treasury and are not related to the trust fund or the user taxes.

Second, that portion of the airspace system considered to be chargeable to military operations is not financed from user charges, and properly so. While from a bookkeeping standpoint these expenses are

included in the trust fund, the source of funds is the general fund, not user charges.

Thus, the expenditures actually financed by aviation user charges are limited to the areas directly benefiting the aviation user. The Airport/Airway Act states that amounts in the trust fund shall be available, as provided by appropriation acts, for making expenditures for (1) airport assistance; (2) construction of air traffic control and air navigation facilities; (3) research and development with respect to the airway system; and (4) the operation and maintenance of airway facilities, including supporting services. All of these four major areas may be financed from trust fund moneys if appropriation acts so provide, whether those moneys are derived from user taxes or other taxes.

Our current estimate of user charge receipts indicates that it will not be until the 10th year that user charges would cover completely the cost of services rendered under the act. In fact, during fiscal years 1971 and 1972 it is estimated that user charges will cover only about 50 percent of the cost of trust fund activities.

I would also like to take this opportunity to clarify the true status of the so-called balance in the trust fund at the end of fiscal year 1971. The regular FAA appropriation for fiscal year 1971 was not made from the trust fund. However, the fiscal year 1971 supplemental appropriation for the FAA was made from the trust fund. The effect of this was a buildup of a balance of approximately \$403 million in the trust fund by the end of fiscal year 1971, which normally would have been applied to eligible airport/airway programs in that year. This balance will be completely eliminated during fiscal year 1972 as the proper adjustment is made to balance out the 2-year program.

I would also like to briefly review the progress we are making toward improving and expanding our aviation and airport system, as well as our plans for the future.

Regarding our instrument landing systems (ILS), there are 135 new ILS's being added. This will be an increase of nearly 50 percent over the 295 at the beginning of this fiscal year.

We are now installing new automated radar terminal systems (ARTS) for use throughout the Nation. These systems will provide controllers with an automated display of vital flight information such as identity, altitude, and speed. This data will be coded and will move with the blip across the radarscope. Four of these systems have already been installed: New York, Atlanta, Chicago, and the FAA's Training Center at Oklahoma City. This equipment will be delivered at the rate of two units per month. By the end of late calendar year 1972, we will have a total of 64 ARTS III systems in operation at large airports.

Our new airport surveillance radars (ASR) will provide improved aircraft surveillance in terminal areas. There are 36 ASR's which are either now under contract or will be shortly. This is a substantial expansion over the 88 ASR's in operation at the beginning of this fiscal year.

We are proceeding with the automation of our en route traffic control centers known as NAS-stage A, and we expect to have 20 centers covering the continental United States in operation by late 1974.

Mr. Chairman, this is an accounting of the rapid progress we are making in the use of facilities and equipment funds. With the assur-

ance of a \$250 million funding level provided in the Airport/Airway Act of 1970, we will be able to make continued progress.

I would like now to turn to the airport development assistance program (ADAP). Since the start of the airport development assistance program in July 1970, we have approved to date the allocation of funds for 269 development projects for a total of \$170 million. Out of this amount, funds have been allocated for 161 projects at airports serving all types of civil aviation aircraft; 89 projects at airports serving general aviation aircraft exclusively; and 19 projects for reliever airports.

To return now to the specifics of S. 1437, we would not like to see absolute minimums established respecting the funding of airport assistance and airway facilities, nor a provision in the law prohibiting the use of trust fund moneys for research and development and operations and maintenance when such minimums are not met.

Senator CANNON. Why do you say you are opposed when the history of the act shows clearly that that was the intent of Congress? You are saying you are disregarding the intent of Congress and therefore opposed to having it written into law. Otherwise it should not make any difference if we do write it into the law.

Mr. OLSSON. Let me address that now, if I may, sir.

We think there may be occasions in the future—this is a 10-year program, as you well know—in which the balance between the facilities and equipment, R. & D., and other programs may need to be altered to reflect current conditions. We think there should be some flexibility in the administration of this program to allow us to meet those changed conditions.

I might also point out that the airport development grant program as you know, provides for \$280 million for the first 5 years, but a total program over the 10 years of \$2.5 billion. So this itself assumes some decrease in funding during the second 5 years of this program.

Senator CANNON. The act only authorizes obligations for the first 5 years. We are saying that you must spend the minimums before you use these trust fund moneys for other purposes.

Mr. OLSSON. Let me ask Mr. Smith to elaborate on this point, sir.

Senator PEARSON. Just a moment. You say in the future that may be the case. In fact, that has been your position right now.

Mr. OLSSON. Sir?

Senator PEARSON. You say in the future we may have a situation where these other uses are called for and we need flexibility. Well, that may be true in the future, but this is your policy right now, is it not?

Mr. OLSSON. Our policy right now, sir, is that, as you know, with respect to the funding levels, we are meeting the full levels provided in the act in 1972.

Senator PEARSON. We are very grateful for that.

Senator CANNON. That was as of last night. As of yesterday morning, you were not.

Mr. OLSSON. That is correct. Now with respect to the——

Senator STEVENS. I do not understand that. Would the chairman clue me in it, please?

Senator CANNON. As I indicated earlier, I received a notification at 5:55 p.m. last night from OMB that they were releasing an additional

\$75 million to the FAA from the Airport/Airway Trust Fund, for the airport development program.

Prior to that time they had planned to obligate only \$205 million. So the testimony had to be redone before today's hearing.

Senator STEVENS. I see. Thank you very much.

Mr. SMITH. May I just add a little bit to the statement Mr. Olsson just made?

What we are seeking here is a degree of flexibility, with the commitment now made, that the \$280 million and the \$250 million funded in the earlier statement that John has made.

As you know, we are now runway limited principally throughout this country when it comes to expanding the efficient use of the air-space. There may be cases where we would like to spend moneys in addition to the \$280 million in a catchup program for airports. The following year we may not need that kind of cash, and therefore we would like to have that degree of flexibility. That is really what we are talking about here.

Senator PEARSON. Mr. Smith, if I might interrupt you and respectfully suggest if that had been the policy of the Congress, we would not have gotten this bill passed.

Mr. SMITH. I understand, Senator Pearson. I was not aware of that particular issue. I think you can understand our desire—it may not happen—to have flexibility.

Senator PEARSON. I can understand your desire. We had to fight the prior administration on this. We dealt with a little technicality like "What would we call the fund?" We wanted to call it a "trust fund," and we had a real good reason for wanting to call it that. They came up and said, "Let's call it a designated account."

The opposition to the trust fund concept was real and persisted for some time. It was only after they became persuaded that we were not going to get a user tax bill unless we went to the rigidity of which you complain now; and I understand your position.

The Office of Management and Budget—I suppose it is a policy of all such agencies not to designate money if you can help it, so that you can move from place to place. But the realities of legislative action are that, had we had the position that you now advocate—and I do not criticize you for it, except that I would think that you would give greater consideration to the legislative intent last year and as we move into the future.

Senator CANNON. Maybe you will not criticize them, but I will. I think they ought to be criticized when they clearly disregard the intent of Congress. We fought this bill out, and tried to get a bill through for years. Senator Mike Monroney led this battle for years in an attempt to get legislation passed. As Senator Pearson said, we had a big fight over whether we would establish a "designated account" or a "trust fund" and Congress decided that it was going to be a trust fund because we wanted those moneys protected and earmarked for specific purposes, and we wrote in into the history of the act.

We said that not less than \$280 million a year would be spent for airport grants-in-aid before the trust fund moneys could be used for other purposes. Now you are saying that you want more flexibility.

You do not want the requirement that you must spend \$280 million for airport grants before you invade the trust fund for other purposes.

Your sky marshal program is another example of an invasion of the fund. There you took \$35 million out of the trust fund to pay for the sky marshals last year even though the minimum requirements for funding airports and airways that were established in the congressional history were not met.

Mr. OLSSON. Could I address that point, Mr. Chairman, on the sky marshals?

At the time this occurred in September, we had the incidents on the Jordanian desert where several aircraft were destroyed. We prepared legislation encompassing two factors. The first was to authorize the funds to carry out a sky marshal program, and the second was a tax proposal to finance this authorization from increased user charges, an increase in the domestic tax from 8 to 8.5 percent and the international tax from \$3 to \$5 a passenger. Congress enacted the appropriation for the sky marshal program but did not enact the user charges.

Senator CANNON. There may be good reasons for that program, but still the Airport and Airways Act did not authorize that kind of appropriation from the funds. The sky marshal program was not authorized under the Airport and Airways Development Act and funds from the trust fund were not to be used for that purpose.

Mr. OLSSON. We felt that air security, was a proper function to be carried out by the FAA.

Senator CANNON. But not from the trust fund. There is no legal authority for funding that program from the trust fund. And you even proposed a change in the act so that you could take it from the trust fund, and that proposed change in the act was not enacted.

Mr. OLSSON. In addition, we proposed the user charges, of course. I just wanted to elaborate on the background here.

Senator PEARSON. As a matter of fact, the proposed increase of user charges by implication was contrary to what we intended when we passed the act. Every modification of the user charge was predicated on a period of experience followed by a study and recommendations because we really pulled some of these figures out of the air. There was no way in the world to know whether it was a fair charge here and there and across the board, and we just picked some out, as a matter of fact, using the very best data that we had, but everybody, when we went into this thing, did not contemplate, even given the seriousness of the emergency that you speak of, that we would have recommendations for increased user charges.

Mr. OLSSON. I think this recommendation to the Congress was based on the belief that this cost should be borne by the users of the system and not by the general taxpayer. And that is why, because it was solely related to the air traveler, it was recommended at that time.

Senator PEARSON. I understand. And there was great uncertainty as to what should be the public interest, what amount should represent the public interest in these funds. We never really understood what that would be. We contemplated general revenues coming into this trust fund, and I would think that they would cover public interest situations such as the international crisis that arose.

Mr. OLSSON. Of course, over the period 1971 and 1972, the general fund will provide about half of the funds for the trust fund, with the other half coming from user charges.

Shall I continue, Mr. Chairman?

Senator CANNON. Yes, sir.

Mr. OLSSON. We regard all four of the major functions financed by the act as important, and the law should remain flexible so that special emphasis may be placed on any one of these areas in a particular year as necessary to meet the need at hand.

Senator CANNON. I hate to keep interrupting, but you say the law should remain flexible. I contend it is not now flexible. Section 14, title I of the act clearly states that "not less than \$280 million per year is to be made available by the Secretary each year for grants for airport development."

Now, I do not understand how you contend you have flexibility under the act at the present time.

Mr. OLSSON. Well, I would answer it this way, Mr. Chairman. We would prefer not to have increased rigidity in this respect. That would be our view on this matter.

I think you have pointed out the background of the act, the hearings that took place, the understanding that the user groups have on this matter; and I think essentially what we are moving toward is a full funding level for the program.

We had a startup period in 1971. We think we have gone past that period. We are at the full level of funding for 1972. And while it is a matter of judgment, I think prudent judgment was used with respect to the level carried out in 1971 in the airport grant program.

I think it is awfully difficult to scale up to a four-fold increase in 1 year. I think that was one of the main concerns that the administration officials raised.

Senator CANNON. As I pointed out earlier, I sympathize with you on that problem, and that is not what I really object to there. I am not criticizing you for the fact that you did not scale the airport program all the way up in the first year. I am criticizing you for the fact that in the face of a slow startup you turned around and attempted to invade the trust fund improperly under the act and contrary to the legislative intent and the legislative history. And you did violate the act in funding the sky marshals program from the trust fund. And yet you come in now and say you do not want legislative rigidity; you do not want to be held to certain levels.

My point is, you already are held to those levels. It is in the law. It is in section 14. And it is in the legislative history.

I would like to ask you: What language in the law led the administration to the conclusion that Congress intended that anything less than \$280 million a year for airport grants and \$15 million a year for planning grants should be requested and spent? Is there some language in there that you think supports that position?

Mr. SMITH. Mr. Chairman, you pointed out that this is a 5-year program, and certainly we acknowledge and understand that.

We have also said earlier that it is the administration's position to commit to the levels and intent of the bill. All we are saying is, as managers, we would like to have some degree of flexibility if, in fact, we have accomplished the 5-year program, and that is all that we are asking for.

Senator CANNON. But if you accomplish the 5-year program, then you are likely to have some flexibility.

Mr. OLSSON. Yes, indeed.

Senator CANNON. The minimums were put in there. First you have the flexibility within the 5 years that permits, once you meet those minimums, you to use remaining moneys for other purposes. We want to be able to do that. But we want you to meet those minimums first.

As Senator Pearson pointed out, we had a hard time selling this. And I personally spent a lot of agonizing time on this with the various groups that were represented, that were concerned about it; and also even after we went to conference with the House and tried to get something meaningful out of it.

Mr. SMITH. Mr. Chairman, above all, those of us that have spent our lifetime in this industry appreciate the tremendous work that has gone in on this bill, and let me say that—John said it earlier—we are just as enthused now about airport/airways legislation as we were when it was signed into law. But the complexion has changed since 5:55 last night, and now money is where our mouth is, and some promises to live up to the intent of the act.

I believe if there is any fault here, it may well be our fault for not getting this message communicated more clearly to this administration. And I think we have accomplished that, and that is the difference between yesterday and today.

Senator CANNON. Let me get back to this question that I raised earlier, just a few moments ago. Is there any language in the present law that leads the administration to the conclusion that Congress intended anything less than \$280 million a year be spent for airport grants and \$15 million a year for airport planning grants?

Mr. OLSSON. Let me address that, if I may, sir.

Senator CANNON. All right.

Mr. OLSSON. The act does have a proviso that limits the amount authorized in that the funding level is subject to the appropriate appropriations act. That is a general limitation in the act.

Senator CANNON. We do not provide any limitation on the authorization at all, but we say that minimums should be appropriated.

Mr. OLSSON. Could I make one further point on this matter?

In 1971 the Department of Transportation Appropriation Act contains a limitation on the obligational level for airport grants of \$50 million. Now, while our program was below that level, we were precluded from being at the authorized \$280 million because of the limitation in our appropriation act.

The point I was raising is simply that there is another control on this; namely, the Appropriations Committee action.

Senator CANNON. That is well and good. I know you are limited by whatever amount is appropriated; but you are not limited by what amount you can request. That is what we said in the act.

Mr. OLSSON. I quite agree with this.

Senator CANNON. Now getting back to my question: Is there any language in this act that leads you to the conclusion that Congress intended anything less than \$280 million a year for airport grants and \$15 million a year for airport planning grants should be appropriated? That you should request any less than those amounts? Is there any language in there to support that?

Mr. OLSSON. I do not believe so.

Senator CANNON. All right. You may proceed.

Mr. OLSSON. As you can appreciate, it is a complex subject.

We believe it appropriate to allow all four of the areas to be financed by any moneys in the trust fund. In fact, toward the end of the decade the act is designed to provide sufficient income from user taxes to meet nearly all of the costs of all of the eligible functions carried out under the act, including the operation and maintenance of the airway system. And this is as it should be. Certainly the crucial service afforded the users by air traffic controllers and systems maintenance personnel need not take a back seat to any of the other major parts of the program. The costs incurred in the provision of this service not only are proper ones to be charged to the users, but they are deserving of a very high priority in the application of available tax revenues to the various facets of the airport/airway program. In our view, the operation and maintenance of the air navigation and air traffic control system directly benefits the users of the system and is properly a cost that should be eligible for financing through user taxes.

In summary, we do not believe that provisions in the Airport/Airway Act for the administration of the trust fund require amendment along the lines proposed in the bill. Needless to say, any alternative proposal which would further limit the use of the trust fund would cause serious management problems for the airport/airway system and would be most undesirable. As we have shown, our current program is proceeding at a pace which should insure the attainment of the long-range funding goals of the act for airport assistance and the installation of airway facilities. At the level for 1971 (\$170 million for airport development), we have made a dramatic jump in obligations over previous years when under the old Federal Airport Act the maximum annual authorized level was \$75 million, and actual appropriations sometimes fell short of that level.

As far as airway facilities are concerned, again we are very close to the funding schedule prescribed by the act, and if you take into account the added emphasis we are placing on research and development, I would say we are a step ahead in this field.

We believe it is essential that trust fund moneys be available for all aspects of the airport and airway development program. All of these functions are essential to affording the users a safe and efficient system of airports and airways, and the act should remain flexible to allow effective administration of these functions, including necessary increases or decreases in funding on a temporary basis to accommodate urgent needs in different areas of the program.

Mr. Chairman, that concludes my prepared statement. Now I would be happy to answer any questions you and Senator Pearson may have.

(The table referred to earlier follows:)

AIRPORT/AIRWAY PROGRAM—FISCAL YEARS 1971 AND 1972

Appropriation/estimate	Amounts mentioned in Public Law 91-258	1971 appro- priation	1972 estimate	1971 and 1972 total
Operations.....		\$902.8	\$991.8	\$1,894.6
Airway system investment/development.....	\$300.0	300.4	322.8	623.2
Facilities and equipment.....	(250.0)	(238.0)	(250.0)	(488.0)
Research and development.....	(50.0)	(62.4)	(72.8)	(135.2)
Grants-in-aid for airports:				
Planning grants.....	15.0	10.0	15.0	25.0
Development grants:				
Obligations.....	(280.0)	(170.0)	(280.0)	(450.0)
Appropriation to liquidate obligations.....		60.0	92.0	152.0
Aviation Advisory Commission.....	2.0	1.3		1.3
Total appropriations.....		1,274.5	1,421.6	2,696.1
Funding:				
General fund appropriations.....		1,097.2	293.1	1,390.3
User tax revenues applied.....		177.3	1,128.5	1,305.8
Estimated user tax revenues (existing and proposed legislation).....		580.0	726.0	1,306.0

Senator CANNON. Getting back to your ASR program, you say there are 36 ASR's which are either now under contract or will be shortly. This is a substantial expansion in addition to the 88 ASR's in operation at the beginning of the fiscal year.

How many of these 36 new radars are at new locations? In other words, are a substantial number of those 36 just replacing old ones at old locations?

Mr. SMITH. Mr. Chairman, five of the 36 have been installed at new locations. It is additive to the system in that we will remove some of the older ASR's to lower level activities where we need higher definition in more crowded terminal spaces.

Senator CANNON. So really only five of the 36 are at new locations?

Mr. SMITH. At this moment in time, yes. But we will be moving the older equipment into new airports, or airports that have not previously had the ASR's.

Senator CANNON. So what you are really saying is that at the end of this year you will have ASR at 93 locations compared to 88 that you had in locations at the beginning of the fiscal year?

Mr. SMITH. I would like to double-check that to make sure we are accurate; but generally this is true, yes.

Senator CANNON. While he is checking that, how many new towers in the fiscal year 1972 budget do you propose, new control towers?

Mr. SMITH. There are eight additional towers in fiscal year 1972.

Senator CANNON. Are all eight of those at new locations, or are some of those at the existing locations?

Mr. SMITH. Correction. In fiscal year 1972 there are four new towers, and they are all new locations. Alaska, Dead Horse; East St. Louis, Ill.; Enid, Okla.; and Tacoma, Wash.

Senator CANNON. There are four new towers, all at new locations.

Now, how many sites are there currently eligible for towers?

Mr. SMITH. I would like the opportunity of supplying that for the record. We believe it is 13.

Senator CANNON. Mr. Secretary, you say there are 135 new ILS's being added. Is that under the 1971 program? Or is that proposed in the 1972 program? Or part of both?

Mr. OLSSON. Those are ILS's that are currently under contract, and would have been prior to 1972, sir.

Senator CANNON. But they would be funded in years past then?

Mr. OLSSON. Yes, indeed.

Senator CANNON. Do you have any new ILS's in the 1972 program?

Mr. SMITH. No; we do not.

Senator CANNON. Why not?

Mr. SMITH. Well, it is a matter of acquiring the 135 that we have under contract in 1971 and getting these installed. We will have additional requests coming up in the fiscal 1973 budget for additional ILS's. But this is a 50-percent increase in the system. And the acquisition of them and the planned installation will carry us through this coming year.

Senator CANNON. You talk about your ARTS system. You say these systems will provide controllers with an automated display of vital flight information such as identity, altitude, and speed. Does this system provide you automatically with the altitude of the aircraft, or must you still rely on the reporting of the aircraft itself?

Mr. SMITH. It will be both, Mr. Chairman. Those equipments in the system that are flying with the digital data compatible system, with ARTS, will automatically indicate the altitude, speed, and so forth. The information, where it is not available automatically from the aircraft, can be given verbally to the controller. He then inserts this into the system.

Senator CANNON. What, if anything, is being done in your research and development program with respect to the so-called satellite control system that has been in the talking stage for some period of time?

Mr. SMITH. We are now having rather lengthy discussions with a group of countries in Europe.

Our first step in this direction will be toward the satellites in the Pacific and the Atlantic to cover the first and major void we have in air travel principally here so that eventually we will have pinpoint position and voice communication so we can close the gap in the spacing of the flights across these two bodies of water. Hopefully this is then the beginning for future satellite programs that will cover the United States.

Senator CANNON. Do the present indications show you that this should be a great step forward from the standpoint of collision avoidance, in being able to fix very precisely the impact location of an aircraft at a point in space?

Mr. SMITH. We have very high hopes that this will come about in years to come. The limiting factor that we currently are examining right now and hope to find solutions for is the low cost of the communications equipment in the general aviation market. We do not have a solution to this part of the problem yet, and the Atlantic and the Pacific, of course, as you know, accommodate the larger aircraft. But this is a step in that direction.

Senator CANNON. Getting back to ILS's, you mentioned the cost factor there. What are present ILS's costing now?

Mr. SMITH. May I back up for just a moment and add a piece of information? There are 18 towers that qualified this year. That corrects the 13 number I gave you earlier. It is actually 18.

Senator CANNON. So you have really a backlog then of 18, with four going in this year?

Mr. SMITH. That is correct. However, may I also add that a great step forward in our opinion has been the development, and we will be purchasing in production quantities 56 towers, including module construction, that can be built on an assembly line instead of hand-tailoring a number of the towers as we have in the past. This will bring the cost down, and it will make these towers more readily available in the next couple of years. This is under mockup and development right now.

Now to return to the ILS question: it depends upon the particular site and the equipments that we have to install there, but it will range from \$175,000 to \$200,000 per installation.

Senator CANNON. It has been called to my attention that there is a fairly reliable ILS for let's say limited use available for considerably less money than that, in the area of \$20,000 to \$25,000, that can be used in, say, low density locations, and can be used quite effectively. Are you familiar with anything along that line?

Mr. SMITH. I visited this particular manufacturer, the one that you are referring to in this price category. We are encouraged with the development work that they have done to date.

An ILS, as you well know with your flight background, has got to be a very precise instrument that will not vary in frequency or in beam width or height, in all kinds of environmental conditions. We have high hopes this can be developed to the degree of control and reliability that ILS systems must have, and we are moving forward in this area.

I personally visited this manufacturer and spent most of a day with him. We do have encouraging signs.

Senator CANNON. So it looks as though this may be a possible solution to some of the low density areas that need some assistance, but where you cannot justify putting in \$175,000 to \$200,000?

Mr. SMITH. It does, and it also—if we can get this perfected and to get the degree of reliability we need, we can then lower the qualification counts of these various airports to permit these installations, and we are encouraged about that.

However, may I say that I believe the unit prices are something in the order of \$50,000 at this point, but with the promise of coming down below that.

Senator CANNON. In a recent statement, you told the House Commerce Committee—I am quoting:

The FAA 10-year plan under the act for the subsequent 3 fiscal years, 1973, 1974, 1975, calls for the obligation of \$280 million in 1973, \$285 million in each of the fiscal years 1974 and 1975. Under any foreseeable circumstances we would expect these amounts to be made available.

Now, is it not true that under the terms of the administration's transportation revenue-sharing proposal, the airport grant-in-aid program established last year would be scrapped and that amounts equivalent to what Congress intended for airport grants would be turned over to

the States in bloc grant form and could be used for any transportation purpose?

Mr. OLSSON. Could I address that, sir?

Senator CANNON. Yes, sir.

Mr. OLSSON. You are quite right, the revenue-sharing program does involve folding in the airport grant program into the transportation revenue sharing program.

The other three functions under the Airport/Airway Trust Fund would not be altered, that is, the facilities and equipment program for air navigation, research and development, and the operation and maintenance expense for the air traffic control system.

With regard to the airport grant program, revenue-sharing envisions combining the airport grant program, the highway program, with the exception of the interstate system which would not be incorporated, and the urban mass transit grant program, into a transportation revenue sharing plan. The States and local communities would then be given the flexibility to use these funds as in their opinion was the most effective way to deal with their transportation needs.

Senator PEARSON. So your answer is, user charges could go back and be used for highway purposes?

Mr. OLSSON. No, sir. Could I address that?

Senator PEARSON. Yes.

