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FEDERAL-AID-TO-AIRPORTS PROGRAM

GOVERNMENT
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HEARINGS BEFORE THE AVIATION SUBCOMMITTEE OF THE COMMITTEE ON COMMERCE UNITED STATES SENATE EIGHTY-NINTH CONGRESS

SECOND SESSION
ON

S. 3096

A BILL TO AMEND THE FEDERAL AIRPORT ACT TO EXTEND
THE TIME FOR MAKING GRANTS THEREUNDER, AND FOR
OTHER PURPOSES

MAY 2 AND 3, 1966

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FEDERAL-AID-TO-AIRPORTS PROGRAM

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FEDERAL-AID-TO-AIRPORTS PROGRAM

MONDAY, MAY 2, 1966

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

The subcommittee met at 10 a.m. in room 5110, New Senate Office Building, Hon. A. S. Mike Monroney (chairman of the subcommittee) presiding.

Senator MONRONEY. The Aviation Subcommittee will begin hearings this morning and continuing through Tuesday on S. 3096, a bill to amend the Federal Airport Act to extend the time for making grants thereunder and for other purposes. This bill, a part of the administration's legislative program, would extend the time for making grants-in-aid for airport development under the Federal Airport Act an additional 3 years. Without this extension, the program would expire June 30, 1967. The bill proposes only an extension of the existing program and aside from conforming amendments does not propose any substantive amendments to the Federal Airport Act.

The Federal Airport Act was first enacted in 1946 "to provide a system of public airports adequate to anticipate and meet the needs of civil aeronautics." The act recognized the necessity for national planning to insure the wisest and most efficient utilization of both Federal and local funds. Aside from providing consistency and efficiency in airport development, this program contributes immeasurably to guaranteeing the continued maintenance of an adequate airport system, the single most important factor in insuring air safety.

Briefly, the principal features of the airport program and the proposed extensions contemplated by this bill are as follows:

First. Extend the Federal aid to airport program an additional 3 years, expiring June 30, 1970, at the existing \$75 million annual level of authorization.

Second. Continue to limit Federal participation to items directly related to safety—such items as public parking lots, restaurants, and passenger terminal facilities, and so forth, are ineligible.

Third. Continue a special fund of \$7 million a year for the development of general aviation airports, the essential purpose of which is to relieve congestion at high density airports.

Fourth. Funds allocated to any State under the area-population formula which are not obligated within 2 fiscal years would continue to revert to the discretionary fund.

NOTE.—Staff counsel assigned to this hearing: William T. Beeks, Jr.

Fifth. A special fund of \$1,500,000 for Hawaii, Puerto Rico, and the Virgin Islands, because of their insular status and unique reliance upon air transportation is left unchanged. Under this fund amounts made available to Hawaii, Puerto Rico, and the Virgin Islands are respectively \$600,000, \$600,000, and \$300,000.

Sixth. With the exception of the special set-aside allocations, 75 percent—or \$49,875,000—of the remaining annual authorization would continue to be allocated to the States on the basis of their area and population and 25 percent—or \$16,625,000—is placed in a special discretionary fund to be used in any State at the discretion of the Administrator.

Seventh. Continues the requirement that as a condition precedent to any grant that the Administrator must satisfy himself that reasonable effort, including enactment of zoning laws, has been made to restrict use of land adjacent to airports so as to make it compatible with the operation of the airport.

Eighth. Authorizes grants for advance planning and engineering for airport development, the Federal share of which cannot exceed 50 percent.

Ninth. Continues to make Guam eligible to participate in the discretionary fund.

Tenth. Continues to require the Administrator, prior to project or planning proposal approval, to determine that the project or proposal is reasonably consistent with existing plans of public agencies for development of the area.

Without objection, there will be printed in this part of the record the text of the bill together with comments received by the appropriate Government agencies.

(The above-mentioned material follows:)

[S. 3096, 89th Cong., 2d sess.]