Mr. OLSSON. I was referring, first of all, to how the States and communities would be able themselves to operate in the use of these funds.

Now with respect to the trust funds, I will deal here with principles and we will get into details later if you wish. The trust funds would only be utilized—for example, let us take the Airport/Airway Trust Fund—to the extent that expenditures were made by the States and local communities for aviation-related activities. The first year would be the amount of two twenty that we referred to earlier; that would be the amount that would automatically be utilized from the Airport/Airway Trust Fund to get the revenue-sharing fund started. In subsequent years the amount to be utilized from the Airport/Airway Trust Fund would only be the amount that was used by the States and local communities for aviation purposes.

Senator PEARSON. Will you yield, Mr. Chairman?

Senator CANNON. Yes, sir.

Senator PEARSON. You mean user charges could go back to the States, trust moneys, to be used for aviation purposes, as the State so in its judgment desire—

Senator CANNON. Which includes the operation of State aeronautical agencies, I might add.

Senator PEARSON. And includes using them for terminal facilities, would it not?

Mr. OLSSON. Yes, sir.

Senator PEARSON. That is precisely contrary to what this act says.

Mr. OLSSON. The administration proposal does not envision the use for highway purposes of the Airport/Airway Trust Fund.

Senator PEARSON. For aviation purposes. That is what you are saying. Parking lots, terminal facilities?

Mr. OLSSON. The present administration proposal would allow that, yes, sir.

Senator CANNON. And the support of State agencies. That includes State aviation agencies with an administrator and 20 or 30 staff people and from six to 10 aircraft, as exist in some States. Would that be properly usable?

Mr. OLSSON. The whole thrust, Mr. Chairman, of the President's revenue sharing proposal is to give the States the flexibility to use the funds for what they see as their transportation needs, and I think that is really the basic issue.

Now, there is certainly an intent to only utilize trust funds for their particular modal applications.

Senator CANNON. For the modal applications, but not necessarily for the purposes that are outlined in the act and in the historical background of the legislation; is that right?

Mr. OLSSON. That is true with the administration proposal. That would be a refinement the Congress could add in its deliberations, certainly.

Senator CANNON. Now you say that you propose to pay over to the States \$220 million in the first year of the program. What happens to the other \$60 million? Is the Agency going to turn around and use that \$60 million for aviation purposes?

Mr. OLSSON. May I comment on that, sir?

I think the plan was to fold in the amount of the existing grant programs, and the first administration proposal with respect to 1972 was for \$205 million for development grants and \$15 million for airport grants. Since that amount has been increased by the \$75 million, I would envision that the legislation would reflect that change also.

Senator CANNON. So you think that the carrot now being held out on the stick to the States might go up to \$295 million this year?

Mr. OLSSON. The whole intent would be merely to follow the existing grant programs whatever their amounts are, sir.

Senator CANNON. And does the administration propose to suggest to Congress any limiting factors in the payment of that amount to the States to limit it to what was intended in the Airport-Airways Act?

Mr. OLSSON. The administration proposal gives the State the flexibility to spend the money for transportation without regard to any arbitrary limitation. I think it is our view that aviation will fare very well in the treatment of these funds as the local communities and States deal with them. It is certainly a departure from the present categorical grants, there is no question about that.

Senator CANNON. Would the State be able to set up, if it did not have one, an aviation agency within the State and pay for the support of it out of these funds and buy itself a few airplanes to help run the agency?

Mr. OLSSON. I really do not know those details, sir. I think you would have to depend on the State's particular procedures and regulations.

Senator CANNON. If you are going to depend on the States, then the answer is yes, they could do it?

Mr. OLSSON. I think it depends on the specific definition at the time as to what is a proper transportation expenditure and I think where you draw a line on that is a matter that would have to be determined. That is why I cannot be specific on this point.

Senator PEARSON. Would the chairman yield?

Senator CANNON. Let me follow up one thing on that. Now, you say you are not turning over to the States the interstate highway funds. Why are you not? That is a trust fund the same as this one. Why do you not turn that over to them, too, and let them use it as they see fit?

Mr. OLSSON. The interstate highway system, as you know, provides for the 42,500 miles of highways which is now envisioned to be completed by 1977 or 1978, about 75 percent of it is completed and about 95 percent either has the contracts underway or the engineering is completed. This has a definite time period. It is a definite project size. It was contemplated that this program would be finished since it is so far underway at this point in time.

Senator CANNON. I do not quite get the analogy there.

Mr. OLSSON. In other words, the interstate highway system is not effective unless the entire system is completed and that was, therefore, why the decision was made by the administration to exclude the interstate highway system from this program.

Senator PEARSON. We have time periods in this act, and what you are really saying is that the interstate highway system is a national system and so we do not really send back part of the highway funds to the States, but the airways system is a national system and it has time periods in it.

Senator CANNON. It would not be if that is permitted.

Mr. OLSSON. Could I respond to that, Senator?

Senator PEARSON. Yes.

Mr. OLSSON. I think there is a valid argument that can be made on that point. I think there are also valid arguments that can be made with respect to the benefits of letting the States and local communities decide where they want to put their resources, and that really is the basic change that is contemplated.

Senator PEARSON. Mr. Secretary, that is not only—that theory is not only contrary to the provisions of the act we are talking about, it is contrary to the theory of the old act, the FAA Airport Act. We there said that this is a national system and it is the FAA rather than the local community or States that is best equipped to set standards and guidelines and provide for the earmarking of these funds. We have been through a history where we said first you could use them for facilities such as terminals and airport facilities; then we backed off from that and said no, use them only for airport facilities.

Let me ask you this. Who put together the transportation revenue sharing proposal?

Mr. OLSSON. This was an administration decision at the highest level.

Senator PEARSON. But who participated in it?

Mr. OLSSON. This was done by the Office of Management and Budget, the White House staff and the Department.

Senator PEARSON. Well, I also know enough about government to know that what you propose has to go up to the White House and there it is modified, but did not one in the Department of Transportation make reference back to the legislative history of this act when they put together the revenue-sharing proposal?

Mr. OLSSON. There is no question, Senator Pearson, that changes would be required in a number of acts, including the Airport-Airways Act of 1970, the Highway Act of 1968 and 1970, the Urban Mass Transit Act of 1970. They would all require legislative amendment. I think I ought to lay that out on the table—in order to implement the President's transportation revenue-sharing program. No question, it is a departure from the priorities and guidelines set down by the Congress in the Airport and Airways Act of 1970.

Senator PEARSON. And it is contrary to the old law, is it not?

Mr. OLSSON. It changes the emphasis by removing these priorities and leaving the priority issues to the States and local communities. I think it is a matter, in the last analysis, judgment as to weighing the benefits of the present system against giving flexibility to the States as to how they utilize their transportation resources. I think you have identified the problem very accurately.

Senator PEARSON. My State does not have an aviation agency.

Senator CANNON. Mine does not either, but it sure will if this proposal is approved.

Mr. OLSSON. One of the benefits of revenue sharing would be increased attention by the States, perhaps through their transportation departments if they have them, to these problems, and to where they themselves want to put their resources. That is really the thrust of this effort.

Revenue sharing would utilize trust funds only for those purposes for which they were established, not for any other mode. That is certainly the intent here.

Senator PEARSON. Let me just put the issue in perspective. We view this legislation to put in statutory language the clear announced intent of the Congress when we passed the Airport and Airway Development and Revenue Acts of 1970, and it is the position of the Department that they oppose this bill? Is that it?

Mr. OLSSON. The amendment, sir?

Senator PEARSON. The bill.

Mr. OLSSON. No, sir.

Senator CANNON. S. 1437.

Senator PEARSON. The issue is just this, is it not, Mr. Secretary: The sponsors of this legislation say that this is statutory language—

Mr. OLSSON. You are referring, sir, to the amendment?

Senator PEARSON. I am referring to S. 1437.

Mr. OLSSON. Yes, sir.

Senator PEARSON. Which we call a bill which would be an amendment to the act, of course, that is right. This is statutory language to carry out the congressional intent of the 1970 Act and it is a recommendation of the administration that this not be passed?

Mr. OLSSON. That is correct, sir.

Senator CANNON. I might say that Senator Stevens has just asked to be added as a cosponsor of the bill. I would like to know whether the Department has any technical or drafting changes that they would recommend before we consider S. 1437 in executive session.

Mr. OLSSON. Fine.

Senator CANNON. You will advise us of any technical changes that you may suggest?

Mr. OLSSON. Yes, sir.

Senator CANNON. Do you have any further questions?

Senator PEARSON. Yes; let me ask you about your request for the fiscal year 1972. We are now at the \$280 million of the airport development grant program. How about the airways? You indicated in your statement that would be \$250 million?

Mr. OLSSON. We are at the full level that is provided in the act of \$250, sir.

Senator PEARSON. Do you also ask for \$170 million for administrative purposes for fiscal year 1972?

Mr. OLSSON. Let me just give you the other items in the 1972 program.

Senator PEARSON. Operations?

Mr. OLSSON. Yes; the facilities and equipment we just mentioned, \$250 million; research and development, \$2.8 million; planning grants, \$15 million; and then the airport development grants, \$280 million.

Senator PEARSON. You intend to stand by those budget requests?

Mr. OLSSON. Yes, sir; and the intention is of the administration to continue those authorized levels in the years beyond 1972.

Senator PEARSON. That is all I have.

Senator CANNON. Thank you very much, gentlemen. We appreciate having your views, and I may say that when you come in with your technical amendments, do not suggest striking out all after the enacting clause.

The hearings will be recessed until 10 o'clock tomorrow morning when we hear from the industry witnesses.

(Whereupon, at 11:45 a.m., the hearing was recessed to be reconvened at 10 a.m., Wednesday, June 23, 1971.)

AIRPORT AND AIRWAY DEVELOPMENT AND REVENUE ACTS AMENDMENTS OF 1971

WEDNESDAY, JUNE 23, 1971

U.S. SENATE,
COMMITTEE ON COMMERCE,
AVIATION SUBCOMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:05 a.m. in room 5110, New Senate Office Building, Hon. Howard W. Cannon (chairman of the subcommittee) presiding.

Present: Senators Cannon and Pearson.

Senator CANNON. The hearings will come to order.

Today's hearing is a continuation of the committee's consideration of S. 1437, a bill to amend the Airport and Airway Development and Revenue Acts to further protect the use of aviation trust fund revenue for unauthorized uses.

Yesterday the committee heard witnesses from the administration. This morning we shall hear from a panel of experts representing various segments of the Nation's aviation community.

The joint statement prepared for the committee will be delivered by J. Donald Reilly, executive vice president, Airport Operators Council International, and also we will have a separate statement, as I understand it, from J. J. O'Donnell, president of the Air Line Pilots Association.

I see our good friend Mike Monroney here, and I understand he has a brief statement he wishes to make, and we will, if we can, defer questions until all of the statements have been presented. However, I will not guarantee that procedure because Senator Pearson and I have a tendency to ask questions as they occur.

Senator Monroney, we are very happy to hear from you as our leadoff witness this morning.

STATEMENT OF HON. A. S. MIKE MONRONEY, FORMER U.S. SENATOR FROM OKLAHOMA

Senator MONRONEY. Thank you very much, Mr. Chairman, for the opportunity of being here.

It seems inconceivable to me, Mr. Chairman, in reading the bill again and reading the report, which was a very excellent report by

our staff, carefully detailing the objectives of this committee and the Congress in creating a trust fund, that any interpretation could be made other than that it was to be inviolate from the normal expenses of current operations of the FAA or any other Government department.

The trust fund was dedicated to the permanent construction of all things necessary to catch up from the long periods of starvation for our airport systems, as we all know, and for our airways systems. Some of it was literally hung together with baling wire.

There was the need for all kinds of things that had already been developed, yet because of the tight budget, working through general revenue, we found that it was impossible to finance the capital investment of billions of dollars that was necessary to construct the modern facilities for expanding air use, the expanded number of planes and the planes of higher sophistication that required more electronics for landing and certainly a heck of a lot more concrete for takeoff and landings.

This is why you gentlemen sat, every member of this committee sat, and knew what they were doing. Then, to be told at this late hour that we intended to carry on with these earmarked funds the necessary operating expenses of the bureaucracies, if you want to call it that, of the high management, the State by State setups for other management, and beyond that the salaries of thousands of air traffic controllers—the report speaks a lot of the duties of air traffic controllers, but I found no place in the bill where the air traffic controllers' pay was to be guaranteed and paid out of the trust fund.

There was a good section in the bill saying how much attention had to be paid in increasing their pay and helping them. But I can't conceive how anybody could read this bill and think the trust fund was anything but a trust fund. It was patterned after, known to be patterned after the highway bill, and then there were the provisions, very small and minor, that when everything was completed, the airport systems and the air traffic control systems, they could consider paying for some of the air traffic controllers.

Senator CANNON. We did finally yesterday, after some difficulty, secure admission from the Administration's witnesses that there was no language in the act that they could look to for authority to divert money to other purposes until the minimums for airports and airways had been met, that is, the \$280 million for airport development grants and the \$250 million for airway facilities. So, they did, after much reluctance, admit that they could not find specific language in the act as authority for that proposition.

Senator MONROE. It was to be used as surplus that had no place else to go, as I understand it, reading the bill and the report. Still, I

think it would be an error on Congress' part if they said when we meet the \$250 million quota that then we are going to spend it on general operations.

You know and I know the danger of undulating effect of airport construction.

Senator PEARSON. As a matter of fact, we contemplated revising the user taxes when we got above; is that correct?

Senator MONRONEY. That is exactly right.

Senator PEARSON. When you put this together?

Senator MONRONEY. You and everybody on the committee did. The bill had the unanimous support not only of this committee, but through this committee, the Congress and the newspapers.

You remember the contentions we had out in Wichita of different things that were going to happen to the money. Maybe these men had a little more apprehensions than we did, but we certainly did not think someone was going to get a long arm in the capital construction funds and use it to pay the general expenses of the FAA.

I want to thank you very much for this very important hearing, because I think the whole future of carrying on what this committee dreamed of as the very finest airport-airways system in the world can be negated and almost defeated, at least postponed by a decade, if the diversion is allowed to go on.

Senator CANNON. We had one very good result from hearings, if nothing else, and that was the fact that the night before last the administration did raise the amounts available for airport grants by \$75 million to bring it up to \$280 million this year. Then, of course, the other somewhat shocking thing that Senator Pearson and I developed yesterday was the fact that this administration's revenue-sharing program proposes to turn these trust funds over to the States and while they would be restricted, according to the witness, to aviation purposes, I think it is quite clear that the first use that many of the States would put this money to would be for the development and financing of a State aviation authority and the acquisition of a few new airplanes, staffing of that authority and setting up quite a little aviation bureaucracy.

Senator MONRONEY. We wanted a national airport-airways system and not one built by city hall to serve one county, as vital as that might be. We wanted it to be standardized as much as possible. Only by Federal control can you make orders that will actually cause the standardization of safety measures on the ground and in the air.

Thank you very much, Mr. Chairman.

Senator CANNON. Mr. Reilly, you may proceed, sir.

STATEMENT OF J. DONALD REILLY, EXECUTIVE VICE PRESIDENT, AIRPORT OPERATORS COUNCIL INTERNATIONAL (AOCI), WASHINGTON, D.C.; ACCOMPANIED BY LEO SEYBOLD, VICE PRESIDENT, FEDERAL AFFAIRS, AIR TRANSPORT ASSOCIATION (ATA), WASHINGTON, D.C.; EDWARD W. STIMPSON, PRESIDENT, GENERAL AVIATION MANUFACTURERS ASSOCIATION (GAMA), WASHINGTON, D.C.; J. J. O'DONNELL, PRESIDENT, AIR LINE PILOTS ASSOCIATION (ALPA), WASHINGTON, D.C.; ROBERT MONROE, DIRECTOR OF CONGRESSIONAL LIAISON, AIRCRAFT OWNERS AND PILOTS ASSOCIATION (AOPA), BETHESDA, MD.; FRANK KINGSTON SMITH, PRESIDENT, NATIONAL AVIATION TRADES ASSOCIATION, WASHINGTON, D.C.; AND SIEGBERG B. PORITZKY, ASSOCIATE DIRECTOR, NATIONAL AIRSPACE SYSTEM ENGINEERING, AIR TRANSPORT ASSOCIATION (ATA), ON BEHALF OF: AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES (AAAE), AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA (AIA), AIR LINE PILOTS ASSOCIATION (ALPA), ASSOCIATION OF LOCAL TRANSPORT AIRLINES (ALTA), AIRPORT OPERATORS COUNCIL INTERNATIONAL (AOCI), AIRCRAFT OWNERS AND PILOTS ASSOCIATION (AOPA), AIR TRANSPORT ASSOCIATION OF AMERICA (ATA), AIR TRAFFIC CONTROL ASSOCIATION (ATCA), GENERAL AVIATION MANUFACTURERS ASSOCIATION (GAMA), NATIONAL AERONAUTIC ASSOCIATION (NAA), NATIONAL AIR CARRIER ASSOCIATION (NACA), NATIONAL ASSOCIATION OF COUNTIES (NACO), NATIONAL AVIATION TRADES ASSOCIATION (NATA), NATIONAL AIR TRANSPORTATION CONFERENCES (NATC), NATIONAL BUSINESS AIRCRAFT ASSOCIATION (NBAA), NATIONAL LEAGUE OF CITIES (NLC), NATIONAL PILOTS ASSOCIATION (NPA), PROFESSIONAL AIR TRAFFIC CONTROLLERS ORGANIZATION (PATCO), AND U.S. CONFERENCE OF MAYORS (USCM)

Mr. REILLY. I am J. Donald Reilly, executive vice president of the Airport Operators Council International (AOCI). Joining me on the panel to respond to your questions are Capt. J. J. O'Donnell, president, Air Line Pilots Association (ALPA); Mr. Robert E. Monroe, congressional liaison for the Aircraft Owners and Pilots Association (AOPA); Mr. Edward W. Stimpson, president, General Aviation Manufacturers Association (GAMA); and Mr. Leo Seybold, vice president—Federal affairs, Air Transport Association of America (ATA). And on my far left is Mr. Frank Kingston Smith, president of the National Aviation Trades Association (NATA).

Mr. Chairman, we are here today representing 19 major aviation and community organizations which are united in support of enactment of S. 1437, or similar legislation to protect the new Airport and

Airway Trust Fund. As can be seen, cities, airlines, pilots, general aviation, air traffic controllers—these and others support our statement and recommendations to this subcommittee.

Our memberships are both extremely disappointed and greatly concerned. They are disappointed because they do not believe the airport and airway modernization programs approved by Congress last year are being implemented as rapidly as is possible. Likewise, they are concerned that, unless a greater effort is made to reduce the present backlog of unfunded aviation projects, our margins of safety within the total air transportation system will be strained.

Last spring, after many years of public and industry concern about congested airports and airspace and the cumulative effect of these on safety, Congress enacted the Airport and Airway Development and Revenue Acts of 1970—Public Law 91-258. This statute clearly recognized the need for prompt capital funds to modernize our aviation system and to expand its capacity. All the legislative history we can find is directed to this end.

Substantial new and increased taxes were levied on aviation users to support this overdue program of capital development, with total tax receipts estimated at almost \$600 million in fiscal year 1971 and \$726 million in fiscal year 1972. Assurances were given that these user taxes would be promptly translated into runways and airway facilities—the building blocks of a safe air transportation system. An Airport and Airway Trust Fund was established to prevent these user contributions from being expended for other than aviation programs.

However, the two budget proposals initially sent to Capitol Hill since Public Law 91-258 was signed effectively negate Congress' intent to finance a major catchup effort for aviation capital development. In the budget submissions for fiscal year 1971 and fiscal year 1972, there is as much emphasis—in terms of dollars—on paying FAA's operations and administrative expenses from user funds as there is on expanding aviation capital facilities. As a single example, in the fiscal year 1972 budget it is proposed that only \$107 million in user tax dollars be appropriated for the airport construction and planning programs, permitting the expenditure of \$699 million of the users' contributions for FAA operations, administrative, and maintenance expenses.

We will attempt to show that these budgetary proposals to use large amounts of user tax funds to offset routine aviation expenditures run counter to the Congress' intent in enacting Public Law 91-258. Further, they are inconsistent with the Government's obligations to those airport and airway system users whose taxes were increased last year so that their dollars could buy more safety and system capacity and efficiency.

As finally enacted, Public Law 91-258 was divided into two titles. Title I, developed by the Commerce Committees of the Congress, detailed the airport and airway assistance programs and established a financing outline for fiscal years 1971-75 for airport grants, airways hardware acquisition, and research and development efforts. Title II, developed by the tax committees of the Congress as an amendment to

the Internal Revenue Code of 1954, created the Airport and Airway Trust Fund and established the pattern of aviation excise taxes which would provide the resources upon which the title I capital programs would depend through 1980.

Chart No. 1, on my left, condenses the authorizing language of title I of the 1970 law for the capital programs, and relates the language of the statute to its stated priorities for expenditure. Section 2 declares congressional policy that, over the 10 years of the decade, \$2.5 billion in airport assistance programs and not less than \$2.5 billion in airways facilities are to be provided. Subsequent provisions specify the time frames in which the capital programs are to be implemented.

Section 13 authorizes \$15 million per year through 1975 for airport planning grants. Section 14, the central provision, first authorizes DOT to make airport development grants to sponsors for each of the years 1971-75 "in amounts not less than" \$280 million, which includes \$250 million for air carrier and reliever airport development, and \$30 million for other general aviation airport development. Next, section 14 authorizes the DOT Secretary to obligate annually "not less than" \$250 million for airways hardware, facilities, and equipment.

Two facts are noteworthy here. Congress, with respect to the airport and airway capital programs, stated in title I that the specified levels of funding for the first 5 years were minimums and not maximums. Further, relating the annual levels of funding established by Congress to the total amounts of funds to be provided over the decade, it becomes clear that Congress intended a major catchup effort in the first 5 years of the program. Considerably more than half of the 10-year airport funds were to be used in the first half of the decade. This is contrasted with the implementation to date under the airport aid program, which is premised on starting out slowly and building up airport project obligations in the latter half of the 10-year program.

Finally, section 14 provides that "the balance of the moneys available in the trust fund" shall be allocated for necessary FAA administrative, maintenance, and operations expenses and for research and development activity.

Section 208(d) of title II of Public Law 91-258, as developed by the tax committees of the Congress, then provides that general funds should annually be appropriated to the trust fund so that the fund, including user tax receipts, will be large enough to cover the airport and airway programs, research and development, and daily FAA expenses.

Section 208(f), like sections 13 and 14 of title I, refers to expenditures from the trust fund. It generally authorizes trust fund expenditures for airport and airway programs, including FAA administrative expenses and operations and maintenance costs, but without specifying any set of priorities to correspond to those of section 14.

When the final version of the trust fund legislation was being considered by Congress last year, the aviation community believed that the two sections authorizing expenditures would be considered together, with the more specific language of title I controlling. The administration, however, relies only on the general language of title

II to justify its not following the priorities clearly set out by the Commerce Committees in title I.

We do not agree with this interpretation.

As the aviation community understands the law, the airport and airway program appropriations at the minimum statutory levels must come "off the top" of the trust fund. The "balance" of the trust fund user tax receipts plus general fund appropriations will finance the rest of the administrative, operations, and maintenance account expenses.

This interpretation is not that of the aviation community alone. Last year, in its report (S. Rept. 91-565) on S. 3108 (which later became Public Law 91-258), the Senate Commerce Committee said:

The reported bill allocates, for specific capital investment purposes, portions of the total user charge-derived revenues and provides that no other user charge-derived trust fund revenues should be obligated for other purposes until the minimum amounts have been allocated to the capital investment portions of the program. . . . Therefore, if the Secretary at any time fails to obligate for expenditure these allocated revenues they will remain in the trust fund unavailable for other uses. Therefore, the bill provides that the Secretary must allocate annually at least \$250 million of user charge-derived trust fund revenue for acquiring, equipping, and establishing air navigation and air traffic control facilities, and the Secretary must allocate annually at least \$300 million [later changed in Conference Committee to \$280 million] per year of user charge-derived trust fund revenue to airport development grants. [Page 20.]

Senator PEARSON. What, and you will have to be very general in response, but what is the capacity of the various municipalities or port authorities to come up with their matching share through revenue bonds or general obligation bonds? We go through varying periods of municipal capacity, not only as to their bonding capacity but also as to what priorities they assign to airport development. I don't know how you can be specific in responding to that, but I would like to know what you might know about municipal capacities and what their priorities are.

Mr. REILLY. I think the very easiest answer to that question is to use FAA figures which show that right now there are some 574 airport requests totaling over \$472 million that assure local share of funding for these projects. Then, in light of the new environmental laws which have tremendously slowed down many of the projects which are very large in nature—which are being overcome with environmental hearings—when this backlog catches up with that which already exists, I don't believe, sir, there will be any problem in using all the moneys that should be available.

Senator PEARSON. I don't think I know, or if I know I have forgotten, when you file the application with FAA, do you have to have your bonding situation already at least passed by an election?

Senator CANNON. You have to be in a position to go ahead on the program, have the capability to go ahead on the program.

Senator PEARSON. So these applications represent municipal capabilities.

Mr. REILLY. Commitments to provide 50 percent.

Continuing with our statement, contrary to the statutory intent of Public Law 91-258, only \$50 million of the \$295 million minimum authority for airport programs was requested to be appropriated for

fiscal year 1971. Further, the airways hardware account was to be reduced from the statute's \$250 million minimum to \$226 million.

As chart No. 2 shows graphically, the low level of requested airport and airways appropriations would have resulted in increased user tax financing (shaded areas) of the FAA operations and administrative account and decreased requirements for general tax funds (unshaded areas).

This distinction between shaded and unshaded areas as shown on the charts is a crucial one: For every user tax dollar (shaded areas) which can be taken away from the airport and airway capital programs, there is an equivalent reduction in the amount of the Federal general tax contribution (unshaded areas) which will be required to pay FAA operations expenses.

The Appropriations Committees of the Congress modified this budget submission. Before the 91st Congress adjourned, it appropriated more airport and airways funds than had been requested—including airway appropriations from general tax revenues—and left the remaining balance of user tax funds (\$402.5 million) in the trust fund for later appropriation and expenditure.

The original budget message to the Congress for fiscal year 1972 indicates that another, larger diversion attempt is in the offing (chart No. 3). Only \$107 million in airport appropriations is requested (\$188 million under the statutory minimum authorization). Further, the fiscal year 1971 trust fund balance of \$402.5 million—including \$237 million in unappropriated airport and airway funds—is to be expended instead for fiscal year 1972 FAA administrative and operating expenses. This user tax financing (shaded areas) or routine FAA expenses would, if approved, reduce general fund requirements for FAA operations to only \$293.1 million.

Although the Congress authorized DOT to immediately commit up to \$840 million in airport grants, fiscal year 1971 airport development obligations were initially restricted to \$100 million, \$180 million less than dictated by the Congress. After the aviation industry and innumerable communities voiced objections, this limit was raised to \$170 million.

An unrealistically low limit on airport project obligations has likewise been initially imposed for fiscal year 1972. This artificial ceiling of \$220 million (\$205 million for development; \$15 million for planning) is substantially less than available under the statute.

Thus, in both the obligating process (for airports) and in the appropriations process (for airports and airways), the Congress' statutory intent in Public Law 91-258 is being frustrated and needed safety improvements to the Nation's aviation system are being deferred.

The effect of the administration's reduced budget recommendations will be particularly critical to the future safety of all airports and those who use them. The backlog of unfunded airport expansion projects is large and pressing. More airports are critically needed in all parts of the Nation. Longer runways, better airport lighting, and addi-

tional runways and taxiways have been delayed again and again by the unavailability of matching Federal funds, authorized by Congress but not spent by the executive branch.

In fiscal year 1971, some 680 requests for development aid totaling more than \$547 million have already been received from airport sponsors. In addition, numerous airport planning grant requests are under preparation. For fiscal year 1972, pending projects not funded in the current year, plus additional projects which will have cleared the environmental protection requirements of the new law, will bring the airport program requests to a record level.

With regard to the airways capital program, the budget request for fiscal year 1971 was below the level authorized by Congress while the fiscal year 1972 proposal would only meet the \$250 million annual minimum figure established in Public Law 91-258. Although industry recommendations for levels above the minimum amounts most appropriately are addressed to the Appropriations Committees of the Congress, this subcommittee should be aware that the funding levels being initially requested in the fiscal year 1972 budget will not allow the construction of many projects which are fully deserving of immediate implementation. ILS and control tower installations at additional airports are only two of the more pressing areas where the fiscal year 1972 budget is inadequate.

The above discussion of the dollar amounts involved for appropriation and obligation for the first 2 years of the airport and airway program is, we realize, quite complex. Some conclusions can, however, be drawn.

The administration has, in response to Public Law 91-258, enlarged the airport and airway programs, well above the levels of the years preceding the new law's enactment. This we acknowledge. It is not, however, adding new and needed aviation safety facilities as fast as Congress directed, as fast as it could, or as fast as it should, given the amounts of new contributions being made by the users for this specific purpose.

At the end of fiscal year 1971, there will remain unfunded within FAA more than \$300 million worth of environmentally sound airport projects that are ready to go forward. These are necessary system improvements, proposed by local airport sponsors who have indicated they can obtain the 50 percent local matching funds if FAA makes Federal funds available. Only the absence of an FAA allocation of funds stops these projects from being started this summer. If FAA had conformed to the act's statutory priorities, \$280 million in good solid airport projects would be underway by this date, instead of a development effort worth only \$170 million.

But the administration presently refuses to be bound by the statutory priorities developed by the commerce committees and the Congress last year. Further, unless the Congress clarifies the trust fund law, the administration admits that it will not completely comply with the act's capital financing levels.

The FAA acknowledges that Congress' statutory action has had no effect on its plans in some FAA correspondence directed to Congress on April 9, 1971, wherein it was said :

Although total planned obligations [for airport grants] are some \$190 million below the levels authorized in the Act, the budget proposals do provide for meeting the original commitment of \$400 million for the first two years of this program, made about one year ago.

Only by enacting S. 1437 can Congress be assured that its 1970 statutory priorities will be observed, both in fact and in spirit. In addition, unless amendatory legislation is enacted, the users of the Nation's airport and airway system have no assurance that in future years their increased tax contributions will be used, as promised, to buy more safety, more capacity and more system efficiency.

All of our 19 organizations and their respective memberships urge this subcommittee to act favorably on this important legislation.

Mr. Chairman, thank you very much for your time.

As you suggested, we would be most happy at this time to answer any questions you might have.

(The charts referred to earlier follow :)

Chart #1

PUBLIC LAW 91-258
Title I - Authorization Language

Declaration of Policy
Ten Year Totals

SECTION 2

Airport Grants	\$2.5 billion
Airways Facilities	Not less than \$2.5 billion

Annual Authority - FY 1971-1975

SECTION 13

Airport Planning Grants	\$15 million
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SECTION 14

(a) and (b)	
Airport Development Grants	"Not less than" \$280 million

(c)	
Airways Facilities	"Not less than" \$250 million

(d)	
Other Expenses	"The balance of moneys available in the Trust Fund"
Research & development	
Administrative	
Maintenance	
Operations Expenses	

AIRPORT AND AIRWAY TRUST FUND

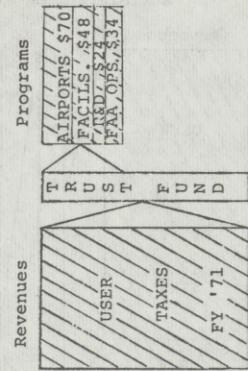
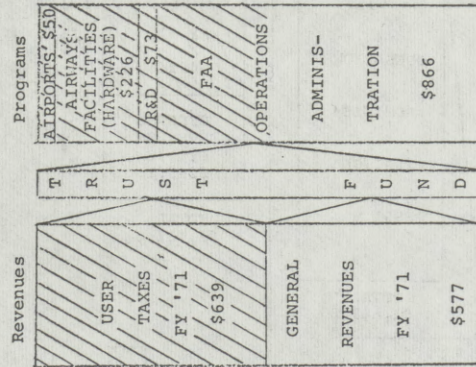
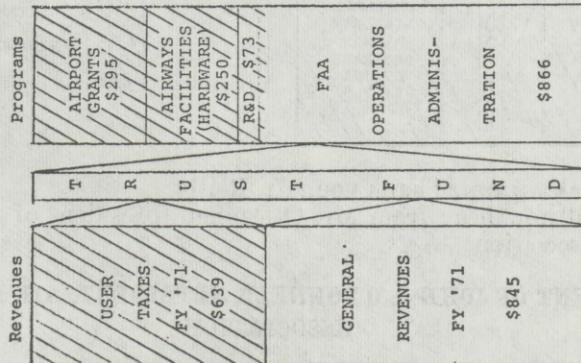
FISCAL YEAR 1971

(in millions)

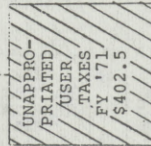
CONGRESSIONAL INTENT

ADMINISTRATION PROPOSAL

FINAL APPROPRIATIONS



Thus, there is estimated to be \$402.5 million in unappropriated user tax receipts in the Trust Fund as of June 30, 1971



USER

= TAX

FINANCING

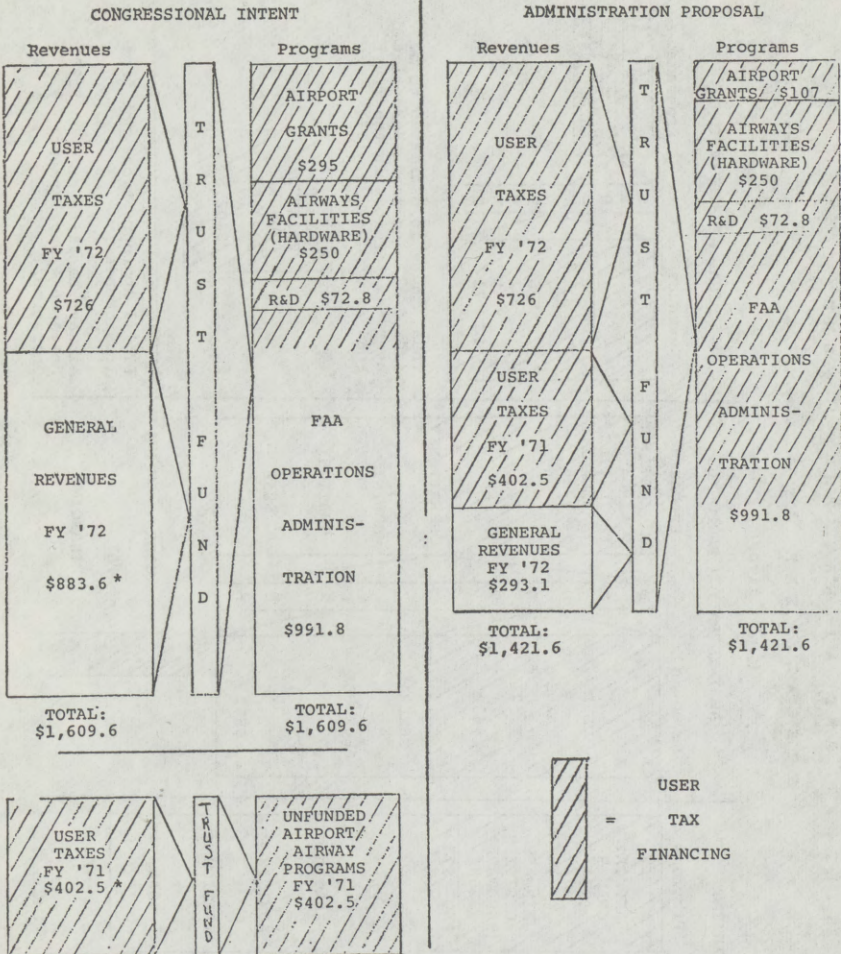
FY '71 Appropriations not from Trust Funds:

Airways Facilities: \$190
Research & Development: \$45
Operations: \$952

AIRPORT AND AIRWAY TRUST FUND

FISCAL YEAR 1972

(in millions)



Senator CANNON. Thank you, Mr. Reilly.

We will now hear from Mr. O'Donnell, president of the Air Line Pilots Association.

STATEMENT OF JOHN J. O'DONNELL, PRESIDENT, AIR LINE PILOTS ASSOCIATION

Mr. O'DONNELL. Thank you, Mr. Chairman.

Mr. Chairman:

I am John J. O'Donnell, president of the Air Line Pilots Association.

Our association represents 31,000 airline pilots of 39 commercial airlines and 12,000 stewards and stewardesses of 22 U.S. commercial airlines.

I appreciate this opportunity to appear before your committee to express the serious concern the members of our association have regarding the Department of Transportation's appropriations request for fiscal 1972.

In recognition of your committee's important mission and the limited time available for all participants who wish to be heard, I will confine my remarks to two important areas seldom understood by persons other than pilots who fly the system and have the safety of their passengers as their prime concern—men who must perform without all of the available safety tools of the trade.

With the permission of the committee, we would like to enter into the record a supplementary statement without us having to read it.¹

Let me emphasize this one point. Air Line Pilots Association members concur wholeheartedly with the feelings being expressed here before your committee. We are shocked by the violation of trust that is being perpetrated on the aviation community, users of the airport/airways system, and the public itself whose taxes are being collected for the prime objective of purchasing a modern, safe, and efficient airport/airways system.

We, who command and fly the airliners of this Nation, have for many years fought for maximum safety within the airport/airways environment—many times without an audience until tragedy struck.

On numerous occasions, prior to today, we have testified before congressional leaders and groups. We have appealed for action that would eliminate or reduce substantially the waste of lives, equipment, and property resulting from inadequate or antiquated equipment, while new, more efficient tools are available but not installed.

The need for funds to upgrade the Nation's air transportation system inspired our association to vigorous action in support of Airport/Airways Trust Fund legislation last year. It is our judgment that distribution of these funds as designated by Congress could have been weighted more heavily to insure that airports will be safer for the final approach and the landing phases. But the important thing is that the fund was created. We are proud of having made an important contribution to this major legislative action and look forward to working with Congress on future modifications and requirements that may develop.

During the past 10 years there were 19 fatal and 32 nonfatal accidents resulting in 587 deaths and a momentary loss of \$111 million during nonprecision landing approaches. These are approaches airline pilots are required to make when the runway to be used does not have a precision-instrument landing system—normally referred to as an ILS.

Gentlemen, today in this great Nation of ours approximately 90 percent of the runways of our 530 air-carrier airport system do not have instrument landing systems and other important landing aids re-

¹ See p. 58.

quired for precision approaches. Yet these are the runways airline pilots are required to use in good weather and bad.

Almost as many runways do not have visual-approach slope indicators—normally called VASI. These lighting systems are designed to provide the pilot with a visual track to follow to the runway touchdown position when visibility permits.

ALPA research shows that approximately 1,722 runways used by airline pilots on a continuing basis do not have either precision-instrument landing systems (ILS), visual-approach slope indicators (VASI), or runway end identification lights (REIL).

The latter provides positive visual identification of the runway threshold under poor visual conditions.

Ironically, after we had reviewed the 10-year accident-history data, two traffic accidents involving airliners occurred during the past 10 days.

I would like to add a little statement here.

Also, a near-disaster occurred yesterday wherein an airliner making a nonprecision VOR approach struck the ocean in fog off Nantucket Island. The superhuman effort of an airline pilot got that airliner back in the air.

Again, these accidents point up the tragic cost of these inadequacies which still have not been corrected, even though the remedies and the equipment have been available for several decades.

How would anyone in government explain to the loved ones of the 49 persons aboard the Air West DC-9, lost on June 6, that a contributing cause to death is a system that will permit two jet aircraft to be on a collision course on different flight plans several miles above the earth?

How can anyone really explain or excuse the death of 28 persons aboard the Allegheny Airlines propjet on June 7 that was attempting a nonprecision approach at the New Haven Airport? The airport manager is quoted as saying the crash "would not have happened if the airport had an instrument-landing system."

Another accident still haunts us. It occurred at Huntington, W. Va., last November, and it is still under investigation by the National Transportation Safety Board.

There were no survivors among the 75 passengers and crew of a chartered Southern Airways DC-9 that impacted on a hilltop in restricted visibility during a nonprecision approach. That airport did not have a full instrument-landing system. It does not—75 lives too late.

I could name other similar accidents—two at Bradford, Pa., one at Charleston, W. Va. All suffered from the lack of precision-landing-system services at the time.

These are terrible losses, too costly in lives to excuse. But still there is pitifully little action.

I emphasize again the fact that only about 10 percent of the runway approaches used by U.S. airliners do have complete instrument landing systems which give the added margin of safety the air-traveling public deserves.

To place ILS systems on the remaining unprotected 90 percent of the runways—not now programed for such installation by 1981—will

cost approximately \$250 million additional. The systems are proved, and the manufacturing capability is available. All we need is \$250 million from the trust fund and simplification of Government paperwork to speed the installation of these systems at these unprotected runways.

Let me draw a comparison for a moment.

We have been told by the FAA the reason such systems have not been installed for the last 10 or 20 years is due to lack of funds.

Now, you—the Congress—have provided the national air transportation modernization trust fund to remedy this situation. Still, the needed money has not been designated for ILS installations. Only 310 systems are installed, and 1,810 are needed as of now.

However, the FAA finds time and energy to plan for modernization and enlargement of its private aircraft fleet. It intends to spend more than \$123 million for its private aircraft fleet by 1981. This figure, of course, does not include the operational costs of its present roster of 90 aircraft.

Let's look at the breakdown of these costs.

	<i>Millions</i>
Airways checking aircraft (including modification and electronic packages)	\$69.2
Research-and-development aircraft	10.1
Flight-training aircraft (including modifications, simulator, and avionics)	44.2

The total planned new-aircraft procurement amounts to \$123.5 million. This money alone would finance more than half of the ILS systems needed—would accelerate achievement of an acceptable safety level for the total system. Perhaps with fleet operational savings we could achieve a goodly portion of the remaining \$126.5 million needed to complete the package. More importantly, such redirected priorities may save the lives of another 587 passengers and prevent the loss of another \$111-million-plus investment by 1981.

This is the real price we cannot afford to ignore any longer.

We realize airways systems and approach systems require checking and monitoring. But there are other ways that are less expensive than a fleet of aircraft larger than 80 percent of the airlines they are supposed to assist.

The need to spend \$44 million for aircraft and simulators for flight training of FAA personnel is a facade, a game of blind man's bluff.

Is anyone—other than the FAA—foolish enough to suggest that an FAA inspector of limited airline experience, if any at all, who received, at best, minimum flying in these high-performance jet aircraft, qualified to judge the competence of a highly-skilled professional airline pilot, whose very day-to-day survival depends on his skill and judgment?

The number of deaths that have occurred during flights that FAA inspectors have been abroad during training and proficiency-check rides compared to the total training hours spent in the air by airline pilots does not reflect increased safety by their presence. It is the collective judgment of the 31,000 airline pilots I represent that the man who checks them and judges their proficiency should be at least as qualified and experienced as they are. Such a system is like having a law student judge the competence of a Supreme Court Justice.

Therefore, we believe the FAA should return to the airline-check airman and FAA designee system similar to that now in effect for non-jet aircraft that has been so successful for many years.

Mr. Chairman, we condemn this effort on the part of the Department of Transportation to divert trust fund moneys for FAA administrative and operational purposes, and place full responsibility for future accidents squarely upon the shoulders of those responsible for such decisions.

I have shown that we are woefully short in the approach landing area alone. There are many safety-related programs that should move forward as well, if the trust fund money is applied according to the intent of Congress.

Testimony prior to this hearing in these chambers has defended the administration's plan to siphon off the funds for other than facilities and airport/airways modernization purposes.

In recent statements reported in *Aviation Daily* (June 3, 1971), Secretary of Transportation John A. Volpe appeared to contradict himself as to the real intentions of the Department. He is reported to have said in the National Aviation System Planning Conference speech that:

All monies from the Aviation Trust Fund that are used in the special Transportation Special Revenue-Sharing Fund will be used to further aviation. The integrity of the Aviation Trust Fund will not be violated.

At a May 10 seminar he reported that President Nixon has proposed setting up a Special Transportation Fund, amounting to nearly \$3 billion a year, to be allotted to State and local governments. Under the proposal, funds would come from four sources—Highway Trust Fund, Airport Trust Fund, Urban Mass-Transit appropriations, and, finally, general revenues. The report quoted him as saying:

Those funds which derive from Urban Mass-Transit revenues must be spent for the furtherance of urban mass transportation. The remainder of the Transportation Special Revenue-Sharing Fund may be spent for any other type of transportation project selected by local officials.

Senator CANNON. I might say that in our hearing yesterday the administration witness contended that the Aviation Trust Fund monies would have to be used for aviation purposes, but made it quite unclear as to what those "aviation purposes" might consist of. As I indicated earlier, they might be used in States, like mine, which don't have an aviation agency to set up an agency to buy aircraft to operate the agency, and so on.

We have not verified whether this statement is correct. But if it is, then certainly it appears that the intent of Congress could be avoided in many ways simply by the State designating something to be an "airport purpose" or an "airport/airways purpose."

Mr. O'DONNELL. Mass transportation, high-speed mass transportation to the airports could also be considered part of it.

Senator CANNON. That is correct. And the access highways might well be considered for an "airways purpose."

This is one of the big issues that we had to fight out to get this bill through. In the end we had to exclude terminal assistance from the airport development program.

So it is quite clear that the congressional intent could certainly be avoided if this scheme were followed out.

Mr. O'DONNELL. Yes, sir.

This information clearly illustrates the doubletalk that has been coming from the administration in regard to the diversion of Aviation Trust Funds.

The 43,000 members of the Air Line Pilots Association deplore the intention of the administration and urge this committee and the U.S. Congress to make sure that legislative restraints are placed on such free-wheeling interpretations of an otherwise very clearly-defined bill. Such budgetary subterfuge is an insult to the Congress and the American people.

We endorse the provisions of S. 1437 and similar bills and urge speedy passage.

Your action will hasten the day when all air-carrier airports serving the air-traveling public will have modern, safe facilities and equipment. It will provide the pilots who man those planes with confidence that their passengers will be delivered on-time, safely, under good weather and bad. When they break out of the fog at 200 or 100 feet, at 160 or 170 miles per hour, they will be confident that the runway threshold is there where it should be for a safe landing. Anything less than the best and the safest airports and approach systems will be measurable in accidents and deaths that are now preventable.

You and I will have room for little pride in our great FAA fleet, if one more preventable accident takes your life or mine—or those of your loved ones, friends and constituents.

It is absolutely essential that trust fund money be held inviolate and spent to make the airports and airways facilities of our Nation as safe as humanly possible.

Thank you.

Senator CANNON. Thank you, sir, for a very fine statement.

The supplementary data that you said would be supplied will be made a part of the record.

Has ALPA testified before any of the Appropriations Committees of the Congress on FAA matters prior to this point in time?

Mr. O'DONNELL. Yes, sir.

Senator CANNON. I presume you will intend to appear before the Appropriations Committee this year and reemphasize these points you have been making here.

Mr. O'DONNELL. Yes, sir; we will.

Senator CANNON. You point out that there have been a number of unfortunate accidents, 587 deaths, a monetary loss of over \$111 million during nonprecision landing approaches.

Actually—so that we can get this in proper context—does that include all deaths in the last year, all airline deaths?

Mr. O'DONNELL. No. That is just those deaths that occurred in accidents during nonprecision approaches.

Senator CANNON. You went beyond to refer to the Air West DC-9 on June 6. That would not have been included in the approach-type accident?

Mr. O'DONNELL. No, sir.

Senator CANNON. This could be a result of the control procedures being used.

Do you think that really could be improved by that type of a situation, by control procedures? Wasn't that a plain case of pilot error and a simple violation of FAA rules and regulations by one of the pilots involved in that accident?

Mr. O'DONNELL. Mr. Chairman, when high-speed aircraft are on collision courses at 12,500 feet, as this accident was, on a see-and-be-seen basis—the military plane was on a visual flight plan—it is impossible for a military pilot flying at the closing rate of these two aircraft to be able to operate on a see-and-be-seen basis without some collision avoidance system on board that airliner and the military aircraft.

Senator CANNON. So your suggestion for that type of thing is that the FAA ought to change their regulations permitting that type of a flight plan. Is that it?

Mr. O'DONNELL. What we have highlighted here, Mr. Chairman is the nonprecision approaches, because this is something very important. We have made our position clear to the FAA and the Department of Transportation that for 10 years this Government has been working on a collision-avoidance system, researching it to death. We have a system available today.

We say that they should go full-speed ahead and put these collision-avoidance systems on board the aircraft, and also proximity warning indicators to alert us of the smaller aircraft in our vicinity.

But every aircraft is going to have to have these. It is going to have to be developed so they can afford to build one cheap enough so the light airplane owners can purchase them, because any pilot operating in this environment is going to have to have some system to alert him that there is an airplane out in front of him and that a possible collision could occur.

Senator CANNON. What do you call your safety plan?

Mr. O'DONNELL. Engineering and air safety, sir.

Senator CANNON. Have they examined some systems that appear to be workable from the standpoint of collision-avoidance warning?

Mr. O'DONNELL. Yes, they have, sir.

In fact, we have a paper that we put out to the FAA, which I have with me, concerning ALPA's recommendations on collision avoidance.

Senator CANNON. Would you furnish a copy of that to the committee for our committee staff?

Mr. O'DONNELL. Yes, I will.¹

Senator CANNON. We are all interested, certainly, in anything that can be done to improve the safety, but we do have the unfortunate situation of pilot error and the pilot's judgment.