A BILL To amend the Federal Airport Act to extend the time for making grants thereunder, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 5 (d) of the Federal Airport Act (49 U.S.C. 1104 (d)) is amended by adding at the end thereof the following new paragraphs:

“(7) For the purpose of carrying out this Act in the several States, in addition to other amounts authorized by this Act, appropriations amounting in the aggregate to \$199,500,000 are hereby authorized to be made to the Administrator over a period of three fiscal years, beginning with the fiscal year ending June 30, 1968. Of amounts appropriated under this paragraph, \$66,500,000 shall become available for obligation, by the execution of grant agreements pursuant to section 12, beginning July 1 of each of the fiscal years ending June 30, 1968; June 30, 1969; and June 30, 1970, and shall continue to be so available until expended.

“(8) For the purpose of carrying out this Act in Hawaii, Puerto Rico, and the Virgin Islands, in addition to other amounts authorized by this Act, appropriations amounting in the aggregate to \$4,500,000 are hereby authorized to be made to the Administrator over a period of three fiscal years, beginning with the fiscal year ending June 30, 1968. Of amounts appropriated under this paragraph, \$1,500,000 shall become available for obligation, by the execution of grant agreements pursuant to section 12, beginning July 1 of each of the fiscal years ending June 30, 1968; June 30, 1969; and June 30, 1970, and shall continue to be so available until expended. Of each such amount, 40 per centum shall be available for Hawaii, 40 per centum shall be available for Puerto Rico, and 20 per centum shall be available for the Virgin Islands.

"(9) For the purpose of developing, in the several States, airports the primary purpose of which is to serve general aviation and to relieve congestion at airports having high density of traffic serving other segments of aviation, in addition to other amounts authorized by this Act for such purpose, appropriations amounting in the aggregate to \$21,000,000 are hereby authorized to be made to the Administrator over a period of three fiscal years, beginning with the fiscal year ending June 30, 1968. Of amounts appropriated under this paragraph, \$7,000,000 shall become available for obligation, by the execution of grant agreements pursuant to section 12, beginning July 1 of each of the fiscal years ending June 30, 1968; June 30, 1969; and June 30, 1970, and shall continue to be so available until expended."

SEC. 2. (a) Section 6(a) of such Act (49 U.S.C. 1105(a)) is amended by striking out "or 5(d) (4)" in the first sentence and inserting "5(d) (4) or 5(d) (7)".

(b) Section 6(b)(1) of such Act (49 U.S.C. 1105 (b) (1)) is amended by striking out "and 5(d) (4)" and inserting in lieu thereof "5(d) (4) and 5(d) (7)" and by striking out "5(d) (6)" and inserting in lieu thereof "5(d) (6) and 5(d) (9)."

CIVIL AERONAUTICS BOARD,
Washington, D.C., May 6, 1966.

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

DEAR MR. CHAIRMAN: This is in reply to your letter of March 31, 1966, requesting the views of the Board with respect to S. 3096, a bill "To amend the Federal Airport Act to extend the time for making grants thereunder, and for other purposes."

S. 3096, which was introduced at the request of the Federal Aviation Agency, would extend the appropriation authority under the Federal Airport Act, expiring on June 30, 1967, for an additional three years at the existing level of \$75 million per annum. Special funds of \$7 million a year for the development of general aviation airports and \$1.5 million a year for Hawaii, Puerto Rico and the Virgin Islands would be continued. No other substantive changes would be made in the Act.

The Board's interest in the legislation arises out of its general advisory function under the Federal Airport Act, and its responsibility for the promotion of air safety under the Federal Aviation Act of 1958.

It is the opinion of the Board that there is a continuing need for the improvement of airport facilities. Piston aircraft are being replaced by jets at many airports. In many instances, runways will have to be lengthened and other improvements and repairs will be required in order to accommodate the jets on a continuing basis. Expected increases in traffic and in air carrier fleets suggest further that improvements at so-called satellite airports may be required to adequately serve major metropolitan centers. Moreover, increased attention will have to be given to the installation of certain landing aids, such as in-runway lighting and distance markers as a factor in airport safety.