You refer to:

"How can anyone really explain or excuse the death of 28 persons aboard the Allegheny Airlines' propjet on June 7 that was attempting a nonprecision approach at the New Haven airport?"

¹ See p. 67.

The airport manager is quoted as saying, "The crash would not have happened if the airport had an instrument landing system."

Now, I am advised that the pilot in that instance was 300 feet below the minimums established for the airport and was warned by the copilot that he was 300 feet below the minimums.

Do you have any information on that?

Mr. O'DONNELL. Yes, sir.

Our position on this is just as in the incident yesterday. It is very easy for us on Monday morning to tell an airline captain what he should have done on Sunday afternoon.

I have flown into the New Haven airport in a DC-9 jet aircraft myself. I know what that airport is. It has a 4,771-foot runway, and there is nobody in the world that can tell an airline pilot after the accident what he really saw out through his windshield during these nonprecision approach procedures.

I cannot judge what this captain saw when he got down to his minimum altitude, which is 373 feet. If he has the runway in sight, he is allowed to continue his approach. He could have seen what he thought was the runway.

Senator CANNON. So, if he actually thought he saw the runway, he would be going right on for his final landing and well might have gone down to zero or below?

Mr. O'DONNELL. As to the incident which occurred yesterday, Mr. Chairman, NTSB indicated last night they are seriously looking into the possibility of an altimeter error.

We had an aircraft that was cleared down to 400-and-some feet, and the copilot was changing the radios, talking to the company. The captain just happened to look out the windshield. He was going through what he thought was 1,100 feet, and the water was right in front of him.

He pulled the control back, shoved the throttles forward, and got out of there, but he did strike the water.

These things do occur. In nonprecision approaches, where a pilot does not have some other system to check his altitude or his relationship to some sort of a glide slope, Senator, these accidents are going to continue to occur.

The FAA is making excuses when they say, "Well, you went below your minimums."

We say we shouldn't have this type of approach. We should have a full ILS system.

How can we support it? We say, give us the number of accidents that occurred from precision ILS approaches, and then give us the number that occurred without precision ILS approaches.

Senator CANNON. That was going to be my next question.

You say 587 deaths occurred during nonprecision-landing approaches. How many occurred during precision-landing approaches?

Mr. O'DONNELL. I don't have that figure, Senator. We don't have that figure with us.

Senator CANNON. Would you supply that?

You have used a 10-year base period. Would you over that 10-year period furnish for the record the number of deaths that occurred in precision-approach landings?

Mr. O'DONNELL. We will, Mr. Chairman.

(The information follows:)

During my appearance before you on June 23, 1971, you asked that I submit additional information on two subjects. First, the number of fatal accidents that have occurred during the past ten years while commercial airliners were making a precision ILS approach. Second, the position of the Air Line Pilots Association concerning avoidance systems.

In response to the first item, our research shows that there have been seven fatal airliner accidents in the last decade while aircraft were on ILS approaches. A total of seventy-nine people lost their lives in these accidents. Of the seven accidents, four occurred during ILS approaches, the cause of which is stated, relating to the approach procedure; three occurred because of ice, incapacitation, etc.

To arrive at these figures, we counted those accidents that occurred while the aircraft were actually on the glide slope of the ILS system.

Since my last appearance, we have delved further into the statistics on fatal accidents that occurred while aircraft were making non-precision approaches and found there were more accidents and more fatalities than we reported to you. We found a total of twenty-two air carrier accidents during the past decade which caused the deaths of seven-hundred fifteen persons. All of these accidents occurred during some phase of a non-precision approach.

A listing of precision and non-precision approach accidents is attached and we respectfully request that it be a part of this record.

In regard to collision avoidance systems, I have attached a paper prepared by Mr. Ted G. Linnert, Director of our Engineering and Air Safety Department, which was delivered to the FAA National Aviation System Planning Review Conference last April. This paper adequately explains the Association's views on the subject and includes a forecast of mid-air collisions for the 1970-1980 time period.

After review of this paper, I feel sure that you will agree with us that the National Aviation System planners must give the solution of the collision avoidance problem a very high priority for funding. We respectfully request that this paper also be made a part of the record.

I trust that this information answers your questions on these two subjects. If not, I will be happy to furnish more specifics for the record when requested.

U.S. AIR CARRIER FATAL ACCIDENTS, ON ILS GLIDE PATH APPROACHES—10 YEARS, 1961-70

Date, location and probable cause	Aircraft type	Fatalities
1. Nov. 30, 1962, New York, N.Y. (Go around after encountering fog on runway)	DC-7	25
2. Dec. 14, 1962, Burbank, Calif. (Incapacitation of pilot in-command)	1049H	8
3. Jan. 29, 1963, Kansas City, Mo. (Ice on horizontal stabilizer caused loss of control) ...	V-812	8
4. Mar. 10, 1964, Boston, Mass. (Ice on horizontal stabilizer caused loss of control)	C-54	3
5. Dec. 30, 1964, Detroit, Mich. (Loss of control during night instrument approach for undetermined reason)	C-46	4
6. Dec. 27, 1968, Chicago, Ill. (Disorientation during transition to visual reference)	CV-580	28
7. Oct. 10, 1970, Maguire AFB, N.J. (Continued descent into terrain caused by disorientation)	L-382	3
Total		79

U.S. AIR CARRIER FATAL ACCIDENTS—UNDERRUN—NONPRECISION APPROACHES, 10 YEARS, 1961 TO 1970

Date	Location	Air carrier	Aircraft	Damage	Fatalities
Nov. 8, 1961	Richmond, Va.	Imperial	L-049	Destroyed	77
Feb. 3, 1963	San Francisco, Calif.	SLI	L-1049	do.	4
Nov. 29, 1963	Morgantown, W. Va.	Purdue	DC-3	Substantial	1
Mar. 12, 1964	Miles City, Mont.	FAL	DC-3	Destroyed	5
May 7, 1964	San Ramon, Calif.	PAC	F-27	do.	44
Nov. 15, 1964	Las Vegas, Nev.	BAL	F-27	do.	29
Nov. 8, 1965	Constance, Ky.	AAL	B-727	do.	58
Apr. 22, 1966	Ardmore, Okla.	AFAX	L-188	do.	83
Dec. 14, 1966	Danang, Vietnam	FTL	CL-44	do.	114
Oct. 20, 1967	Constance, Ky.	TWA	CV-880	do.	69
June 22, 1967	Saigon, Vietnam	ALI	L-1049	do.	7
June 13, 1968	Calcutta, India	PAA	B-707	do.	6
Aug. 10, 1968	Charleston, W. Va.	PAI	FH-227	do.	35
Oct. 25, 1968	Hanover, N.H.	NEA	FH-227	do.	32
Dec. 24, 1968	Bradford, Pa.	AAA	CV-580	do.	20
Jan. 6, 1969	do.	AAA	CV-440	do.	11
Mar. 13, 1969	Minchumina, Alaska	WCA	DHC-6	do.	1
Nov. 19, 1969	Glenns Falls, N.Y.	NEA	FH-227	do.	14
Oct. 10, 1970	McGuire AFB, N.J.	SAT	L-100	do.	3
Nov. 14, 1970	Huntington, W. Va.	SOU	DC-9	do.	75
Dec. 28, 1970	St. Thomas, V.I.	TCA	B-727	do.	2
June 7, 1971	New Haven, Conn.	AAA	CV-580	do.	28
Total					715

Senator CANNON. I think you make a very good point when you raise the question as to whether FAA's inspectors who are doing the line checking actually have the capability to perform the types of checks that should be made.

Certainly, they can monitor and see whether a pilot is flying by the rules, if he is going below his minimums and this sort of thing. But I think you do raise a very good question as to whether FAA has inspectors on their staff who are capable of inspecting the things that they should be looking out for.

Second, you raise a very good issue on why they should have a fleet of aircraft of this size. And I assure you that the committee is going to do some checking into that very point.

Senator Pearson?

Senator PEARSON. I apologize for leaving. I had to go over to Foreign Relations for an executive session.

This is very helpful. I am sorry I could not hear all the testimony.

Senator CANNON. I think I would like to ask all of you to take a good look at this revenue-sharing proposal to determine if you have any supplementary statement that you want to make to us. I frankly am very, very disturbed about what might possibly happen if that scheme is to be carried out and these funds that are acquired through the revenues that we imposed under the trust-fund concept—if that is just to be turned over to the States free and clear, just on the condition that they use it for airport and airways purposes, and they make the determination as to what "airport and airways purposes" are.

So, I would appreciate it very much if all of your organizations would take a look at that and supply us any statements that you desire either in support or in opposition to it, so that we might be better advised on that subject when it comes up.

Mr. SEYBOLD. I wonder if I might make a comment or two on all the issues that have been raised.

Senator CANNON. Yes, sir.

Mr. SEYBOLD. First of all, the airlines wholeheartedly endorse the statement that was made by Mr. Reilly. We feel it is essential to preserve the fund and clarify these priorities, so there isn't any doubt of the intent and no loophole by which it can be avoided.

Second, the discussion yesterday had to do primarily with the fact that the administration was going to authorize—in other words, permit—an obligation increase. There was very little discussion of the fact that the appropriations will still be at a much lower level, and there will be no preservation of the moneys to pay off the obligations.

In other words, it is the intention of the administration that the new obligation will be paid from future revenues and that these current revenues, which should be earmarked and preserved to pay off those future obligations, will be used up in expenditures for other purposes.

The situation is something like saving \$3,000 for an automobile and going out to buy it and saying, I am going to pay a thousand dollars down and I will pay you the balance in the next year or two out of future earnings—and then go off and spend the \$2,000 that you have saved for some other purpose.

That is the situation we have with the fund right now.

Senator CANNON. I think on that point—and this is why I raised it with Mr. O'Donnell, the question about whether they would continue to appear before the Appropriations Committee.

Now, as of the night before last, we have them requesting the full authorization, and now that is subject to appropriations by the Appropriations Committee.

So I think that all of your organizations ought to be very much concerned about getting in before the Appropriations Committee to be sure that they are aware that we have provided this obligational authority. We can go out and obligate it, but they are not going to be able to spend the money until the Appropriations Committee authorizes the release of it.

In turn, this legislation here is directed toward trying to keep those funds inviolate as a trust fund, as they were originally intended to be. And then that would make it much easier for the Appropriations Committee to say, "Well, here is a fund that we have. We can't use it for any other purpose. Go ahead and appropriate it so they can carry out their obligational authority."

Mr. SEYBOLD. It is our impression that the administration did not transmit that obligation change to the House Appropriations Committee, which this week is marking up the appropriations bill. We did send a copy of the statement to some Members, who in turn got it to the chairman of that committee.

We also appeared before the Appropriations Committee of the House on this and some other matters, which I will refer to in a

minute. And we have asked for time to appear before the Senate Appropriations Committee on this trust-fund problem, as well as the facilities problem.

With respect to the question of the transportation revenue-sharing program, our analysis of that bill does not coincide with the administration's statement of what the bill does.

It is our understanding of the bill that there is no preservation of any of the airport moneys that would be taken from the airport trust fund and thrown into the transportation pot. There is no way whatsoever that any of that money under the proposal as made to the Congress could be preserved for aviation purposes.

And, of course, the formulas themselves are entirely different, and the whole amount could actually be spent for new buses or bus drivers' salaries—or some other purpose.

We will amplify that, though, if the committee wishes.

Senator CANNON. Very well.

Mr. SEYBOLD. With respect to the question of facilities and the application of the facilities, as the committee knows, the facilities budget of \$250 million does include about \$40 million which is primarily research-and-development money. So, in a sense, it ought to be charged to R. & D. rather than facilities and equipment.

We are concerned—and we did appear before the House Appropriations Committee and intend to do the same before the Senate Committee—about the point that Captain O'Donnell made, about the underfunding of facilities in the landing area and approach area of flight operations.

We recommended to the House committee total additional appropriations of \$79 million primarily in that area, with detailed recommendations on what it should go for.

I have a summary of that statement, which I will be glad to submit—or even a more detailed statement, including the places where we felt that these installations should be made this year out of this year's funds.

We think there is a tendency on the part of the FAA, perhaps—although we see some winds of change—but there is a tendency to rely too much on their own personnel on these installations. And the procurement and the installation process could undoubtedly be speeded up if the contracts with the manufacturers provided for the manufacturers in many cases to make these installations and tests.

I think we could get some of these facilities installed much faster than we have in the past.

Senator CANNON. We would like to have a copy of your statement for our files.

Mr. SEYBOLD. We will submit it for the record.¹

With respect to the collision-avoidance systems, of course, the airlines are doing a great deal of work in that area. I don't have a statement with me, but I would be prepared to submit or would like to submit a detailed statement on the status of that whole project.²

The point is the one that Captain O'Donnell made in connection with the accident out in California. There you had a problem of visual

¹ See p. 75.

² See p. 80.

flight rules and IFR on two high-speed aircraft, and perhaps that shouldn't be.

But, in addition to that, the present state of the art of the collision-avoidance system is such that it requires two gadgets that talk to each other. And although that is perfected and possibly could be installed on the higher-speed and heavier aircraft, we do have the problem, which Mr. Smith referred to yesterday, of the need for accelerated research for a gadget that is reasonable in cost, yet will do the trick for general-aviation aircraft.

Senator CANNON. Captain O'Donnell, getting back to the ILS, I am told there are some systems that are available now in the neighborhood of \$20,000 to \$30,000, perhaps a less precise system.

I am wondering if you are familiar with any of those and if you have had a chance to analyze them and, if so, what the outlook is.

Mr. O'DONNELL. Mr. Chairman, I am not aware of an ILS system in the range of \$20,000 to \$30,000.

We have put in our supplementary statement the cost of a VASI, which is a "visual-approach slope indicator," which is a light system that can be used in restricted visibility at a cost between \$20,000 and \$30,000 per installation.

I am not aware of an ILS system that costs that amount.

Mr. STIMPSON. I think there has been a lot of work toward the low-cost ILS system, and they have been making some significant progress. Whether they have reached that level, I am not sure. I know it has been talked about between \$60,000 and \$70,000.

But, Mr. Chairman, I think it is very important to point out that of this \$250 million that we talk about is the minimum level of hardware, and coming back to that which Mr. Seybold was talking about, not all of that is going for what we thought it was going to be going for.

We had visions there were going to be a lot more towers, and I believe the current budget contains only four new locations. We would like to see a lot more ILS's. There are a number in the mill now. I don't believe the budget contains any new locations for new ILS's.

We would like to see some VASI systems. We would like to see the modernization of the flight service stations begin.

So a lot of this \$2 million as catch-up equipment, we believe, is a very minimum figure and should be accelerated.

Senator CANNON. Yes, I think the testimony was yesterday that there were no new ILS locations in the 1972 program, even though there were some upgrading of existing ILS locations, there were eight upgradings of present ILS locations.

Frankly, I agree with you that there ought to be more dollars spent in facilities and perhaps less in R. & D. That is, the R. & D. account for facilities perhaps should be charged to R. & D. instead of charging it to facilities and equipment in order that we can get some of this equipment in and operating and make ourselves a safer and a better airways and airport facilities.

Mr. SEYBOLD. Mr. Chairman, I have with me Mr. Poritzky, who is associate director, National Airspace System Engineering, who could respond precisely on your question about the ILS system.

Mr. PORITZKY. Mr. Chairman, the airlines have pressed for many years to get a higher rate of implementation of precision-landing aids.

We have pressed for this for more than a decade, and a sign of progress is there are now 135 instrument-landing systems in procurement for the first time after a hiatus of about 10 years. This is a real step, and while we need many more ILS's, progress is being made.

The airlines feel that precision-approach guidance is indeed required on the runways normally used by airline operations.

Vertical guidance in the form of a visual-approach slope indicator (VASI) does an excellent job in visual conditions where a full-instrument-landing system isn't justifiable for any one of a variety of reasons.

There has been a reduction in the cost of instrument-landing systems over the past several years. FAA 2 years ago was able to buy an instrument-landing system, essentially "turnkey," for an amount on the order of \$65,000 to \$70,000, plus certain additional FAA costs. This again is progress.

We have pressed and hope to continue to press for implementation of high-quality ILS at the lowest possible cost. Obviously, this is the way you get more for our money.

You asked a question on the possibility of a different form of ILS, and there are indeed many other systems which have been offered as replacement systems for the international standard Instrument-Landing System. Claims are made that very low-cost systems can be provided.

In the United States alone over the past 15 or 20 years there have been some 40 different kinds of replacement instrument-landing systems proposed. In fact, the United States has spent development funds on many of these.

I had the privilege of being chairman of a special committee of the Radio Technical Commission for Aeronautics, which over a 3-year period examined the possibilities of a replacement instrument landing system. That committee recently made a specific recommendation of a way to go toward development and eventual evolution to an entirely different and far more capable kind of instrument landing system.

It is the view of RTCA, as well as the view of the scheduled airlines, that it is probably not in the country's best interest or in the aviation industry's best interest to go for interim systems. The low-cost systems being described are systems which are not likely to become the long-term, universal, hopefully international standard systems.

Thus, the airlines' aim at the moment is to get widespread implementation of the existing type of ILS, refined to its maximum capability, eventually transitioning to a far more capable system, perhaps in 10 years.

Thank you, Mr. Chairman.

Senator CANNON. Are you saying, then, that the present ILS systems are in the neighborhood of \$65,000 now?

Mr. PORTZKY. No, sir; not quite.

FAA 2 years ago bought 11 systems, essentially turnkey, minimum-cost, instrument landing systems.

On top of that is an additional cost for site preparation, flight inspection, and some other ancillaries. I believe FAA is currently budgeting something in the order of \$150,000 to \$180,000 for a complete ILS.

Senator CANNON. What is the difference between a \$65,000 system and a \$175,000 to \$180,000 system?

Mr. PORITZKY. There are a number of differences, primarily in terms of the amount of backup.

The ILS currently being procured has a little more capability in terms of operation after an equipment failure.

In other words, when an ILS transmitter fails, the most basic system would provide the appropriate warning and go off the air. The ILS's which FAA is proposing currently, I believe, and on which the \$180,000 to \$190,000 budget is based, has somewhat more redundant facilities.

FAA also believes—and I don't want to speak for them, but this is my understanding of their view—that the new locations at which instrument landing systems will be implemented, are often difficult locations; that is, mountainous terrain, peculiar topography in front of the instrument landing system. In such cases, special antennas, more expensive antennas, and often earth-moving of significant proportions, are required in order to make the instrument landing system work, particularly at difficult locations. And a substantial amount of this larger amount is included for that kind of facilities.

I think many people in the airlines feel that perhaps there can be additional economies, but this is the basis on which these are created.

Senator PEARSON. These hearings have as their main thrust the desire to maintain the integrity of the trust fund.

Has anything developed since the passage of this bill and the restrictions that Congress intended on the use of the Trust Fund that we might address ourselves to considering more flexibility?

For instance, I am just beginning to be concerned about where we are going to build some airports. The controversies in the giant hubs are such that the prospect of finding suitable land with proper public acceptance creates, I think, a real problem. And as we go further in seeking to accommodate ourselves to the environmental questions, seeking to accommodate ourselves to land-use problems, and so forth, rapid transit is almost going to be an essential.

I don't know that we are at that point now. But I wonder with reference to that specific problem, have things changed in the last year or so to the point that we need more flexibility in the restrictions that we are trying to maintain today?

Mr. REILLY. Senator Pearson, when you say "restrictions," what do you have in mind, sir?

Senator PEARSON. I am not thinking about FAA going to administrative costs, but we put some limitations upon terminal use, as you recall, and we put some limitations on the use of the Trust Fund for highways and parking lots and terminals.

I don't think there is any need to address ourselves to changes there. But I am thinking really more about some sort of a rapid-transit system to airports that are more and more going to be located further outside the metropolitan area population centers.

Mr. REILLY. Obviously, a significant ingredient to total aviation safety is that the weakest link in the chain be strengthened so that the entire chain is of equal strength.

If you put the money into your landing areas exclusively, you buy up certain safety considerations. As a hypothetical, if you are bringing in more aircraft more rapidly, under higher safety conditions, but then you can't get the people out of your terminal areas, you can't get them on the roads, can't get them away from the airport—

Senator PEARSON. And you can't get general-aviation planes in the airport.

Mr. REILLY. True.

—you start backing your entire system up, and you are still faced with some prospects of stacking aircraft.

So, in a general way, I would certainly say that more long-range "looking" has to be done at the entire system. In essence, I believe, as far as the airport operators are concerned, that this goes doorstep to doorstep. It is all one chain directed toward higher safety, through reduction of congestion. And if you have a weak link in that chain, I certainly feel it is going to put more strain on the other stronger links.

As far as the environmental considerations go, you are absolutely right. We are certainly going to have more significant problems in developing the type of safe facilities that are needed in the future, particularly in the major hub areas where congestion is a primary safety matter right now.

While the entire industry supports environmentally sound aircraft operations and airport facilities, I think if the pendulum is permitted to swing too far, too swiftly, that again we are going to create some mammoth safety problems for ourselves. And I think that the total industry as well as the Congress is going to have to look again at what should be the real requirements and environmental considerations on aircraft and airports, in order to develop what is really needed in the national and public interest, both for the economy and people individually.

I hope this will help you.

Senator PEARSON. I think you have. I think we are still on track here. But we are far behind. I am quite sure we have got to limit the use of these funds just the way we are trying to do now, particularly against administrative costs.

But I can foresee the day when we may have to take another look at this.

Mr. SEYBOLD. Could I comment on your question, Senator Pearson?

Senator PEARSON. Certainly.

Mr. SEYBOLD. We always had the impression that this committee and the counterpart committee in the House would probably be reviewing the act extensively within 2 or 3 years after enactment, but the reason that the aviation community—

Senator PEARSON. We contemplated 5, I think.

Mr. SEYBOLD. Yes; it was an initial 5-year program, but it was obvious that the pressures—the very things that you are talking about—would well up to the surface and would create a situation where it would be desirable to review it sooner.

The primary hangup now on the implementation of the use of these funds in major airports—major new airports and major runway ad-

ditions or changes in existing large airports—is unquestionably the public hearing problem and the environmental considerations.

But it is hard to say that isn't important and necessary to observe, because that is the sign of the times, and it is important from the health of the public that those factors be taken into account.

But the other factors that you are talking about, where we eliminated terminals in the early stages and deferred them for later consideration—I know there was a difference of opinion, because we felt they should have been included, but others did not—those and other factors, the transit and access factors that you are talking about, will be brought forward, I am sure, within the next year or two.

We wanted to concentrate on the preservation of the fund and the clarification of the priorities at this time.

Mr. MONROE. Mr. Chairman, the reason you find this unique combination of people sitting in front of you is because practically all of us are concerned that the first order of priority is to reserve and preserve the trust fund. All of us have some differences of opinion as to how that money should be spent once it is preserved, but we are certainly unified on that. And anything that you can do to bring that about is the main purpose of our united appearance.

I think it is interesting to note, that in response to Senator Pearson's question, that the first-year planning request was only \$10 million, instead of \$15 million as authorized by the law—presumably, the feeling of the committee, and certainly the feeling in much of the industry, was that planning should proceed apace and try and solve some of these problems.

Yesterday Mr. Olsson went on at some length to indicate that it was a very difficult administrative problem to accelerate this program from the previous \$75-million program into our current program. And I note that this is a little at variance with something that was submitted by Secretary Volpe last year to the Senate Subcommittee on Transportation Appropriations.

He appeared in a hearing on August 13th and was asked by Senator Case what the Department's capabilities were for implementing this program that had just been enacted, and he responded in a submission for the record which suggests that it was probably fairly carefully thought out. And as late as sometime after the 13th of August, he said:

"The Airport and Airway Development Act of 1970 did authorize grants totaling \$280 million for fiscal year 1971. Assuming no fiscal restraints, the Department believes that the full amount of the authorization could be utilized for project grants during fiscal year 1971."

Now, it was only subsequent to that, apparently, that the Office of Management and Budget imposed the limitation, and they had to fall back and regroup and subsequently provide the lesser application that we all got into a storm over.

I think what it comes down to is that if the administration will move as fast as it is authorized to move, we can solve a lot of these problems, but if it sits back or holds back, there isn't an awful lot that we can do about it.

That is why we think it is extremely important to preserve these funds. We recognize that our group, particularly, did not exactly embrace user charges with wild-eyed enthusiasm. We lost that battle.

We are certainly concerned now that the money we pay goes into facilities.

As an example, in the allocations of airport development funds so far to date, by our calculations, the amount of money being put into reliever airports, the amount of money being put into general-aviation-only airports, is about half that which was contemplated and authorized.

Senator PEARSON. Is it half of what was contemplated? Or does it take its full percentage—

Mr. MONROE. That is on a percentage basis of what they have issued to date.

Senator PEARSON. Let me back up and understand you.