The Board believes that there is a need for continuation of the special fund for the development of general aviation airports. The greatest percentage increase in air traffic activity over the past ten years has occurred in the field of general aviation. This increased activity has diminished the ability of large hub airports to accept additional air carrier traffic. It is most important, therefore, that greater emphasis be placed on the development of additional airports to serve general aviation, and on the improvement of existing general aviation airports in the larger metropolitan areas. These airports should be equipped with facilities adequate for the needs of general aviation to the extent permitted by the Federal Airport Act in order that congestion at high-density airports may be relieved and the safety and efficiency of operation of these latter airports improved.

For these reasons, the Board recommends the enactment of S. 3096.

The Board has been advised by the Bureau of the Budget that there is no objection to the submission of this report from the standpoint of the Administration's program.

For the Civil Aeronautics Board:

HAROLD R. SANDERSON, *Secretary.*

COMPTROLLER GENERAL OF THE UNITED STATES,
Washington, D.C., April 6, 1966.

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

DEAR MR. CHAIRMAN: Reference is made to your letter of March 31, 1966, requesting your comments on S. 3096.

The bill proposes to amend the Federal Airport Act to extend for three years the time for making grants. Since the purpose of the bill involves a matter of policy primarily for the Congress to determine and as its enactment would not affect the functions of our Office, we have no comments or recommendations to offer regarding the bill.

Sincerely yours,

FRANK H. WEITZEL,
Assistant Comptroller General of the United States.

Senator MONRONEY. We are very pleased to have as our first witness the very distinguished Administrator of the Federal Aviation Agency, Gen. William F. McKee.

You may introduce your colleagues at the table and proceed in your own manner, Mr. McKee.

STATEMENT OF WILLIAM F. McKEE, ADMINISTRATOR, FEDERAL AVIATION AGENCY; ACCOMPANIED BY DAVID D. THOMAS, DEPUTY ADMINISTRATOR; NATHANIEL H. GOODRICH, GENERAL COUNSEL; COLE H. MORROW, DIRECTOR, AIRPORTS SERVICE; AND CHESTER G. BOWERS, DEPUTY DIRECTOR, AIRPORTS SERVICE

Mr. McKEE. Mr. Chairman, I appreciate the opportunity to appear before your Committee on Federal Aid to Airports program. I have with me today the Deputy Administrator, Mr. David Thomas; our General Counsel, Mr. Nathaniel Goodrich; Director of Airports Service, Mr. Cole Morrow; and the Deputy Director of Airports Service, Mr. Chester Bowers.

With your permission, Mr. Chairman, I have a short statement which I am prepared to give.

Senator MONRONEY. You may proceed.

Mr. McKEE. Mr. Chairman and members of the subcommittee:

I appreciate this opportunity to testify in support of S. 3096, a bill to amend the Federal Airport Act in order to extend, for another 3 years, the authorization for appropriation of funds for the making of grants-in-aid for airport development.

The program of Federal aid for airports began in 1947. Through it, over 2,000 airports throughout the Nation have received Federal matching funds for airport development. Each of these assisted airports is a part of a national system of airports linking the Nation's population centers.

The development of this national system has resulted in safer, more convenient, faster movement of goods and people throughout the Nation. By providing an airport system as a part of the national airspace system we are fostering the growth of air commerce to provide a valuable support to the national economy.

As the Congress foresaw when it first authorized the Federal aid to airports program, air commerce has grown rapidly. The indicators promise continued growth.

The number of domestic passengers carried on scheduled U.S. air carriers is expected to increase by fiscal year 1970 to 131 million, an increase of 36 percent over our estimate for fiscal year 1966. In 1947 only 12,822,000 passengers were carried by domestic U.S. air carriers.

The composition of the civil air fleet will continue to tend more to jet aircraft. On January 1, 1965, turbo-jet service was being provided to 70 civil airports. Since that time, 42 additional locations have been added to the jet civil system. We estimate that over the next 5-year period, 234 additional airports will be served by the civil scheduled jet fleet. Our estimate for the future is probably low because additional locations are almost constantly being added to our forecast as the airlines decide on reequipment programs.

The greatest immediate increase will be in the 2- and 3-engine short- and medium-range jets, many of which are now being introduced into local carrier service. The conversion to jets in the entire airline system will require expanded airport facilities, and this in turn will create a particular demand for airport development dollars.

The general aviation aircraft fleet is continuing to grow. By 1970 active general aviation aircraft are expected to number about 118,000, an increase of roughly 22 percent over today. Most of this increase will be in the multiengine and large single engine categories. And a significant share of the increase will be jet aircraft.

By 1970, landings and takeoffs at airports with FAA control service are estimated to reach 53 million. This is an increase of 36 percent over today's operations.

Two years ago in March 1964, the Congress extended the Federal aid to airports program for a 3-year period, from fiscal year 1965 through 1967. The Federal Aviation Agency has used this authority and the funds granted to improve further the Nation's airport system. In the last 2 years of our operation under the extension authorized in 1964, the FAA has allocated funds totaling more than \$157 million to assist communities in all areas of our country to develop airports benefiting the public.

The allocations made in the 1965 program are assisting the constructing and improving more than 400 public airports. The 1966 allocations provide aid in the development and improvement of more than 470 public airports.

The Agency has used the additional authority and responsibility given to it under the 1964 amendments to strengthen the program and to insure the effective use of public funds. Advance planning and engineering grants which were first authorized in 1964 have been used to obtain better airport layout plans and improved cost estimates and thus to reduce construction costs.

Another new provision added in 1964 was the requirement that airport projects be consistent with area plans. Under that provision, FAA has made substantial progress in making the airport a part of comprehensive metropolitan planning by working closely with the Department of Housing and Urban Development and in cooperation with State agencies and local sponsors. Airport owners are being required to recognize their responsibility for compatible land uses near the airport and the need for zoning and control.

The bill before you would authorize maximum annual appropriations of \$75 million for each of the fiscal years 1968, 1969, and 1970;

a total of \$225 million for the 3-year period. This is the same level of authorization provided for the fiscal years 1965, 1966, and 1967 when the authorization was last extended. We believe that this authorization level should be continued for the program for the next 3 fiscal years.

We are, of course, aware that many of our aviation friends concerned with airport development at the State and local level believe that an annual authorization of \$75 million is insufficient. And it is true that this level of Federal participation does not provide matching funds for every local dollar that is available for all eligible airport development. This is a situation which is common to all Federal grant-in-aid programs.

What is intended is that through this program the Federal Government will make a significant contribution toward meeting the airport needs of the Nation's air commerce while continuing to recognize that the primary responsibility for constructing, improving, and operating the Nation's airports rests with State and local authorities. The aim is to provide an incentive to local communities throughout the Nation to support needed airport development. We believe the amounts proposed will accomplish this purpose as they have in the past.

The proposed program represents, in our judgment and that of the President, a reasonable allocation of Federal funds to airport development in light of our defense requirements and other budgetary needs, including other transportation requirements.

We therefore urge the enactment of this legislation.

Thank you very much, sir. We are prepared to attempt to answer any questions you may have.

Senator MONRONEY. Thank you very much, General McKee, for your testimony.

You say on page 3 that the 1966 allocations provide aid for development and improvement of more than 470 public airports. How many of these were new airports or virtually new ones?

Mr. McKEE. I will ask Mr. Morrow to answer that.

Mr. MORROW. 112—I can look it up precisely—from the ground up was 80 new airports, and an additional 32 approximately, airports which were for the first time in FAAP. Many of the latter were privately owned airports that were acquired by communities and converted into improved public-owned airports.

Senator MONRONEY. Out of those 470, how many would be listed as metropolitan airports, the larger airports that could take jets?

Mr. MORROW. 198. Those were air carrier airports, in total.

Senator MONRONEY. 198 air carrier airports. Those could be for anywhere from DC-3's to the 707's and DC-8's?

Mr. MORROW. Yes.

Mr. McKEE. I think it should be made clear, Mr. Chairman, that these large airports are metropolitan airports, air carrier airports, and are also used extensively, as we know, by general aviation.

Senator MONRONEY. Do you have a table showing the aid, size, broken down by the volume of work that was done on these new ones or converted ones, and also the other air carrier airports?

Mr. MORROW. We can furnish that, sir, a detailed breakdown.