As I recall, there was so many percents for hubs and intermediates, and there was a percentage for general-aviation/reliever airports, \$30 million off the top.

Is general aviation getting its full quota of the reduced funds?

Mr. MONROE. Not by our calculations.

Senator CANNON. Let me ask you one question right there. Is that because local authorities have not applied for project grants to bring it up to the amount?

Mr. MONROE. That is possible. I do not know the entire history.

Senator CANNON. You may find while you have a backlog of project applications in the other categories, the airport facilities program, that when it comes to establishing new general aviation airports this may be a problem with local authorities in getting them in the position that they will come up with their matching funds.

Mr. MONROE. It is quite true. I do not know the complete background of how many projects from general aviation type airports or reliever type airports have been submitted and are in the package of applications. All I have done so far is to go through the releases to date and do the calculations based on the percentage distribution that would result from the application of the full funded amounts.

Senator PEARSON. Let me ask you another way. Of the funds appropriated, did general aviation receive their proper percentage or did it have available to it the proper percentage for reliever and general aviation airports?

Mr. MONROE. Let me answer the second question first. I do not know whether it had it available. All I know is what has been done. And with respect to what has been done, if you take the amounts and you reduce them to percentage distributions, what you come out with is that roughly about 80 percent of whatever is available should go to air carrier type airports, roughly about 9 percent should go to reliever type airports, and roughly about 11 percent should go to the general aviation only.

Now, to date the distribution has worked out so that actually about 91 or 92 percent have gone in the large carrier airports, about 4 or 4.5 percent to reliever, and about 5 percent to general aviation.

Senator PEARSON. But you do not know why that is so?

Mr. MONROE. I do not know why. That is one thing we are in the process of attempting to ascertain.

Senator CANNON. Do you have the facilities available in your organization to determine why and to determine the reasons and submit something to us on that?

Mr. MONROE. I think that the only thing we can do there is to consult with the FAA and find out.

Senator CANNON. I see. We will consult with FAA, but we thought if you had independent sources of ascertaining what the facts were, we always like to have an unbiased view.

Mr. MONROE. We have been informed that they have money running out their ears.

Senator CANNON. Who has? The FAA?

Mr. MONROE. Yes; I am not exactly sure that that is truly the case.

Senator CANNON. Mr. Smith, do you have anything to add?

Mr. SMITH. Yes, sir; very little. In the last year, since I have been before this committee, I have done two things. I have grown a full head of hair and have changed my position from a resident skeptic of general aviation to a happy cynic. The issue here is very simple, it is stopping the "raid" on the trust fund.

I think we are in front of a favorable forum here, but I am not sure you are the ones that are going to change the part of the act that needs changing. It may never be changed according to the timetable I hear.

The issue is very simple, and we do not have to discuss a lot of other things at this time. There is going to be other times, however, where there are going to have to be discussions, and, of course, one of the big problems we have is finding out just what "general" aviation is, which we all talk about so glibly. The Aviation Advisory Committee has a complete team now trying to find out what "general" aviation is. We do not know. Nobody seems to know what is required or what "reliever" airports are or what "general aviation" airports are.

So I think my discussion today or my response to the committee today will be very simple. We certainly, as an association, are in favor of the joint statement in which we have participated, and we will probably come before you another time in a less happy mood talking on other subjects.

Senator CANNON. Gentlemen, does anyone else have anything to add?

Thank you very much. We appreciate your being here.

The committee will stand in recess until 10 o'clock tomorrow morning at which time we will go into the military airlift procurement problem.

(The following information was referred to on p. 41:)

SUPPLEMENTARY DATA—SUBMITTED FOR RECORD WITH STATEMENT BY
JOHN J. O'DONNELL, PRESIDENT, AIRLINE PILOTS ASSOCIATION

The data compiled by the Air Line Pilots Association includes:

Summary Cost Estimates: ILS, VASI and REILS for runways not presently equipped and FAA Aircraft cost figures programed for 1981.

Individual Cost of FAA Facilities and Programed Installation to 1981.

FAA Programed Cost of Aircraft Procurements by Type and Use from 1972-1981.

Summary of Non-Precision Approach Accident Statistics (10 years-1961-1970).

U.S. Air Carrier Fatal Accidents—Underrun Non-Precision Approaches (By incident and location) 10 years 1961-1970).

Airline Airport Summary (May 1971) including list of airline airports, number of runway ends, ILS, localizer installations, VASIs and back course approaches (Runway length of 4,000 ft. or more).

*Summary cost estimates: * ILS, VASI & REILS for all runways not presently equipped and FAA aircraft cost figures programed to 1981*

	Cost in millions
Existing conventional ILS (310)	
Conventional ILS Proposed To 1981 (325)	\$91.9
Replacement ILS Proposed To 1981 (454)	97.5
Total ILS by 1981 (1089)	189.4
Airline Airports Estimated, 530.	
Runway ends (estimated two runways/airport average), 2120.	
Conventional ILS Runways in 1971, 310.	
VASI and REIL Equipped in 1971, 88.	
Runways without ILS in 1971, 1810.	
Approximate airports without ILS in 1971, 300.	
Runways without ILS, VASI or REIL in 1971, 1722.	
As of 1971—Estimated cost to equip each runway not so equipped :	
ILS— $1810 \times 243,000 = \$439,830,000$.	
VASI & REIL— $1722 \times (20,000 \text{ VASI} + 10,000 \text{ REIL}) = \$51,660,000$.	
As of 1971—Estimated cost to equip each airport not so equipped :	
With One ILS— $300 \times 243,000 = \$72,900,000$.	
Cost of 779 ILSs Programed to 1981—\$189,400,000.	
Estimated additional cost of ILS for all runways ends at 1981—\$250,430,000.	
Programed cost of FAA aircraft fleet to 1981 (not including existing fleet)	\$123,500,000
Airways Checking Aircraft, Modification & Avionics	69,200,000
Research & Development Aircraft	10,100,000
Flight Training Aircraft, Modifications, Simulators & Avionics	44,200,000

*Numbers and Estimates based on National Aviation System Plan 1972-1981; Made by FAA March, 1971.

INDIVIDUAL COST OF FAA FACILITIES ¹ AND PROGRAMED INSTALLATIONS TO 1981

	Total number by 1981	Estab- lishment	Annual operat- ing cost
Conventional full capability ILS (CAT II type)	635	\$282,000	
Replacement low activity airport ILS	454	138,100	\$29,000
Localizer plus 1 marker		85,600	15,000
Air traffic control tower (16-hour day)	525	200,000	128,000
ASR/ATCRBS	273	1,050,000	348,000
Full approach light system with flashers	1,080	200,000	
Medium intensity approach light system (MALS/RAILS)		65,900	37,000
VASI 4-box (average)	469	20,000	
TVOR	148	80,000	
VOR	905	187,000	
TACAN/DME	905	39,000	
REIL	354	10,000	

¹ From FAA correspondence and national aviation system plan 1972-81 made by FAA, March 1971.

LOGISTICS/JOB SUPPORT AIRCRAFT (F. & E. ITEM)

	On hand 1970	Anticipate 198
L-1329	1	0
TV-2 Lockheed	1	0
G-159	1	0
C-123	1	0
DC-3	4	0
BE-80	4	0
BE-65	2	0
BE-55	4	0
Light turboprop	0	12
Light turbojet	0	4
Medium jet	0	1
Medium turboprop	0	1
Total	18	18

Note: New aircraft funding needed, \$27,200,000.

NEW RESEARCH SUPPORT AIRCRAFT (F & E ITEM)

Number by 1981—6.

Funding Needed by 1981—\$18.3 Million.

Heavy Turboprop, 1.

Light Turboprop, 3.

Twin Turbine Helicopter, 1.

Long Range Jet, 1.

Old CV-580 (retained), 1.

FAA PROGRAMED COST OF AIRCRAFT PROCUREMENT BY TYPE AND USE FROM 1972-1981

FAA aircraft fleet—number & cost summary program

[Dollars in millions]

Aircraft no.:	
Present	90
New 1972-1981	53
On hand 1981	62
New aircraft funding needed by 1981	\$123.5
Funding by type use 1972-1981:	
Airways aircraft program (facilities and equipment)	\$69.2
Research and development aircraft	10.1
Flight training aircraft (F. & E.)	44.2

FLIGHT INSPECTION AIRCRAFT (F. & E. ITEM) 1970-81

	On hand, 1970	Inventory, 1981	New aircraft funding needed
C-135	2	0	
CV-580	4	0	
T-29 Convair	3	0	
DC-3	43	0	
Light turbo	0	21	
Light turbojet	5	5	
Heavy turbo	0	1	
Total	57	27	\$69,200,000

FLIGHT TRAINING AIRCRAFT (F. & E. ITEM)

	On hand, 1970	On hand, 1981	New aircraft funding needed
B-720	1	1	
B-727	1	1	
DC-9	1	1	
L-188	1	0	
DC-3	2	0	
STOL	0	2	
Light twin	0	2	
Light turbojet	0	3	
Total	6	10	\$44,200,000

Summary—Nonprecision approach accident statistics, 10 years, 1961-70

Number of people killed	559
Number of fatal accidents	18
Number of nonfatal accidents	32
Estimated insurance cost of people killed	\$28,000,000
Estimated insurance cost of people killed	\$28,000,000
Estimated additional costs of loss of revenue, insurance and investigation (50 accidents at \$500,000 each)	\$25,000,000
Total	\$111,000,000

U.S. AIR CARRIER FATAL ACCIDENTS, UNDERRUN, NONPRECISION APPROACHES—10 YEARS,
1961-70

Date and location	Air carrier	Aircraft	Damage	Fatalities
Nov. 8, 1961, Richmond, Va.	Imperial	L-049	Destroyed	77
Dec. 14, 1962, Hollywood, Calif.	FTL	L-1049H	do.	8
Nov. 29, 1963, Morgantown, W. Va.	Prudue	DC-3	Substantial	1
Mar. 12, 1964, Miles City, Mont.	FAL	DC-3	Destroyed	5
May 7, 1964, San Ramon, Calif.	PAC	F-27	do.	44
Nov. 15, 1964, Las Vegas, Nev.	BAL	F-27	do.	29
Nov. 8, 1965, Constance, Ky.	AAL	B-727	do.	58
Apr. 22, 1966, Ardmore, Okla.	AFAX	L-188	do.	83
Oct. 20, 1967, Constance, Ky.	TWA	CV-880	do.	69
June 13, 1968, Calcutta, India	PAA	B-707	do.	6
Aug. 10, 1968, Charleston, W. Va.	PAI	FH-227	do.	35
Oct. 25, 1968, Hanover, N.H.	NEA	FH-227	do.	32
Dec. 24, 1968, Bradford, Pa.	AAA	CV-580	do.	20
Jan. 6, 1969, Bradford, Pa.	AAA	CV-440	do.	11
Mar. 13, 1969, Minchumina, Alaska	WCA	DHC-6	do.	3
Oct. 10, 1970, McGuire AFB, N.J.	SAT	L-100	do.	75
Nov. 14, 1970, Huntington, W. Va.	SOU	DC-9	do.	2
Dec. 28, 1970, St. Thomas, VI	TCA	B-727	do.	
Total				559

U.S. AIR CARRIER NONFATAL ACCIDENTS, NONPRECISION APPROACHES—10 YEARS, 1961-70

Date and location	Air carrier	Aircraft	Damage
Feb. 18, 1961, Stuttgart, Germany	PAA	DC-7	Substantial.
Feb. 25, 1961, Houston, Tex.	BNF	B-720	Do.
Mar. 26, 1961, St. Louis, Mo.	TWA	B-707	Do.
July 5, 1961, Bismarck, N. Dak.	FAL	DC-3	Do.
Oct. 10, 1961, Des Moines, Idaho	BNF	CV-340	Do.
Nov. 19, 1961, Tri Cities, Bristol, Tenn.	PAI	DC-3	Do.
Nov. 23, 1961, Morgantown, W. Va.	LCA	DC-3	Do.
Dec. 2, 1961, Jacksonville, Fla.	DAL	DC-7	Do.
Jan. 26, 1962, Fort Lauderdale, Fla.	NWA	B-720B	Do.
Apr. 27, 1962, Manila, Philippines	PAA	B-707	Do.
Aug. 6, 1962, Rocky Mount, N.C.	PAI	M-404	Do.
Dec. 21, 1962, Grand Island, Nebr.	FAL	CV-340	Do.
May 28, 1963, Manhattan, Kans.	STD	L-1049G	Destroyed.
June 5, 1964, LaGuardia, N.Y.	NEA	DC-6B	Substantial.
July 16, 1964, Richmond, Va.	EAL	DC-7B	Do.
Sept. 22, 1964, Sacramento, Calif.	WAL	B-720	Do.
Jan. 21, 1965, Weyers Cave, Va.	PAI	M-404	Do.
Apr. 27, 1965, Ponce, P.R.	CBA	CV-340	Do.
May 18, 1965, Knob Noster, Mo.	AAXICO	DC-6A	Destroyed.
Sept. 14, 1965, Stevens Point, Wis.	NCA	DC-3	Substantial.
Oct. 16, 1965, Charlotte, N.C.	EAL	DC-7	Do.
Mar. 21, 1966, Norfolk, Va.	FTL	CL-44D	Destroyed.
June 29, 1966, Mojave, Calif.	AAL	B-720B	Substantial.
Oct. 22, 1966, New Orleans, La.	DAL	DC-8	Do.
Oct. 5, 1967, Kansas City, Mo.	UNI	DC-6A	Do.
Nov. 1, 1967, Great Falls, Mont.	FAL	CV-340	Do.
Jan. 1, 1968, Oxford, Miss.	SOU	M-404	Destroyed.
Jan. 28, 1968, Benton Harbor, Mich.	NCA	CV-440	Substantial.
Mar. 20, 1968, Evansville, Ind.	DAL	CV-440	Destroyed.
Sept. 27, 1968, Cherry Point, N.C.	UNI	DC-7C	Do.
1969, none in category			
Jan. 11, 1970, Harlingen, Tex.	TXI	DC-9	Substantial.
Aug. 8, 1970, Acapulco, Mex.	MOD	CV-990	Destroyed.

AIRLINE AIRPORT SUMMARY (MAY 1971)

A list of the airline airports in the United States, including Puerto Rico and the Virgin Islands, showing the number of runway ends, ILS, localizers, VASIs and back-course approaches. In this summary the following is shown :

578 Airports
2,200 Runway Ends
280 ILS
19 Localizer only installations
119 VASI (including AVASI)
50 Back courses with approach procedures

The above list includes all airports having runways at least 4,000 feet in length. "Runway ends" includes only those runways of 4,000 feet or more in length.

NOTE: The sources for the airport listing are the ALPA "Master Airport List" and the World Aviation Directory; the Jeppesen Manuals provided the data.

Location	Number—				BC
	Run- way ends	ILS	LOC	VASI	
ALABAMA					
Anniston.....	2	0	1	0	0
Birmingham.....	4	1	0	1	1
Decatur.....	2	0	0	0	0
Dothan.....	4	0	1	0	0
Gadsden.....	4	0	0	0	0
Huntsville.....	4	1	0	0	1
Mobile.....	6	1	0	0	0
Montgomery.....	6	1	0	0	1
Muscle Shoals.....	4	0	1	0	0
Tuscaloosa.....	4	0	0	0	0
Total.....	40	4	3	1	3

ALASKA					
Adak.....	4	0	0	0	0
Amchitka.....	2	0	0	0	0
Anchorage.....	6	2	0	3	0
Aniak.....	2	0	0	0	0
Annette Island.....	2	1	0	0	0
Attu.....	2	0	0	0	0
Barrow.....	2	0	0	2	0
Barter Island.....	2	0	0	0	0
Bethel.....	12	0	0	1	0
Bettles.....	12	0	0	0	0
Big Mountain.....	12	0	0	0	0
Cape Lisborne.....	12	0	0	0	0
Cape Mewenham.....	12	0	0	0	0
Cold Bay.....	4	1	0	1	1
Cordova.....	2	0	0	1	0
Dillingham.....	12	0	0	0	0
Fairbanks.....	2	1	0	1	1
Fairwell.....	14	0	0	0	0
Fort Yukon.....	12	0	0	0	0
Galena.....	2	0	0	2	0
Gulkana.....	2	0	0	0	0
Gustavus.....	4	0	0	0	0
Haines.....	12	0	0	0	0
Homer.....	2	0	0	1	0
Iliamna.....	12	0	0	0	0
Juneau.....	2	0	1	1	0
Kenai.....	2	0	0	1	0
King Salmon.....	4	1	0	2	0
Kodiak.....	6	0	0	1	0
Kotzebue.....	2	0	0	1	0
McGrath.....	2	0	0	0	0
Middletown Island.....	12	0	0	0	0
Moses Point.....	2	0	0	0	0
Nome.....	4	0	0	1	0
Northway.....	2	0	0	0	0
Port Heiden.....	4	0	0	0	0
Shemya.....	4	0	0	0	0
Sitka.....	2	0	1	2	0
St. Paul.....	2	0	0	0	0
Tanana.....	12	0	0	0	0
Umat.....	2	0	0	0	0
Unalakleet.....	12	0	0	1	0
Utopia.....	12	0	0	0	0
Yakutat.....	4	0	0	0	0
Total.....	114	6	2	22	2

ARIZONA					
Flagstaff.....	2	0	0	0	0
Grand Canyon.....	2	0	0	0	0
Kingman.....	6	0	0	0	0
Page.....	2	0	0	0	0
Phoenix.....	4	0	0	1	0
Prescott.....	4	0	0	0	0
Tucson.....	6	0	0	0	0
Winslow.....	4	0	0	0	0
Yuma.....	8	0	0	0	0
Total.....	38	0	0	1	0

Location	Number—				
	Run-way ends	ILS	LOC	VASI	BC
ARKANSAS					
El Dorado.....	6	0	0	0	0
Fayetteville.....	2	0	0	0	0
Fort Smith.....	4	1	0	0	1
Harrison.....	2	0	0	0	0
Hot Springs.....	4	0	0	0	0
Jonesboro.....	6	0	0	0	0
Little Rock.....	6	1	0	0	1
Pine Bluff.....	2	0	0	0	0
Texarkana.....	4	1	0	0	0
Total.....	36	3	0	0	2

CALIFORNIA					
Apple Valley/San Bernardino.....	2	0	0	0	0
Arcata.....	4	1	0	1	0
Bakersfield.....	4	0	0	0	0
Blythe.....	6	0	0	0	0
Burbank.....	4	1	0	0	0
Chico.....	2	0	0	0	0
Crescent City.....	4	0	0	0	0
Fresno.....	4	1	0	0	1
Imperial.....	2	0	0	0	0
Invokern.....	2	0	0	0	0
Lancaster.....	2	0	0	0	0
Long Beach.....	10	1	0	0	1
Los Angeles.....	8	4	0	2	2
Marysville.....	4	0	0	0	0
Merced.....	2	0	0	0	0
Modesto.....	4	0	0	0	0
Monterey.....	4	1	0	0	0
Oakland.....	8	2	0	0	1
Ontario.....	4	1	0	0	1
Oxnard.....	2	0	0	0	0
Palm Springs.....	2	0	0	0	0
Redding.....	4	0	0	0	0
Riverside.....	2	0	0	0	0
Sacramento.....	6	1	0	0	1
Salinas.....	4	0	0	2	0
San Diego.....	4	1	0	0	1
San Francisco.....	8	2	0	1	1
San Jose.....	4	1	0	0	1
San Luis Obispo.....	4	0	0	0	0
Santa Ana.....	2	1	1	0	1
Santa Barbara.....	4	1	0	0	0
Santa Maria.....	4	0	0	0	0
Santa Rosa.....	4	0	0	0	0
South Lake Tahoe.....	2	0	0	1	0
Stockton.....	2	1	0	0	0
Visalia.....	2	0	0	0	0
Total.....	140	12	1	7	11

COLORADO					
Alamosa.....	2	0	0	0	0
Colorado Springs.....	6	1	0	2	1
Cortez.....	2	0	0	0	0
Denver.....	6	2	0	2	2
Durango.....	2	0	0	0	0
Grand Junction.....	4	1	0	0	0
Gunnison.....	2	0	0	0	0
Hayden.....	2	0	0	0	0
Lamar.....	2	0	0	0	0
Montrose.....	2	0	0	0	0
Pueblo.....	8	2	0	0	1
Total.....	38	6	0	4	4

CONNECTICUT					
Bridgeport.....	6	0	0	0	0
Groton.....	6	0	0	0	0
New Haven.....	4	0	0	1	0
Windsor Locks.....	6	1	0	1	1
Hartford.....	2	0	0	0	0
Total.....	24	1	0	2	1

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
DELAWARE					
Wilmington.....	8	1	0	0	0
FLORIDA					
Daytona Beach.....	2	1	0	0	0
Fort Lauderdale.....	4	1	0	0	0
Fort Meyers.....	4	0	0	1	0
Gainesville.....	6	0	0	0	0
Jacksonville.....	4	1	0	0	1
Key West.....	2	0	0	0	0
Melbourne.....	4	0	0	0	0
Miami.....	8	2	0	3	2
Ocala.....	2	0	0	0	0
Orlando.....	4	1	0	0	1
Panama City.....	4	1	0	0	0
Pensacola.....	4	1	0	0	1
St. Petersburg.....	6	1	0	0	1
Sarasota.....	4	0	0	1	0
Tallahassee.....	4	1	0	0	1
Tampa.....	6	2	0	0	2
Vero Beach.....	4	0	0	0	0
West Palm Beach.....	4	1	0	1	1
Total.....	76	13	0	6	10
GEORGIA					
Albany.....	4	0	0	0	0
Athens.....	4	0	0	0	0
Atlanta.....	8	3	0	2	1
Augusta.....	4	1	0	0	0
Brunswick.....	6	0	0	0	0
Columbus.....	2	1	0	0	1
Macon.....	4	1	0	0	0
Moultrie.....	4	0	0	0	0
Rome.....	6	0	0	0	0
Savannah.....	6	1	0	0	1
Valdosta.....	6	0	0	0	0
Waycross.....	6	0	0	0	0
Total.....	60	7	0	2	3
HAWAII					
Hilo.....	4	1	0	1	0
Honolulu.....	6	1	0	1	0
Kahului.....	4	1	0	0	1
Kailua.....	2	0	0	1	0
Kamuela.....	2	0	0	0	0
Lanai.....	2	0	0	0	0
Lihue.....	2	0	0	0	0
Total.....	22	3	0	3	1
IDAHO					
Boise.....	4	1	0	0	0
Burley.....	4	0	0	0	0
Coeur D'Alene.....	6	0	0	0	0
Idaho Falls.....	4	0	0	0	0
Lewiston.....	4	0	0	0	0
Pocatello.....	6	1	0	0	0
Sun Valley/Hailey/ Ketchum.....	2	0	0	0	0
Twin Falls.....	2	0	0	0	0
Total.....	32	2	0	0	0

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
ILLINOIS					
Alton.....	4	1	0	0	0
Bloomington.....	2	0	0	0	0
Champaign.....	6	1	0	0	0
Midway.....	12	1	1	0	0
O'Hare.....	12	5	2	3	2
Danville.....	4	0	0	0	0
Decatur.....	6	1	0	0	0
Galesburg.....	2	0	0	0	0
Marion.....	2	0	0	0	0
Mattoon.....	2	0	0	0	0
Moline.....	6	1	0	0	1
Mount Vernon.....	2	0	0	0	0
Peoria.....	6	1	0	0	1
Quincy.....	6	1	0	0	0
Rockford.....	6	1	0	0	1
Springfield.....	6	1	0	0	1
Total.....	84	13	3	3	6
INDIANA					
Bloomington.....	2	0	0	0	0
Columbus.....	4	0	0	0	0
Evansville.....	4	1	0	0	0
Fort Wayne.....	6	1	1	0	1
Indianapolis.....	6	2	0	1	2
Kokomo.....	4	0	0	0	0
Lafayette.....	2	0	1	0	0
Marion.....	2	0	0	0	0
Muncie.....	4	0	0	0	0
Richmond.....	6	0	0	0	0
South Bend.....	8	1	0	0	1
Terre Haute.....	4	1	0	0	1
Total.....	50	6	2	1	5
IOWA					
Burlington.....	4	0	0	0	0
Cedar Rapids.....	4	1	0	0	1
Clinton.....	2	0	0	0	0
Des Moines.....	4	1	0	0	1
Dubuque.....	4	0	0	0	0
Fort Dodge.....	4	0	0	0	0
Iowa City.....	4	0	0	0	0
Mason City.....	4	0	0	0	0
Ottumwa.....	4	0	0	0	0
Sioux City.....	6	1	0	0	1
Waterloo.....	6	1	0	0	1
Total.....	46	4	0	0	4
KANSAS					
Dodge City.....	4	0	0	0	0
Garden City.....	8	0	0	0	0
Goodland.....	2	0	0	0	0
Great Bend.....	6	0	0	0	0
Hays.....	2	0	0	0	0
Hutchinson.....	4	1	0	0	1
Liberal.....	6	0	0	0	0
Manhattan.....	2	0	0	0	0
Parsons.....	6	0	0	0	0
Salina.....	4	1	0	0	1
Topeka.....	6	1	0	0	1
Wichita.....	6	1	0	0	1
Total.....	50	3	0	0	3

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
KENTUCKY					
Bowling Green.....	2	0	0	0	0
Frankfort.....	2	0	0	0	0
Lexington.....	2	1	0	0	1
London.....	2	0	0	0	0
Louisville.....	6	2	0	1	2
Owensboro.....	2	0	0	0	0
Paducah.....	4	0	0	0	0
Total.....	20	3	0	1	3
LOUISIANA					
Alexandria.....	4	1	0	0	1
Baton Rouge.....	6	1	0	0	1
Fort Polk.....	2	0	0	0	0
Lafayette.....	4	1	0	0	1
Lake Charles.....	4	1	0	0	1
Monroe.....	6	1	0	0	0
New Orleans.....	6	1	0	0	1
Shreveport.....	4	1	0	0	1
Total.....	36	7	0	0	6
MAINE					
Auburn.....	2	0	0	0	0
Augusta.....	2	0	0	0	0
Bangor.....	2	1	0	0	0
Bar Harbor.....	2	0	0	0	0
Portland.....	4	1	0	1	0
Presque Isle.....	4	0	0	0	0
Rockland.....	4	0	0	0	0
Total.....	20	2	0	1	0
MARYLAND					
Baltimore.....	6	2	0	1	2
Hagerstown.....	2	0	0	0	0
Salisbury.....	6	0	0	0	0
Total.....	14	2	0	1	2
MASSACHUSETTS					
Bedford.....	4	1	0	2	1
Boston.....	8	2	0	1	1
Hyannis.....	4	1	0	0	0
Martha's Vineyard.....	2	0	0	0	0
Nantucket.....	4	1	0	0	1
New Bedford.....	4	1	0	0	0
Worcester.....	4	1	0	0	0
Total.....	30	7	0	3	3
MICHIGAN					
Alpena.....	6	0	0	0	0
Battle Creek.....	8	1	0	0	1
Benton Harbor.....	2	0	1	0	0
Cadillac.....	2	0	0	0	0
Detroit (Metro).....	8	3	0	0	0
Detroit (Willow Run).....	10	1	0	0	1
Escanaba.....	2	0	0	0	0
Flint.....	6	1	0	0	1
Grand Rapids.....	2	1	0	0	1
Hancock.....	4	0	0	0	0
Iron Mountain.....	2	0	0	0	0
Ironwood.....	2	0	0	0	0
Jackson.....	2	1	0	0	0
Kalamazoo.....	2	1	0	0	1
Lansing.....	4	1	0	0	1
Manistee.....	2	0	0	0	0
Marquette.....	2	0	0	0	0
Menominee.....	2	0	0	0	0
Muskegon.....	4	1	0	0	0
Pellston.....	4	0	0	0	0
Pontiac.....	2	0	0	0	0
Saginaw.....	4	1	0	0	1
Sault Ste. Marie.....	2	0	0	0	0
Traverse City.....	4	0	0	0	0
Total.....	88	12	1	0	7

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
MINNESOTA					
Bemidji.....	4	0	0	0	0
Brainerd.....	4	0	0	0	0
Duluth.....	6	2	0	2	1
Fairmont.....	2	0	0	0	0
Hibbing.....	2	0	0	0	0
International Falls.....	2	0	0	0	0
Mankato.....	2	0	0	0	0
Minneapolis.....	6	3	0	1	3
Rochester.....	4	1	0	0	1
Thief River Falls.....	2	0	0	0	0
Winona.....	2	0	0	0	0
Worthington.....	2	0	0	0	0
Total.....	38	6	0	3	5
MISSISSIPPI					
Columbus.....	2	0	0	0	0
Greenville.....	6	0	0	0	0
Greenwood.....	4	0	0	0	0
Gulfport.....	6	1	0	0	0
Hattiesburg.....	4	0	0	0	0
Jackson.....	4	1	0	0	1
Laurel.....	4	0	0	0	0
Meridian.....	4	1	0	0	0
Natchez.....	6	0	0	0	0
Oxford.....	2	0	0	0	0
Pascagoula.....	6	0	0	0	0
Picayune.....	2	0	0	0	0
Tupelo.....	4	0	0	0	0
Vicksburg.....	2	0	0	0	0
Total.....	56	3	0	0	1
MISSOURI					
Cape Girardeau.....	4	0	0	0	0
Columbia.....	2	0	0	0	0
Jefferson City.....	2	0	0	0	0
Joplin.....	6	1	0	0	1
Kansas City (Municipal).....	4	1	0	0	0
Kansas City International.....	4	2	0	0	2
Kirksville.....	2	0	0	0	0
St. Joseph.....	6	1	0	0	0
St. Louis.....	8	2	0	0	2
Springfield.....	4	1	0	0	1
Total.....	42	8	0	0	6
MONTANA					
Billings.....	6	1	0	0	1
Bozeman.....	6	0	0	1	0
Butte.....	6	0	0	0	0
Glasgow.....	4	0	0	0	0
Glendive.....	2	0	0	0	0
Great Falls.....	6	1	0	0	0
Havre.....	2	0	0	0	0
Helena.....	4	0	0	1	0
Kalispell.....	6	0	0	0	0
Lewistown.....	6	0	0	0	0
Miles City.....	4	0	0	0	0
Missoula.....	6	0	0	0	0
West Yellowstone.....	2	0	0	0	0
Total.....	60	2	0	2	1
NEBRASKA					
Alliance.....	8	0	0	0	0
Chadron.....	4	0	0	0	0
Columbus.....	2	0	0	0	0
Grand Island.....	6	0	0	0	0
Hastings.....	2	0	0	0	0
Kearney.....	6	0	0	0	0
Lincoln.....	6	1	0	0	1
McCook.....	2	0	0	0	0
Norfolk.....	4	0	0	0	0
North Platte.....	6	0	0	0	0
Omaha.....	6	1	0	0	1
Scottsbluff.....	6	0	0	0	0
Sidney.....	2	0	0	0	0
Total.....	60	2	0	0	2

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
NEVADA					
Elko.....	2	0	0	0	0
Ely.....	4	0	0	0	0
Fallon.....	2	0	0	0	0
Las Vegas.....	8	1	0	0	0
Reno.....	4	1	0	0	1
Total.....	20	2	0	0	1
NEW HAMPSHIRE					
Berlin.....	2	0	0	1	0
Keene.....	4	1	0	1	0
Laconia.....	2	0	0	1	0
Lebanon.....	2	0	0	1	0
Manchester.....	4	1	0	0	0
Total.....	14	2	0	4	0
NEW JERSEY					
Atlantic City.....	6	1	0	0	0
Cape May.....	2	0	0	0	0
Newark.....	4	2	0	2	0
Teterboro.....	4	1	0	0	0
Trenton.....	4	1	0	0	0
Total.....	20	5	0	2	0
NEW MEXICO					
Albuquerque.....	8	1	0	1	1
Carlsbad.....	6	0	0	0	0
Clovis.....	4	0	0	0	0
Farmington.....	4	0	0	0	0
Gallup.....	2	0	0	0	0
Hobbs.....	6	1	0	0	0
Roswell.....	6	1	0	0	0
Santa Fe.....	6	0	0	0	0
Silver City.....	2	0	0	0	0
Total.....	44	2	0	1	1
NEW YORK					
Albany.....	4	1	0	0	1
Binghamton.....	4	1	0	0	0
Buffalo.....	4	2	0	0	1
Elmira.....	6	1	0	0	0
Glens Falls.....	4	0	0	0	0
Islip.....	6	1	0	0	1
Ithaca.....	2	0	0	0	0
Jamestown.....	4	1	0	0	0
Massena.....	4	0	0	0	0
La Guardia.....	4	3	0	3	1
Kennedy.....	8	4	0	4	0
Ogdensburg.....	2	0	0	0	0
Olean.....	2	0	0	0	0
Plattsburg.....	6	0	0	0	0
Poughkeepsie.....	2	0	0	0	0
Rochester.....	8	2	0	0	1
Saranac Lake.....	6	0	0	0	0
Syracuse.....	4	1	0	0	1
Utica.....	4	1	0	0	1
Watertown.....	4	0	0	0	0
White Plains.....	6	1	0	0	0
Total.....	94	19	0	7	7

Location	Number—				
	Run- way ends	ILS	LOC	VASI	BC
NORTH CAROLINA					
Asheville.....	2	1	0	1	0
Charlotte.....	4	1	0	0	0
Elizabeth City.....	4	0	0	2	0
Fayetteville.....	4	1	0	0	0
Greensboro.....	4	1	0	0	0
Hickory.....	4	0	0	0	0
Kinston.....	4	0	0	0	0
New Bern.....	4	0	0	0	0
Raleigh.....	4	1	0	0	0
Rocky Mount.....	2	0	0	0	0
Southern Pines.....	2	0	0	0	0
Wilmington.....	4	1	0	0	1
Winston-Salem.....	2	1	0	0	0
Total.....	44	7	0	3	1
NORTH DAKOTA					
Bismarck.....	4	1	0	0	0
Devils Lake.....	4	0	0	0	0
Fargo.....	4	1	0	0	1
Grand Forks.....	4	0	0	0	0
Jamestown.....	4	0	0	0	0
Minot.....	4	0	0	0	0
Williston.....	2	0	0	1	0
Total.....	26	2	0	1	1
OHIO					
Akron.....	6	1	0	0	1
Cincinnati.....	6	2	0	2	2
Cleveland.....	10	4	0	1	1
Columbus.....	8	2	0	0	2
Dayton.....	6	2	0	0	2
Findlay.....	4	0	0	0	0
Lima.....	2	0	0	0	0
Mansfield.....	4	1	0	0	1
Toledo.....	2	0	0	0	0
Youngstown.....	4	1	0	0	1
Zanesville.....	4	0	0	0	0
Total.....	56	13	0	3	10
OKLAHOMA					
Bartlesville.....	2	0	0	0	0
Duncan.....	2	0	0	0	0
Enid.....	6	0	0	0	0
Lawton.....	2	0	0	0	0
McAlester.....	2	0	0	0	0
Muskogee.....	2	0	0	0	0
Oklahoma City.....	6	1	0	1	1
Ponca City.....	2	0	0	0	0
Stillwater.....	6	0	0	0	0
Tulsa.....	8	2	0	0	0
Total.....	36	3	0	1	1
OREGON					
Astoria.....	4	0	0	0	0
Baker.....	6	0	0	0	0
Corvallis.....	4	0	0	0	0
Eugene.....	4	1	0	0	0
Klamath Falls.....	6	1	0	0	0
Medford.....	4	1	0	0	0
North Bend.....	6	0	0	0	0
Ontario.....	2	0	0	0	0
Pendleton.....	6	1	0	0	0
Portland.....	6	2	0	0	1
Roseburg.....	2	0	0	0	0
Salem.....	4	1	0	0	0
Total.....	54	7	0	0	1

Number—					BC	Number—					BC
Location	Run-way ends	ILS	LOC	VASI		Location	Run-way ends	ILS	LOC	VASI	
PENNSYLVANIA						TEXAS					
Allentown.....	4	1	0	0	1	Abilene.....	6	1	0	0	1
Altoona.....	2	0	0	0	0	Amarillo.....	4	1	0	2	1
Bradford.....	4	1	0	0	0	Austin.....	4	1	0	1	1
DuBois.....	2	0	1	0	0	Beaumont.....	6	1	0	0	1
Erie.....	2	1	0	0	1	Big Spring.....	2	0	0	0	0
Franklin.....	2	0	0	0	0	Borger.....	2	0	0	0	0
Hazleton.....	2	0	0	0	0	Brownsville.....	8	0	1	0	0
Johnstown.....	4	0	0	0	0	Brownwood.....	4	0	0	0	0
Lancaster.....	4	1	0	0	0	College Station.....	6	0	0	0	0
Middletown.....	2	1	0	2	1	Corpus Christi.....	2	1	0	0	1
Philadelphia.....	6	1	0	1	0	Dallas.....	6	2	0	2	2
Philipsburgh.....	4	0	0	0	0	El Paso.....	6	1	0	0	0
Pittsburgh.....	8	2	0	1	0	Fort Worth.....	4	1	0	0	1
Reading.....	6	1	0	0	0	Galveston.....	6	0	0	0	0
Wilkes-Barre.....	2	1	0	0	1	Harlingen.....	8	0	0	0	0
Williamsport.....	4	1	0	0	0	Houston.....	6	1	0	1	1
Total.....	58	11	1	4	4	Laredo.....	2	0	0	0	0
PUERTO RICO						Longview.....	6	1	0	0	0
San Juan.....	2	1	0	0	1	Lubbock.....	4	1	0	0	1
RHODE ISLAND						Lufkin.....	4	0	0	0	0
Providence.....	6	1	0	1	0	McAllen.....	2	0	0	0	0
SOUTH CAROLINA						Midland.....	8	1	0	0	1
Charleston.....	4	1	0	3	1	Paris.....	6	0	0	0	0
Columbia.....	4	1	0	0	1	San Angelo.....	6	1	0	0	1
Florence.....	4	0	0	0	0	San Antonio.....	4	2	0	0	1
Greenwood.....	6	0	0	0	0	Temple.....	4	0	0	0	0
Greer.....	2	1	0	0	1	Tyler.....	6	1	0	0	1
Myrtle Beach.....	2	0	0	0	0	Victoria.....	8	0	0	0	0
Spartanburg.....	6	0	0	0	0	Waco.....	6	1	0	0	0
Total.....	28	3	0	3	3	Wichita Falls.....	6	1	0	1	1
SOUTH DAKOTA						Total.....	152	19	1	7	16
Aberdeen.....	2	0	0	0	0	UTAH					
Brookings.....	2	0	0	0	0	Cedar City.....	4	0	0	0	0
Huron.....	2	1	0	0	0	Moab.....	2	0	0	0	0
Mitchell.....	4	0	0	0	0	Ogden.....	6	0	0	0	0
Pierre.....	4	0	0	0	0	Salt Lake City.....	6	1	0	1	1
Rapid City.....	2	1	0	0	1	Vernal.....	2	0	0	0	0
Sioux Falls.....	4	1	0	0	1	Total.....	20	1	0	1	1
Watertown.....	4	0	0	0	0	VERMONT					
Yankton.....	2	0	0	0	0	Burlington.....	2	1	0	0	0
Total.....	26	3	0	0	2	Montpelier.....	2	0	0	0	0
TENNESSEE						Newport.....	4	0	0	0	0
Bristol.....	4	1	0	0	0	Rutland.....	2	0	0	0	0
Chattanooga.....	4	1	0	1	1	Total.....	10	1	0	0	0
Clarksville.....	4	0	0	0	0	VIRGINIA					
Crossville.....	2	0	0	0	0	Blacksburg.....	2	0	0	0	0
Jackson.....	2	0	0	0	0	Charlottesville.....	2	0	1	0	0
Knoxville.....	4	1	0	0	0	Danville.....	6	0	0	0	0
Memphis.....	6	2	0	1	1	Hot Springs.....	2	0	1	1	0
Nashville.....	6	1	0	1	1	Lynchburg.....	2	1	0	0	0
Shelbyville.....	2	0	0	0	0	Newport News.....	4	1	0	0	1
Total.....	34	6	0	3	3	Norfolk.....	6	1	0	0	1
						Richmond.....	6	1	0	0	0
						Roanoke.....	4	1	0	0	0
						Staunton.....	2	0	1	0	0
						Washington National.....	6	2	0	4	0
						Dulles International.....	6	2	0	1	0
						Total.....	48	9	3	6	2

Number—					
Location	Run-way ends	ILS	LOC	VASI	BC
VIRGIN ISLANDS					
St. Thomas (Truman)---	2	0	0	1	0
St. Croix (Hamilton)---	2	0	0	1	0
Total-----	4	0	0	2	0
WASHINGTON					
Bellingham-----	4	0	0	0	0
Ephrata-----	6	0	0	0	0
Hoquiam-----	2	0	0	0	0
Moses Lake-----	4	1	0	0	0
Olympia-----	4	0	0	0	0
Pasco-----	6	0	0	0	0
Port Angeles-----	4	0	0	0	0
Pullman-----	2	0	0	0	0
Seattle (Boeing)-----	2	1	0	1	0
Spokane-----	4	1	0	0	1
Tacoma International-----	4	1	1	0	0
Walla Walla-----	6	0	0	0	0
Wenatchee-----	6	0	0	0	0
Yakima-----	6	1	0	0	0
Total-----	60	5	1	1	1
WEST VIRGINIA					
Beckley-----	2	0	0	0	0
Bluefield-----	2	0	0	0	0
Charleston-----	4	1	0	0	0
Clarksburg-----	2	0	0	1	0
Elkins-----	4	0	0	0	0
Huntington-----	2	1	0	0	1
Martinsburg-----	4	0	0	0	1
Morgantown-----	2	0	0	1	0
Parkersburg-----	4	0	1	0	0
Wheeling-----	4	1	0	1	0
Total-----	30	3	1	3	1

Number—					
Location	Run-way ends	ILS	LOC	VASI	BC
WISCONSIN					
Appleton-----	4	1	0	0	0
Eau Claire-----	4	0	0	0	0
Green Bay-----	4	1	0	0	1
Janesville-----	6	0	0	0	0
La Crosse-----	6	0	0	0	0
Madison-----	8	1	0	0	1
Manitowoc-----	2	0	0	0	0
Milwaukee-----	8	1	0	1	0
Oshkosh-----	4	1	0	0	0
Rhineland-----	4	0	0	0	0
Sheboygan-----	2	0	0	0	0
Stevens Point-----	4	0	0	0	0
Total-----	56	5	0	1	2
WYOMING					
Casper-----	8	1	0	0	1
Cheyenne-----	6	1	0	0	0
Cody-----	2	0	0	0	0
Jackson-----	2	0	0	0	0
Laramie-----	4	0	0	0	0
Riverton-----	2	0	0	0	0
Rock Springs-----	4	1	0	0	0
Sheridan-----	4	0	0	0	0
Worland-----	2	0	0	0	0
Total-----	34	3	0	0	1

1 Gravel runway.

(The following information was referred to on p. 46:)

COLLISION AVOIDANCE PLANNING FOR THE NATIONAL AVIATION SYSTEM BY TED G. LINNERT, DIRECTOR, ENGINEERING AND AIR SAFETY DEPARTMENT, AIR LINE PILOTS ASSOCIATION

We appreciate that the National Aviation System planning includes collision avoidance. In this regard, and knowing that other speakers will cover the air traffic control aspect of collision avoidance and planning, the main thrust of this paper is directed toward expediting the achievement of a Collision Avoidance System (CAS) which is independent of the Air Traffic Control (ATC) system, and in no case a substitute for the ATC system. The system must provide redundancy to the Air Traffic Control system in the same manner that an aircraft has redundancy in its hydraulic or electrical systems for sustaining flight when one system fails.

To present ALPA's views on "Collision Avoidance Planning for the National Aviation System," this paper will concentrate on the following areas which constitute the basis for the prevention of mid-air collisions.

Aircraft lighting (strobe);

Collision Avoidance System (Time/Frequency Concept);

Proximity Warning Indicator (Infrared and others).

Before presenting our views on the aforementioned three subjects, some background data, priority funding needs, and collision accident costs will, we are confident, indicate how *obviously* serious this matter is, and stress the need for

expediting the solution of the mid-air collision problem. Progress in the past has, in our opinion, been extremely slow. However, it is gratifying to see an accelerated tempo toward solving the problem.

Background data

During the November 1969 National Transportation Safety Board hearing into the "Midair Collision Problem," ALPA presented a paper which analyzed a five-year period of 105 mid-air collision statistics (1964-1969) and a chart showing air carrier/general aviation airplane collisions.

Continuing this analysis discloses that there were two mid-air collisions in 1970 involving general aviation airplanes and airliners. Thus far in 1971, one general aviation airplane and an airliner collided. Again, as in past years, all three collisions occurred in good weather, near to the airport, at low altitude and at relatively low closure speeds.

To bring the mid-air collision problem into perspective, it is considered advisable to call attention to a four year jet age analysis of mid-air collisions involving only airline aircraft and general aviation aircraft. (See Appendix 1.) The reason for limiting the analysis to airline aircraft and general aviation aircraft is that these collisions occur with the closure speeds associated with the airline aircraft speed regime, which is such a challenging factor in the design of collision prevention systems.

While considerable information is depicted in Appendix 1, the following items are worthy of special note:

- (1) All collisions occurred below 10,000 feet, where the 250 knot maximum speed restriction is in effect by regulation.
- (2) All collisions occurred in reported VFR weather.
- (3) All collisions occurred at relatively low closure speeds.

Speaking at the March 26, 1971, "Midwestern Aviation Conference," FAA's Administrator John Shaffer predicted that for the next 10 years there will be "... A growth in the number of airline aircraft from 2,580 to 3,640 ..." and an "... expansion of the general aviation fleet from 134,000 to 232,000" aircraft. Obviously, *more* airplanes will be flown with *more* hours in the air, and unless a collision prevention system is implemented, collisions will increase. These statistics emphasize the *urgent* need for shortening the time frame for achieving a collision avoidance system.

Priority funding

Is the research and development effort to produce mid-air collision prevention hardware progressing rapidly enough, especially in its importance in regard to safety and aviation growth?

The aviation community is aware of the number of million-dollar-plus grants on many research and development projects—all no doubt worthy of effort. However, in connection with the need for adequate funding for a collision avoidance system, the following is of real concern:

Excerpt from ALPA's paper presented during NTSB's Hearing on the Midair Collision Problem, November 4-10, 1969:

"More than four years have passed since the NASA Research Advisory Committee on Aircraft Operating Problems passed its strongly worded resolution to highlight the importance of the problem. The May 1969 NASA Report No. TN-5174 entitled, 'Compilation of Data from Related Technologies in the Development of an Optical Pilot Warning Indicator System,' states the research effort was conducted '... mostly on a less-than-full-time basis.' This is a shocking statement because the mid-air collision problem is so serious that research should have been and should continue to be conducted on an overtime basis. Directing attention to this report is not intended to adversely reflect on NASA scientists and the commendable research they have conducted, but rather to emphasize that their efforts should be augmented and adequate funds be provided without delay."

Excerpt from Aviation Week, March 22, 1971:

"Modest-level study of a low-cost anti-collision system for general aviation aircraft which would be compatible with the Air Transport Association-sponsored time/frequency collision avoidance system will be funded by NASA's Langley Research Center. Nine companies submitted proposals, including Bendix, Sierra Research and Wilcox, which participated in the development of airline time/frequency equipment. McDonnell Douglas, which had previously conducted a study of low-cost general aviation versions for NASA's Electronics Research Center, declined to submit a proposal on the grounds that it was ready to build flight hardware."

Here again, one of the aviation world's greatest potential hazards, the mid-air collision, continues to be given, "modest-level study." It is no wonder that approximately 15 years of less than "full-time" effort have resulted in little progress toward decision-making on a collision avoidance system.

The solution of the mid-air collision problem requires an aggressive program similar to the attention given toward solving the following:

- (1) Hijacking prevention (sky marshals and devices);
- (2) Clean engine programs to minimize pollution;
- (3) Quieter engines to reduce noise.

To accomplish the aforementioned objectives requires *large* sums of research and development money.

Although we are aware that it is difficult to obtain appropriations, it is apparent that increased funding is also required for the rapid development of an effective collision avoidance system. Can this be achieved through curtailment, or postponement of certain current appropriations now devoted to projects not as essential in the public interest?

An excellent example of a successful attack on the mid-air collision problem is the manner in which the Army has rapidly equipped its helicopter fleet at Fort Rucker with a satisfactory proximity warning system. The training load at the U.S. Army Aviation School at Fort Rucker, Alabama, had increased to a level in late 1967 at which the mid-air collision hazard affected the pilot training, and the need for a proximity warning system became very evident. Development was initiated in 1968 with an invitation to the electronics industry to submit proposals for applicable devices for a competitive flight test evaluation. Five companies responded. After a pre-production evaluation, a production contract for 222 units was awarded to one electronic equipment manufacturer. Delivery of the units started in December 1969 and was completed in August 1970. Installation of the units in helicopters started in January 1970 and by September 1970 there were 200 helicopters operating with proximity warning indicators. Latest information discloses that these installations have accumulated more than 275,000 in-flight hours without a mid-air collision.

This shows what can be done when an aggressive, properly funded research and development program of high priority is implemented. Obviously, the accomplishment was expensive, but not in proportion to tax dollars saved in equipment and lives.

The cost of mid-air collisions

The expense of a Collision Avoidance System can be justified by an examination of the forecast cost of mid-air collisions for the 1970-1980 period, as shown by a table on the following page. This table, excerpted from FAA's Staff Study entitled, "An Analysis of ARTS III Terminal Area Automation System Benefits and Costs," does *NOT* take into account the result of retarding the acceptance of air travel by the public, loss of life, or the adverse effect on the purchase of new general aviation airplanes.

Disbenefit estimates for AC/GA collisions, 1970-80

1. Cost estimate base:	
Average value of air carrier aircraft-----	\$7, 000, 000
Average value of general aviation aircraft-----	30, 000
Minimum base for human life:	
Discounted at 6 percent for 25 years*)-----	14, 750
230,000 at 4 percent discount-----	189, 000
Government investigation costs-----	200, 000
2. Estimates using sample of 10 collisions (1965-69) :	
(a) Total facilities (221 × \$189, 000)-----	41, 796, 000
(b) GA aircraft destroyed (8 × 30,000)-----	240, 000
(c) AC aircraft destroyed (4 × 7, 000, 000)-----	28, 000, 000
(d) GA aircraft substantial damage (⅓ value) (1 × 10, 000) --	10, 000
(e) AC aircraft substantial damage (2 × 2, 300, 000)-----	4, 600, 000
(f) Investigation costs (10 × 200, 000)-----	2, 000, 000
Total -----	76, 619, 000
Average/collision -----	7, 700, 000

*Based on HEW study by D. Rice, "Estimating the Cost of Illness," Health Economic Series No. 6, May 1966.

The March 3, 1971 *Washington Star* contained an article relating to one collision accident indicating that negotiations were taking place for "... damage claims of some \$70,000,00." Further, that a December 16, 1960 collision between two airliners "produced payments of more than \$29 million."

Based on qualified estimates, a mid-air collision between two jumbo jets would cost the airlines between \$180-190 million, which is also the approximate cost of equipping the entire air carrier fleet with collision avoidance systems.

The above information regarding loss in lives and equipment can continue to increase in cost yearly. According to current estimates it will be approximately 1978 before collision avoidance systems will be operating to prevent mid-air collisions. It is in the best public interest that this time frame be substantially shortened.

Aircraft Strobe Lighting

The struggle to gain recognition of the fact that strobe lights aid in reducing the collision hazard has lasted far too long. Strobe lighting on aircraft for minimizing the collision hazard was demonstrated to the Association and industry in 1954 by Captain H. W. (Bill) Atkins of NWA during ALPA's Fourth Annual Air Safety Forum. He is to be credited with conducting an early unrelenting design and flight testing effort toward getting strobe lighting recognized as a means to minimize the collision hazard. In 1963 and 1969, during the Tenth and Sixteen Annual ALPA Air Safety Forums, strobe light manufacturers conducted "fly-bys" which demonstrated the superiority of the strobe lights on aircraft. ALPA testified at congressional hearings that strobe lights would aid in minimizing the mid-air collision hazard. ALPA urged FAA rule making. On May 28, 1970, the FAA issued a Notice of Proposed Rule Making on anti-collision lighting which was distributed to industry and is still under study by FAA. ALPA, along with other industry segments, strongly endorsed rule making to require strobe lighting for minimizing the collision hazard.

The "Report of Proceedings of the National Transportation Safety Board into the Mid-Air Collision Problem, November 4-10, 1969," is most revealing. The report discloses that nine different major segments and consultants of the aviation industry stated they supported the installation of strobe lights as an aid toward minimizing the mid-air collision hazard.

Also of great significance is that the October, 1970 USAF Mid-Air Collision Conference, passed the following recommendations on "Aircraft Lighting" as a result of discussions:

"1. The adoption of white lighting of the high intensity strobe variety versus red lighting due primarily to the higher intensity available from a given power source.

"2. USAF through DOD support the FAA position to require anti-collision light(s) on all aircraft.

"3. Take immediate action to procure and install 360° white strobe lights on the upper and lower fuselage of all USAF aircraft, to be operated during both day and night flying operations."

The foregoing USAF recommendations have the stature of being classified as a Phase I recommendation which is to be considered for accomplishment in one year.

In 1966 NASA determined that the strobe lights emitted an infrared signal which could be utilized in an economical proximity warning systems are considered feasible and are in flight test evaluation. Thus, this is another reason for pressing on with a mandatory strobe light requirement for all airplanes.

Air Traffic Controllers report that aircraft with strobe lighting are more easily locatable and assist controllers in providing separation, thereby reducing the collision hazard.

Also very worthy of mention are statistics which indicate that airplanes equipped with the strobe anti-collision lights minimize the "bird-strike" potential. This was described in an article in the March 1970 *AIR LINE PILOT* magazine entitled, "Mandatory Strobes," by Captain James Golden of Mohawk Airlines.

The accident/incident records disclose that "bird-strikes" result in the following:

- (a) Fatal accidents; and
- (b) Major aircraft damage.

It is then significant that, in addition to providing considerable protection from the mid-air collision and near-miss potential, a strobe light can provide protection

on large—and especially small—aircraft from encountering a bird strike resulting in a potentially fatal accident or costly damage to the aircraft.

In summary, the National Aviation System must require strobe lights on all aircraft. This requirement has industry and military support. The strobe lights are readily available ranging from \$100 per installation on small aircraft to a higher priced installation of several strobe lights per airplane. If a pilot sees a strobe light flashing sufficiently far ahead, he can evaluate the conditions and make a gentle maneuver rather than a violent one, which is so unnerving to pilots and frightening to the passengers. Information relating to mid-air collision is difficult to obtain; however, to our knowledge, airplanes involved in collisions during the past five years *DID NOT* have strobe lights installed.

Collision Avoidance System (CAS)

The Air Transport Association has commendably funded a costly and revealing research and development program for a collision avoidance system. Testing of the system using airline-type airplanes has been completed. The system successfully demonstrated that collisions can be prevented in IFR and VFR weather by airplanes equipped with the time/frequency system.

Presently research and development is well on the way toward providing a low cost unit for general aviation airplanes which will be compatible with the airline system. The objective is to provide collision avoidance means in ALL aircraft.

As a result of the October 1970 USAF "Mid-Air Collision Conference," it was recommended that the USAF take an active part in the further development of collision avoidance systems in order that procurement for all military aircraft as well as general aviation is cost feasible and meets the requirement of both.

Commendable research and development being conducted by several electronic companies has been extensively documented. The design of a CAS has progressed to the point where an instrument display providing command information for the airline pilot to use has been selected and a similar pilot display for the general aviation CAS is being developed. Lack of adequate funding must not delay installing several units in airline and general aviation aircraft for flight evaluation.

The chart (Appendix A) clearly illustrates the very urgent need to develop CAS to the degree that it will be within the price range of the general aviation airplane owners.

The chart also discloses that the present ATC system does not provide collision prevention and that a CAS is required. An accelerated program to accomplish this goal as soon as possible is in the public interest.

Proximity Warning Indicator (PWI)

Several proximity warning indicator (PWI) systems have reached the status of flight evaluation. Industry interest is at an all time high. The previously mentioned NTSB Report discloses that a significant number of aviation authorities and representatives from the industry endorse research and development for PWI systems.

PWI performance varies from VFR to IFR capability. Some systems provide only an alert for the pilot to "see and avoid" another aircraft. Some provide an alert plus directional information to assist the pilot to rapidly detect another airplane on a potential collision course. PWI devices, while limited in range, can provide considerable "see and avoid" time as shown in Appendix B. Also worthy of special note is that the chart, Appendix A, illustrates that the collisions involving airliners and general aviation airplanes occurred at low closure speeds providing at least 20 or more seconds for the pilot to take evasive action, when PWI devices provide a two-mile range for collision detection. PWI specifications are being evaluated to determine time required to assure the pilot has the time to "see and avoid" another airplane.

The National Aviation System planning should examine all avenues to expedite research and development to determine the merits of PWI for minimizing the collision hazard.

Conclusion

The urgent need for "Collision Avoidance Planning for the National Aviation System" can be seen by the emphasis placed by the major segments of the aviation community on:

- (1) Strobe anti-collision lighting on aircraft as an aid for reducing the collision hazard;

- (2) Expanded research and development of a collision avoidance system for all aircraft;
- (3) Expanded research and development for a proximity warning indicator.

Recommendation

In view of the great concern of the aviation industry regarding early solution to the mid-air collision problem, it is strongly recommended that the National Aviation System planners list solution of the problem as a *very* high priority item for receiving adequate funding for research and development of hardware and accelerated testing programs to assure the earliest practical date for implementation of visual and electronic mid-air collision avoidance means.

REFERENCES

- (1) "*Report of Proceedings of the National Transportation Safety Board into the Midair Collision Problem, November 4 through 10, 1969,*" Report No. NTSB-AAS-70-2.
- (2) *National Transportation Safety Board Accident Investigation Reports, 1964 through 1971*, relating to mid-air collision accidents.
- (3) "*The Urgent Need for a Low Cost Short-Range Collision Prevention Device,*" 1969 Report by Ted Linnert, Air Line Pilots Association.
- (4) "*Mid-Air Collision Conference Report,*" United States Air Force, October 1970.

ALPA MID-AIR COLLISION ANALYSIS

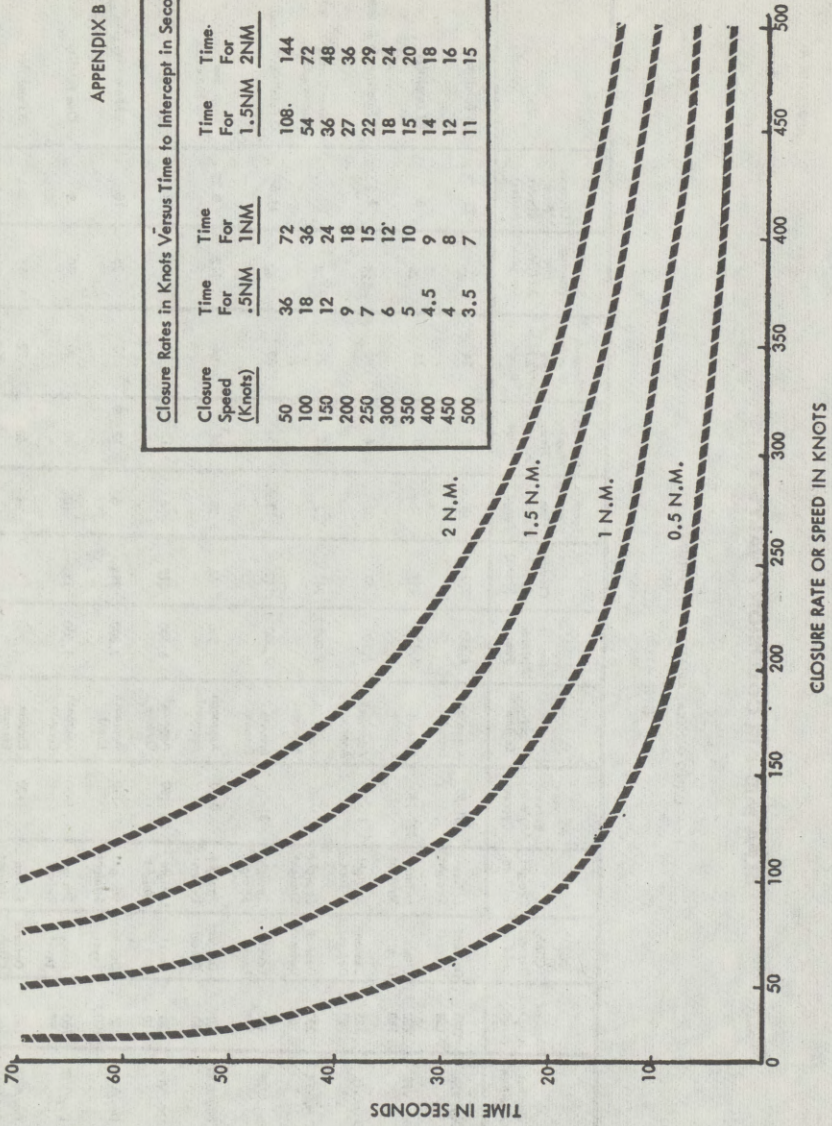
INVOLVING GENERAL AVIATION AND AIRLINES

(1967 - 1970)

Date	Location	Aircraft Type	Weather Condition	Approx. Airspeed (Knots)	Climb, Descent or Level	Straight or Turn	Convergence Angle in Degrees	Flight Profile	Impact Altitude (Feet)	Closure Speed (Knots)	Seconds Warning Time 1/2 N.M. Range	Seconds Warning Time One N.M. Range	Seconds Warning Time 1-1/2 N.M. Range	Seconds Warning Time 2 N.M. Range	Distance From Airport (Miles)	Remarks
3/9/67	Urbana, Ohio	DC-9 Beech 8-55	Day/VFR	323 168	Descent Descent	L-Turn Straight	31-50	Approach Enroute	4,525	222	8	16	24	32	25	26 Fatalities
7/19/67	Hendersonville, North Carolina	B-727 Cessna 310	Day/VFR	230 140	Climb Level	L-Turn Straight	131-150	Takeoff Enroute	6,132	349	5	10	15	20	8	82 Fatalities
3/27/68	St. Louis, Mo.	DC-9 Cessna 150	Day/VFR	135 94	Descent Descent	Straight L-Turn	11-30	Approach Approach	1,100	57	32	64	96	128	1.5	2 Fatalities in Cessna
6/12/68	Denver, Colo.	B-727 Cessna 377	Day/VFR	250 66	Descent Descent	Straight Straight	71-90	Approach Approach	9,000	247	7	14	21	28	20	Minor Damages. Both landed safely.
8/4/68	Milwaukee, Wisconsin	CV-580 Cessna 150	Day/VFR	190 80	Level Level	Straight Straight	31-50	Enroute Enroute	2,500	140	13	26	39	52	11.5	2 Fatalities in Small Aircraft
2/6/69	Hartigan, Tex.	DC-9 Piper PA-28	Night/VFR	140 80	Descent Descent	Straight L-Turn	0-10	Approach Approach	300	64	28	56	84	112	0.25	Piper destroyed No Fatalities
8/3/69	Fort Worth, Tex.	B-707 C-172	Day/VFR	220 110	Level ?	Straight Straight	131-150	Approach Enroute	8,500	312	6	12	18	23	12	2 Fatalities -- C-172
9/9/69	Indianapolis, Indiana	DC-9 Piper PA-28	Day/VFR	256 100	Descent Level	Straight Straight	91-110	Approach Local	2,800	283	6	12	18	25	18	83 Fatalities
3/1/70	Vancouver, B.C.	Vicount Encounter	Day/VFR	180 87	Descent Level	Straight R-Turn	71-90	Approach Enroute	1,500	166	10	20	30	40	8	One Fatality
7/20/70	Torregona Spain	B-737 Charotee	Day/VFR	160 100	Descent Climb	R-Turn Straight	11-30	Enroute Enroute	1,750	75	24	48	72	96	2	3 Fatalities

APPENDIX B

Chart #2



(The following information was referred to on p. 51:)

AIRLINE STATEMENT ON TRANSPORTATION REVENUE SHARING

The airlines acknowledge that the President's intention to provide financial relief for state and local governments through revenue sharing is commendable. However, we do not believe this concept can be applied to airport and airway development, without serious consequences for the existence of a safe, fast and dependable national air transportation system.

1. The purposes of the Aviation Trust Fund would be jeopardized, since there is no assurance that user taxes would be effectively used for essential aviation facilities.

The overall transportation fund to be "shared" amounts to \$2.8 billion, this being the various monies accumulated from 23 existing programs dealing with mass transit, highway and airports.

From this \$2.8 billion, \$635 million will be earmarked and separately passed down for mass transit. The remaining \$2.165 billion is made up of *\$220 million out of the Airport and Airways Trust Fund*, with the balance appropriated from the Highway Trust Fund. The airport development grant portion of the 1970 ADAP legislation would be ended.

Ten per cent of this \$2.165 billion would stay at the Federal level, available to the DOT Secretary for such things as broad planning, research, the encouragement of "consortia" of governments, demonstration projects, etc. The other 90 per cent would be apportioned among the states on a ratio reflecting their relative populations, areas and R.F.D. route mileages. Each state government would retain control of 65 per cent of its allocation, with the other 35 per cent of these transportation funds automatically distributed down among its *urban places*, some proportion (based on its relative population) of this money made up in part from the *Airport and Airways Trust Fund*. The only restriction to be placed on the use of these funds by these 20,000-plus recipients is that they must be spent for "transportation activities."

While the remainder of the aviation trust fund would survive, the only protection given user charge revenues is that, after the initial year, money will be appropriated from the trust fund to the extent of the amount "obligated by recipients during the preceding fiscal year for aviation-related transportation activities." This in no way requires or even encourages these 20,000-plus recipients to direct their proportionate share of aviation trust fund money for aviation purposes, since any amount less than the \$220 million coming out of the aviation trust fund in future years is replaced by appropriations from the general fund.

In addition, the projects which would qualify, under "aviation-related uses," include access roads, parking lots, mobile lounges, service vehicles, airport operation and maintenance, payments on outstanding bond indebtedness, subsidy for third level carriers, aviation training, research and development, safety programs, matching funds for previous ADAP grants, beautification, environmental protection, public transit to airports, and a host of other "aviation related" uses.

The airlines and the rest of the aviation community supported the 1970 ADAP legislation, accepting the user charge tax arrangement only because certain protective conditions were built in. These were to insure that each class of airport/airway user would pay user charges into the trust fund in an amount which would generally reflect their respective use of the various airport/airway facilities to be supported. The ADAP program was carefully designed to make sure that the aid would flow back under distribution criteria to guarantee support for our most essential airport facility needs.

There is no question that neither the airline nor other segments of the aviation industry would have accepted these user charge tax arrangements if anyone had anticipated the risk that this entrusted money would not be used for the facilities which the Trust Fund was created to provide.

2. Transportation revenue sharing would not assure that the critical need for airport and airways improvements would be met.

In the next ten years, at least \$10 billion must be committed to development of the air transportation system. Obviously, this necessitates full and sustained investment on a yearly basis. Yet, a large portion of Aviation Trust Fund money which would filter down to 20,000 governmental units might never be spent on airport improvements.

As stated previously, the proviso relating to commitment of aviation funds does not require or encourage recipients to direct their proportionate share of aviation money for aviation purposes, since any amount less than \$220 coming out of the Trust Fund in future years is replaced by general fund appropriations. There is no assurance that airport development would be given proper priority by each government unit. Further, the allocation formula process severely dilutes the concentration of money available for airport development. Since airport funding is to be fragmented among 20,000 recipients, it would be difficult to assemble large amounts of capital in a short period of time such as are necessary for construction of airports.

All this makes it evident that transportation revenue sharing provides no assurance that the airports which most need the money would get it, or in sufficient quantity if they did.

3. Development of America's air transportation system requires national direction and funding. It was with this in mind that Congress passed the Airport/Airway Development Act of 1970, adding further emphasis to the fact that this system must be regarded as a national entity. The DOT fiscal '70 report commented:

"One final word about the airport and airway act as it concerns airport development. Before this legislation the airport was considered primarily a local problem, for which the Federal Government as part of its broad mission to foster civil aviation, had assumed a partial and not necessarily lasting responsibility. Public Law 91-258 sees the airport not as a local matter of secondary Federal concern, but as an integral part of a national airport-airway system." This is an apt description.

America has the finest air transportation system in the world—including the essential network of airports which have been carefully developed to safely serve the requirements of both our interstate and international air commerce. This system of airports did not come about by chance. It has resulted from the careful, deliberate and expert guidance by the federal government through its airport aid program, particularly the use of federal grants as the incentive to encourage balanced airport development where and when needed in the overall international interest. Amounting to approximately \$1 billion over the 25-year history of FAAP, these funds have been the "seed money" underlying this nation's \$10 billion total investment in public airports.

Each public airport is an originating, terminating and connecting link with every other airport—not only in this country but throughout the world. It is axiomatic that airports cannot be individually planned and developed without careful consideration to the total airport system.

There are other obvious reasons why overall direction of airport development must be at the federal level. A runway is nothing more than an extension of the federal airways. Airports and airways are interdependent and must be designed together. Moreover, considerations of safety and adequacy demand competent and centralized supervision. Standards covering runway length, approach clearances, lighting, efficient use of air space and a host of other considerations which are all essential to safety and adequacy can be established and properly applied only through skilled federal direction.

The states, generally, have not operated airports to any significant degree, or demonstrated much interest in airport development. Since airports have traditionally been mostly a federal/local responsibility and since airport service areas are not usually delineated by state boundaries, the states have generally been

content to leave these planning and finance problems to the federal government and to the various airport operating entities.

The transportation revenue sharing proposal would permit and perhaps even force, states to enter into a more active airport role, not so much as airport operators but as planners with individual state aid programs similar to the existing federal activity. The states do not have the organization, the personnel, or the expertise to handle this task. Even assuming this should happen, there could be 50 different systems, 50 different sets of standards, and complete confusion.

4. The rationale for excluding the interstate highway system can be applied to the airport and airways system as well.

The President has indicated that the interstate highway system was excluded because it is a nationally-oriented program and therefore should not be left to the discretion of individual states and localities. Another reason given was that the interstate highway system is scheduled for completion by 1978. A similar case can be made for the air transportation system since it is interstate in character, and essentially national in scope. In addition, the airport and airways program initiated by Congress in 1970 is scheduled for completion within ten years.

Regarding exclusion of the interstate highway system, President Nixon noted that "the system has advanced the cause of . . . safety while at the same time permitting unparalleled individual mobility . . . It would not be in the national interest to alter the basic funding mechanism for the construction of the system at this time." The President might just as well been talking about the *air transportation system*.

In summary, the airlines believe that interstate and international air transportation is, and should remain, a federal responsibility. That portion of the Aviation Trust Fund created by taxation of airport/airway users should remain in the fund and be managed on the basis of national determinations in order to meet the public need for a safe, dependable and fast air transportation system.

SUMMARY OF AIRLINE RECOMMENDATIONS FOR CRITICAL AIRWAYS IMPROVEMENTS

The Administration this year is requesting \$250 million for Facilities and Equipment, as part of its Airway System Investment and Development Program. This is the minimum amount envisioned in the Airport and Airway Development Act. It is not sufficient. It may be that an *average* annual investment of \$250 million over a decade will ultimately bring capacity up to the level of demand. However, if a catch-up program in reality is to be undertaken, a higher level of investment will be needed in the early years. An additional amount of approximately \$79 million can be justified.

In this regard, an important distinction should be made. Of the \$250 million for Facilities and Equipment proposed by the Administration for FY 1972, about \$40 million will in effect be utilized for research and development for a function which is described, in the FAA Ten-Year Plan document, as F&E Implementation Support. Examples of this are Enroute Automation Implementation Support at \$16 million. ARTS III Terminal Automatic Support at nearly \$4 million, and establishment of automation test bed instrumentation at approximately \$4 million. These funds will not result in the establishment of air navigation or traffic control facilities.

Of the remaining \$210 million, more than \$170 million is to be spent on terminal and enroute radar, and on implementation of the automation base facilities. The remaining approximately \$40 million would be spent on other facilities for air navigation, landing aids, towers, etc.

In last year's FAA budget and Supplemental Appropriation request, the vast majority of the FY 1971 funding was to go for the automation base program and thus only a relatively small amount was to be available for the air navigation and airport facility catch-up which the airlines feel is badly needed. In fact only the FY 1971 Supplemental had anything beyond the automation base. In FY 1972 the situation with respect to such facilities is not much better. FAA proposes to build only four new towers, relocate twenty more, and "improve" some others. Further, the FY 1972 proposal provides for establishment of only fourteen VOR's, five terminal DME's, nine Category II ILS's, one Category III ILS, and

one approach light system, as well as miscellaneous other items. This means that the budget provides for no new basic Category I Instrument Landing Systems, essentially no approach light systems, and no Visual Approach Slope Indicator (VASI) lighting systems. All of these are badly needed basic facilities in which we are way behind. The National Transportation Safety Board correctly noted in a recent report that the majority of airline accidents occur in approach and landing—just where these aids provide help.

The airlines have recommended to FAA that a rapid catch-up effort be considered to implement facilities which are badly needed. The airlines have recommended a program which would cost approximately \$79 million and which would implement a series of facilities which are readily available and could be installed very quickly. These facilities would be a start toward a more energetic catch-up program than was possible with FY 1971 Facilities and Equipment funding, and more than we think is possible with the FY 1972 proposed funding. Specifically, the airlines recommend a funding effort in the amount of approximately \$79 million, in addition to the \$250 million proposed F&E, for procurement of the following items:

- at least 15 additional control towers
- at least 17 airport surveillance radars and radar beacons
- at least 34 instrument landing systems
- at least 34 approach light systems
- at least 44 VASI's
- at least 29 ARTS III terminal automation base systems (assuming funding for these is not included in the FY 1972 FAA budget request)
- 6 long range radars
- and a special catch-up effort in the Caribbean where facilities are extremely primitive.

(A detailed listing of the locations at which these aids are needed is attached.) Since \$40 million would actually be used for research and development described as F&E Implementation Support, it seems more appropriate to classify that in the research and development category.

In addition, the installation of airway facilities and equipment could be greatly speeded up if the FAA relied more on "turnkey" operations. In this process, the FAA could specify performance specifications and manufacturers could do the installation and then turn the equipment over to the government. This procedure has been utilized to a limited degree, but it should be accelerated.

AIR TRAFFIC CONTROL TOWERS

15 Towers at approximately \$200,000 each, \$3,000,000.

Bradford, Pa.	Rocky Mount, N.C.
Lima, Ohio	Alexandria, La.
Staunton, Va.	Temple, Tex.
Dubuque, Iowa	Laredo, Tex.
Mosinee, Wisc.	Arcata, Calif.
Mason City, Iowa	Lewiston, Ind.
Muscle Shoals, Ala.	Chico, Calif.
Kingston (Stallings Field), Florence, N.C.	

AIRPORT SURVEILLANCE RADAR/RADAR BEACON SYSTEMS

17 Systems at approximately \$1,475,000 each, \$25,000,000:

Allentown, Pa.	Tallahassee, Fla.
Lynchburg, Va.	Beaumont, Tex.
Islip, N.Y.	Lafayette, La.
Evansville, Ind.	Lakes Charles, La.
Springfield, Mo.	Palm Springs, Calif.
Waterloo, Iowa	Eugene, Oreg.
Daytona Beach (Regional Airport), Fla.	Hilo, Hawaii
St. Croix, Virgin Islands	
St. Thomas, Virgin Islands	

INSTRUMENT LANDING SYSTEMS/APPROACH LIGHTING SYSTEMS

34 Instrument Landing Systems at an estimated \$140,000 each, \$4,760,000.
(Location and Runway Designated Below:)

Atlanta, Ga. 27R	Miami, Fla. 9R
Memphis, Tenn. 35L	Ashville, N.C. 16
Muscle Shoals, Ala. 11	St. Croix, Virgin Islands 9
Florence, S.C. 9	
Abilene, Tex. 35R	Houston, Tex. 26
El Dorado, N. Mex. 22	Carlsbad, N. Mex. 3
Alamogordo, N. Mex. 3	Enid, Okla. 35
Seattle-Tacoma, Wash. 16R	Los Angeles, Calif. 6L
Idaho Falls, Idaho 20	Grand Canyon, Colo. 21
Los Angeles, Calif. 7R	
Chicago-O'Hare, Ill. 4R	Milwaukee, Wis. 19
Wichita, Kans. 1L	Omaha, Nebr. 32L
Great Falls, Mont. 3	Butte, Mont. 15
Muskegon, Mich. 23	
Huntington, W. Va. 11*	Cleveland, Ohio, 23L
Utica, N.Y. 15	Philipsburg, Pa. 16
Lima, Ohio 27	Altoona, Pa. 20
Bradley Field, Winston Locks, Conn. 24	Albany, N.Y. 1
Honolulu, Hawaii 4R	

It is estimated that in order to achieve best cost-effectiveness from these ILS facilities, 75% can be served by MALS/RAIL facilities while 25% are likely to require full ALS.

24 Medium Intensity Approach Light Systems with RAIL Lights at an Estimated \$10,000 each, \$1,680,000.

10 Approach Light Systems with Sequence Flashers at an Estimated \$212,000 each, \$2,120,000.

*Glide Slope only.

NOTE: This is only a small part of the actual need. Airlines previously have identified 250 locations where VASI's would render valuable service within the next two years.

VISUAL APPROACH SLOPE INDICATORS (VASI)

44 VASI's at an estimated \$20,000 each, \$880,000.
(Location and designated runway shown below:)

San Juan, P. R. 25	Raleigh/Durham, N.C. 23
Knoxville, Tenn. 22R	Albany, N.Y. 22
Jacksonville, Fla. 25	Muscle Shoals, Ala. 11
Dallas, Tex. 18	Farmington, N.M. 25
New Orleans, La. 28	San Antonio, Tex. 26
Albuquerque, N.M. 26	El Paso, Tex. 26
Los Angeles, Calif. 6R/6L	San Francisco, Calif. 10R
Seattle-Tacoma, Wash. 16L/34L	Las Vegas, Nev. 7
Phoenix, Ariz. 26L	Salt Lake City, Utah 16R
Chicago-O'Hare, Ill. 4L	Chicago-O'Hare, Ill. 9L
Chicago-O'Hare, Ill. 22L	Chicago-Midway, Ill. 31L
Chicago-Midway, Ill. 4R	Chicago-Midway, Ill. 22L
Detroit, Mich. 9	St. Louis, Mo. 30L
St. Louis, Mo. 6	
Huntington, W. Va. 11/29	Charleston, W. Va. 5/23
Philadelphia, Pa. 17/35	Pittsburgh, Pa. 10R/28R
Baltimore, Md. 33	Rochester, N.Y. 22
Cleveland, Ohio 18R/36L	Columbus, Ohio 28R
Dayton, Ohio 24R	Toledo, Ohio 25

NOTE: This is only a small part of the actual need. Airlines previously have identified 416 locations where VASI's would render valuable service within the next two years.

LONG RANGE ENROUTE RADARS (ARSR)

6 Systems at an estimated \$2,000,000 each, \$12,000,000.

Pittsburgh, Pa. (Replace military systems).
 Bedford, Va. (Replace military systems).
 Benton, Pa. (Replace military systems).
 St. Croix, V. I.
 Los Mesas, P. R.
 Grand Turk Island (Caribbean)

ARTS III TERMINAL AUTOMATION BASE SYSTEM

29 ARTS III Systems at an estimated \$1 million each, \$29 million.

"Third Buy" Locations:

Tampa, Fla.	Raleigh/Durham, N.C.
Baltimore, Md.	Salt Lake City, Utah
Long Beach, Calif.	Rochester, N.Y.
Portland, Oregon	Syracuse, N.Y.
Indianapolis, Ind.	Orlando, Fla.
Buffalo, N.Y.	Tulsa, Okla.
Washington (Dulles), Va.	Albuquerque, N.M.
Omaha (Offutt AFB), Neb.	Charlotte, N.C.
Nashville, Tenn.	Providence (Quonset Pt. NAS), R.I.
Jacksonville, Fla.	Knoxville, Tenn.
Louisville, Ky.	El Paso, Texas
Burbank, Calif.	Des Moines, Iowa
Milwaukee, Wisc.	Albany, New York
Birmingham, Ala.	Andrews AFB (Washington, D.C.)
Hartford, Conn.	

A CATCH-UP IMPROVEMENT EFFORT FOR SERVICES IN THE CARIBBEAN AREA

A major effort to achieve needed improvement in ATC facilities in the Caribbean should be undertaken. Air/ground communications are not satisfactory. There is a relatively high incidence of "near misses"; there is an inadequate or unreliable radar coverage, and navigation deficiencies exist in the enroute and terminal areas.

We consider the following list of improvements as a minimum:

Long range enroute radars (LRR's) at St. Croix, Los Mesas and Grand Turk-----	(\$6,000,000)
Airport surveillance radars (ASR's) at St. Croix and St. Thomas--	(\$2,950,000)
(These radars have been included in the preceding ASR and LRR list.)	
In addition, the following aids are needed:	
1 ILS at St. Croix, V.I.-----	\$140,000
2 Remote control air/ground communications at St. Croix and Los Mesas-----	60,000
3 DME at VOR at St. Thomas, St. Croix, and Ponce-----	180,000
Established 3 VORTAC's at Grand Turk, Mayaguez, one location between Bimini and Grand Turk-----	420,000

Total-----	9,750,000
Total (excluding radars and ILS)-----	660,000

(The following information was referred to on p. 51:)

AIRLINE STATEMENT ON COLLISION AVOIDANCE SYSTEM

The Air Transport Association and a number of its member airlines pioneered the CAS effort. In September 1955 almost a year before the Grand Canyon mid-air collision, the scheduled airlines established a goal of providing a collision avoidance system for their aircraft. At this time there was no known technology for solving the basic problem. However, after many proposals, studies and reports from industry and other groups, it was determined that time/frequency technology offered the most promise for success. In 1967 the ATA published a report "Technical Description of the CAS System" which utilized that technology.

In order to promote competition, manufacturers were solicited to build equipment meeting those specifications; four manufacturers responded. In 1969 the airlines completed a \$2 million flight test program using developmental models provided by the manufacturers. This program demonstrated that a time/frequency device would prevent mid-air collisions. Since this date the airlines, the Federal Aviation Administration, and manufacturers have been working diligently to convert these initial efforts to operational equipment.

A CAS implementation program requires action by many segments of aviation, including the U.S. Government, since not only are airline airborne equipment programs involved but many other, more time consuming and far reaching decisions and programs. These include worldwide system standards (to be developed and adopted by ICAO), a ground station design and implementation by FAA, FAA analysis, and real time simulation of the CAS system, interaction with the ATC system, development of competitive, low cost General Aviation CAS equipment, voluntary versus mandatory installation of expensive airborne equipment in general aviation and military aircraft, and the most appropriate timing for the interrelationship of all these factors.

The approval of the FAA is required to allow operational utilization of the CAS system in the Air Traffic Control environment. To provide certain essential information on the acceptability of the CAS system when operating in the ATC environment, a real time simulation of CAS/ATC interaction is currently underway at the FAA's National Aviation Facilities Experimental Center. Since CAS is a back-up to the ATC system, it must not interfere with that primary means of controlling aircraft. Completion of the NAFEC simulation, analysis of results, and publication of the findings has been scheduled by FAA this summer. Thus, assuming the simulation does not reveal any insolvable problems of CAS and ATC system interaction, the airlines would expect an FAA approval, possibly late this year, to utilize the CAS system currently being simulated. The results of the simulation may indicate a need to adjust CAS design; so finalization of production hardware must await completion of this phase.

The CAS requires ground stations. The first of these ground stations are currently scheduled by FAA for procurement using FY-72 monies; these first units should be operational in 1974.

CAS will become truly effective only when the majority of the airspace users are equipped since cooperative equipment in the threat aircraft is required. General Aviation has in the past constituted a large percentage of the mid-air collision situation, and FAA has been urged to fund the competitive production of CAS equipment suitable for use in General Aviation aircraft. The first units of equipment suitable for installing in General Aviation aircraft could be available as early as 1973.

competitive production equipment expected to be available until late in 1972.

With regard to installation of CAS equipment in airline aircraft, there is no Only one manufacturer, the McDonnell Douglas Company, has two pre-production airborne CAS units about ready to test in their own aircraft. Although three other manufacturers, Bendix Avionics, Ft. Lauderdale, Florida; Sierra Research, Buffalo, New York; and Wilcox Electric, Kansas City, Missouri, also participated in an airline funded flight test program by providing developmental equipment, none of them has completed a pre-production model. These manufacturers have indicated that an airline pre-production model could not be available in less than 14 months from new. Production equipment would require a minimum of four additional months.

Cost of the airborne CAS will vary depending on the degree of sophistication; the least sophisticated (general aviation minimum equipment version) will be on the order of \$1500 to \$2000 where the most sophisticated airline equipment would cost close to \$100,000 per aircraft for a dual installation.

Piedmont Airlines, on June 22, 1971, advised McDonnell Douglas of their intent to purchase EROS II Time/Frequency Collision Avoidance equipment for its 737 aircraft fleet subject, to certain conditions due to the status of the CAS program as outlined above. It is expected that production equipment will be delivered to Piedmont between January and April 1973. United Air Lines has arranged for delivery of two of the McDonnell Douglas units to investigate the operational and engineering problems as related to installation of CAS into B727 model aircraft.

Considering the complexities involved, the CAS program is moving forward as rapidly as possible. The airlines, will continue, as they have for the past decade,

to be the leaders in pressing for the installation of airborne collision avoidance devices, not only in airline aircraft; but all other aircraft that share the airspace.

Even if the decisions to equip the various categories of users were all made on a timely basis, experience has taught us that we must not expect a large majority of all categories of airspace users to retrofit their aircraft with complicated airborne devices, such as the CAS, in less than 5 to 7 years.

CHRONOLOGY OF THE AIRLINE SEARCH FOR A COLLISION AVOIDANCE SYSTEM

1955

At a joint meeting of the Institute of Radio Engineers and Radio Technical Commission for Aeronautics, ATA requested industry to propose, or produce, a collision avoidance system (CAS). Airline analysis of CAS problem and "inventor's chart" was also circulated among hundreds of inventors, engineers and manufacturers. No response received.

1956

Mid-air collision over the Grand Canyon stimulated interest, resulted in a flood of ideas to ATA.

In July, 1956, ATA sponsored a symposium in Washington, D.C., bringing together, experts, engineers and inventors to compare airline requirements against then-current technology.

As an outgrowth of that symposium, Collins Radio in September, 1956, submitted the first formal proposal to the airlines for a non-cooperative pilot warning indicator (PWI) system, which they believed could later be developed into a CAS. Two million dollars worth of airline orders were placed with Collins. But in the development work that followed, Collins discovered that normal aircraft movements in flight prevented their airborne doppler radar from making reliable collision prediction, or could create erroneous predictions in a significant percentage of cases. This eliminated the CAS feature of the Collision proposal. So the proposal was withdrawn while Collins continued its analytical work, which has been carried on to this day.

1958

Development of the Tau concept (Tau is range divided by range-rate) by Bendix Radio's Dr. J. S. Morrell, following their publication in the mid-50's of the first accurate description of the fundamental physics of the airborne collision avoidance problem.

1959

The ATA Collision Avoidance Committee (formed in 1956) continued to monitor and encourage CAS investigations until 1959, when FAA created its Collision Prevention Advisory Group (COPAG). Thereafter, ATA took part in CAS work as a member of COPAG.

1960

Collision between two fighter aircraft being tested by their manufacturer, McDonnell Aircraft Corporation, sparked an all-out effort by McDonnell to develop a CAS for use in their flight test area.

1962

In July, 1962, the FAA's Airborne CAS symposium, held in Washington, D.C., gave the first industry-wide briefing on the state of CAS investigations, and received widespread support from all segments of aviation. Bendix Radio described a CAS based on the Tau concept and using one-way ranging, with the ground-bounce technique. With ATA encouragement, Collins Radio outlined a method for testing by computer simulation the features of any proposed CAS technique. This was a major contribution, since it offered for the first time a quick and minimum-cost method of choosing the most promising techniques from among a wide variety of theoretical concepts.

1963

In the fall of 1963, FAA gave Collins a contract to study CAS techniques by simulation.

1965

A report of the Collins study was forwarded to FAA in mid-1965. In essence, Collins told FAA that the simple time-frequency system is the most promising, that it works quite well for the enroute case, but has some limitations in the terminal area—where aircraft are most likely to be maneuvering in flight.

At an ATA meeting in April, 1965, Collins reported on the results of its studies and McDonnell Aircraft showed the equipment they planned to use in their flight test operation later that year. The airlines were sufficiently impressed with McDonnell's system to invite their experts to brief the Airlines Operations Conference in September, 1965. After this briefing, the Conference charged the ATA Air Traffic Control (ATC) Committee with monitoring the development of collision avoidance systems and their relationships with the air traffic control system.

1966

Intensive review of the application of time and frequency techniques to CAS by ATA staff and ATC Committee. Four manufacturers—McDonnell, National, TRG, and Collins—briefed ATC Committee.

October, 1966.—ATA issued expanded statement of airline policy on CAS, with detailed listing of functional requirements for a CAS meeting airline needs. Document circulated widely throughout industry and government, particularly to electronics manufacturers with experience in time and frequency techniques.

December, 1966.—ATC Committee of ATA formed CAS Technical Working Group, to study technical details of proposed CAS concepts and prepare draft technical description of system that will meet airline requirements.

1967

First meeting of CAS Technical Working Group in January, 1967, for three days. Group continued regular monthly meetings thereafter (sometimes twice a month) for a total of 37 meeting days between January 1 and June 30, 1967.

June 14, 1967.—ATA asked FAA to have the necessary frequencies designated for CAS.

Technical description of a CAS that will meet airline requirements completed June 30 and distributed to industry, government and airlines early in July.

July 12, 1967.—ATA asks FAA to use system technical description:

to test, by simulation, the interaction of CAS and ATC in order to verify that operation of such a CAS will not adversely affect ATC,

as a starting point for developing a national common system for airborne collision avoidance systems. FAA asked to give early attention to insuring compatibility of civil and military use of CAS techniques.

to begin the efforts that will ultimately be needed to secure international agreement on a common international system for airborne CAS.

December 14, 1967.—ATA Board of Directors approve comprehensive evaluation of prototype CAS hardware, with budget of \$150,000 for 1968 portion of the two-year test program.

1968

January, 1968.—Airline evaluation of CAS cockpit displays begins. Four airlines using Link flight simulators to gather information on pilot and airframe reaction time, using different CAS display devices.

July 26, 1968.—ATA selected Martin-Marietta, of Baltimore, Md. to perform flight tests of CAS prototype hardware build for airline evaluation by Bendix Avionics, McDonnell Douglas and a Sierra Research-Wilcox Electric team.

October, 1968.—The Operations Conference of the ATA (Vice Presidents of Operations of member airlines) urged FAA to expedite the real time digital

simulation of CAS/ATC interaction since interaction between the CAS and the FAA ATC system was expected and should be minimized by appropriate modifications in either CAS and ATC system design.

1969

Beginning in August and continuing through mid November, CAS equipment accumulated 317.2 hours of flight during the Martin-Marietta flight test program divided as follows:

McDonnell Douglas 209.9 (82 flights).

Bendix Avionics 97.4 (30 flights).

Sierra-Wilcox 28.8 (12 flights).

64,000 epochs of data were recorded on magnetic tape and/or photo panel film permitting CAS message comparison for 128,000 data points. An additional 24,500 epochs of data exchanged between ground and air and air to ground yielding 49,000 data points.

In its final report (Volume I Section VII) to ATA under the \$1.85 million cost plus fixed fee contract, Martin-Marietta concluded as follows:

The overall result of the flight test program was the proof that the time-frequency CAS was effective in:

Detecting the presence of an intruder

Evaluating the collision hazard

Selecting the appropriate, mutually compensating evasive maneuvers

Commanding these maneuvers in time to allow aircraft to achieve safe vertical separation before reaching the potential collision point.

Satisfactory CAS performance was achieved with all combinations of different manufacturer's equipment. The intermixing of systems did not influence the accuracy.

The time-frequency technique proved to be an effective means of implementing aircraft-to-aircraft interchange of accurate range, range rate and altitude data.

The combined tolerances of the CAS systems affected the collision warning accuracy by displacing the CAS climb/dive command within five seconds of the desired zone boundary 90% of the time and within ten seconds of the zone boundary 100% of the time.

Signal multipath and externally generated interference did not prevent the satisfactory accomplishment of CAS data interchange in all test environments.

1970

June, 1970.—The ATA Board of Directors noted with deep satisfaction the successful completion of the airline flight test program and requested:

FAA endorsement of the CAS system and approval for its use by any aircraft operator.

Obtaining assurance from FAA that it will plan for the procurement and maintenance of the requisite ground stations to support the wide-spread use of the CAS, particularly by low cost systems for use by general aviation aircraft.

Obtain FAA support for promoting the CAS as an FAA standard and for adoption by ICAO.

Continuing encouragement and fostering the development of low cost compatible systems suited for general aviation use.

July, 1970.—Approval of airline characteristic ARINC 587 for Time/Frequency CAS.

1971

June, 1971.—The FAA, at its National Aeronautical Facilities Experimental Center, began the real time digital simulation of CAS/ATC interaction.

McDonnell Douglas began flight evaluation of its pre-production ARINC 587 airline CAS equipment.

AOOI STATEMENT ON TRANSPORTATION REVENUE SHARING

The Airport Operators Council International, representing the governmental owners and operators of the principal airports served by the scheduled airlines in the fifty states, Puerto Rico and the Virgin Islands, believes that the Transportation Revenue Sharing Act of 1971 would, if adopted, prejudice the

development of new aviation safety facilities, aviation system capacity, and the efficiency improvements envisioned by the Congress and the aviation community with the passage of the Airport and Airway Development Act of 1970.

This historic legislation, signed into law just one year ago, was the result of ten years of concerted effort by both the Congress and the aviation community to ensure the development of a *national* plan for the improvement of the nation's aviation system. It was the belief of those involved in the legislation's enactment that such a *national* plan was essential to the improved safety of every segment of the country's aviation system.

The Transportation Revenue Sharing concept would supplant this idea of a "national aviation system" plan with a series of individual and uncoordinated State development plans. The proposed Transportation Revenue Sharing Act of 1971 (S. 1693) at Section 8 reads: "Commencing with fiscal year 1973 as a condition precedent to receiving a commitment of shared revenues under this Act, the Governor of each State shall publish and make available to the Secretary [of the Department of Transportation] prior to the beginning of each fiscal year a State development plan formulated through the State development planning system. . . . This plan and amendments thereto shall not be subject to approval by the Secretary." Thus, any effort toward coordinated plans among the several States would be subverted. There would be no central agency to ensure that the plans of one State do not conflict with those of another. The national aviation system transcends State borders and must be planned and designed as a national system for the national benefit.

It is proposed in the Transportation Revenue Sharing plan that \$110,000,000 be contributed from the Airport and Airway Trust Fund (set up by P.L. 91-258) during FY '72. "For each fiscal year after fiscal year 1972, there shall be available for appropriation . . . from the airport and airway trust fund an amount equivalent to the amount obligated by recipients under this Act during the preceding fiscal year for aviation related transportation activities." (Section 5(b) (2) of S. 1693) Section 3(13) of the same proposed legislation defines "transportation activity" as "(i) the acquisition, construction, reconstruction, improvement, operation, or maintenance of transportation systems, facilities, or equipment (including safety facilities and equipment); (ii) planning, training, research, development and demonstration activities, and highway safety program activities; (iii) the provision of matching shares for Federal-aid transportation programs; (iv) mass transportation activities; and (v) beautification, relocation, and environmental protection activities associated with any activity set forth in clause (i), (ii), or (iv) of this paragraph.

Nowhere in these definitions is there definition of what constitutes an "*aviation related transportation activity*." Public Law 91-258 defines very clearly what aviation projects are eligible for Federal funding from the Airport and Airway Trust Fund. These clearly specified projects were the result of much debate within the Congress and within the aviation community itself prior to the enactment of P.L. 91-258. It was the intention, with the passage of this law, that Airport and Airway Trust Fund revenues, derived from taxes on the users of the aviation system, would be expended primarily for aviation *capital facilities* improvement. Priorities for expenditure are clearly set out in Section 14 of that law. The Transportation Revenue Sharing proposal would ignore these stated priorities, and would allow aviation user tax Trust Fund moneys to be spent for any "*aviation related transportation activity*," be it, for example, establishment of a State aviation commission, personnel salaries, etc. S. 1693 at Section 18(d) reads: "No condition, restriction, or requirement contained in the Airport and Airway Development Act of 1970 . . . shall apply to this Act unless expressly made applicable by this Act."

It is the belief of the Airport Operators Council International that any apportionment of these aviation user charge-derived revenues must bring about aviation safety improvements and system capacity and efficiency developments demanded and paid for by these users.

It should also be noted that the \$110,000,000 proposed in the Transportation Revenue Sharing plan to be contributed from the Airport and Airway Trust Fund for "*aviation related transportation activities*" in FY '72 falls considerably below the \$295,000,000 for airport planning and development now authorized annually by the Airport and Airway Development Act.

The remaining \$185,000,000 Airport and Airway Trust Fund moneys will presumably be diverted to pay operations and administrative costs of running the

Federal Aviation Administration. Diversion of this airport trust fund money from its intended purpose would hasten the obsolescence of an already overburdened airport system.

The Airport Operators Council International further objects to the allocation of funds for "aviation related transportation activities" proposed in the Transportation Revenue Sharing plan for, under this plan, 65% of the funds would be allocated to State agencies while only 35% would be allocated to local and municipal governments. This despite the fact that over 80% of the major airports in the United States are operated by local and municipal governments. Further, most States do not now have the expertise and personnel capability to plan and develop a Statewide airport system nor to intermesh a State airport plan with a national airport plan. This function can now only be accomplished by local airport expertise in conjunction with a Federal agency such as the Federal Aviation Administration.

AOCI shares the concern of the Administration for the total U.S. transportation picture. It is the position of AOCI that trust funds similar to the Highway Trust Fund and the Airport and Airway Trust Fund, including both user taxes and general fund appropriations, be created for the development of other elements of the total transportation system.

(Whereupon, at 11:35 a.m., the hearing was recessed, to reconvene at 10 a.m., Thursday, June 24, 1971.)