I would like to make sure I understand precisely what you are referring to. A breakdown of the items of work, or just by projects?

Senator MONRONEY. By categories, as you keep them. I don't know how you keep them.

Mr. MORROW. We keep them as trunk airports, local service airports, airports that are used by scheduled air taxis, and other commercial operators, and other general utility airports.

Senator MONRONEY. I think if you could give us a table on the allocations of those for the past year, or the most recent fiscal year, it would be helpful.

Mr. McKEE. By those categories?

Senator MONRONEY. Yes.

Mr. McKEE. We can do that.

(See p. 26.)

Senator MONRONEY. And the amounts.

I take it from what you say that the new airports and the converted airports were smaller sized airports, for the total building up or practically rebuilding of the entire airport.

Mr. MORROW. Yes. All were smaller airports used by general aviation.

Senator MONRONEY. Our system of major airports or air carrier airports has been enhanced upon by improving the runways. You might tell us what you have done with the larger ones.

Mr. MORROW. There has been a lengthening and strengthening of runways, and the addition of additional taxiways, ramp areas, and additional runways to accommodate the increased activity at air carrier airports. And principally the conversion of many of the air carrier airports from piston aircraft operations to jet operations.

Senator MONRONEY. That has meant longer runways and heavier runways?

Mr. MORROW. Yes.

Senator MONRONEY. Particularly impact on landing?

Mr. MORROW. Yes.

Senator MONRONEY. Are you having problems from jet fuel leaking and causing damage to the surface?

Mr. MORROW. This is a maintenance problem at all airports having jet operations.

Senator MONRONEY. They require some servicing because of the jet fuel.

Mr. MORROW. Yes. Most of the money was for either lengthening or strengthening of the runways themselves, or adding additional runways. Many of the runways were built to accommodate aircraft of the size of the Constellation, and some were even built to accommodate only a DC-4 or DC-6.

Many of the new aircraft have wheel loadings that exceed the strength capabilities of the existing runways. So a very substantial part of the last year's program and the program for the year before has been in the area of strengthening runways, as well as lengthening and adding taxiways and ramp areas.

Senator MONRONEY. Have you widened as well as thickened the runways?

Mr. MORROW. Yes; and in many cases we have to widen the runways also.

Senator MONRONEY. Of your appropriated funds—you haven't yet allocated funds for the new year—you have been cut back \$21 million by the Bureau of the Budget, is that correct?

Mr. McKEE. That's correct.

Senator MONRONEY. What is the date when these allocations are supposed to be made?

Mr. MORROW. We are just ready to take requests right now, Senator, and it is contemplated that we would have an announced program ready about the first of October.

Senator MONRONEY. About the first of October?

Mr. MORROW. Yes.

Senator MONRONEY. That would be the allocation of the funds, whatever amount is appropriated under the act, whether it goes to \$75 million or complies with the Bureau of the Budget's request that it be cut by \$21 million; is that correct?

Mr. MORROW. Yes.

Senator MONRONEY. Do you have the total amount of the applications now pending to be funded?

Mr. MORROW. We have not taken the request for fiscal 1967 so those requests have not come in. We have programed throughout the year 470 airport projects so far. The original—

Senator MONRONEY. That is 470 against the 1966 allocations of 445, is that correct?

Mr. MORROW. The original program commenced September 3, 1965, was 445; however, during the year we have added an additional 35 projects which brings the number up to 470. We have before us now for final disposition, in the 1966 program, about 50 additional requests aggregating about \$17 million. These requests have come in largely within the last 3 or 4 months.

Senator MONRONEY. How many requests did you say you had?

Mr. MORROW. About 50 requests before us now, requesting aid in the fiscal 1966 program.

Senator MONRONEY. That is from the discretionary fund, carried over?

Mr. MORROW. Of the \$17 million I mentioned, \$14 million is all discretionary money.

Senator MONRONEY. And the 50 requests for 1966 would come out of that \$17 million?

Mr. MORROW. This would be the windup of the fiscal 1966 program.

Senator MONRONEY. In other words, 50 additional requests for fiscal 1966.

Mr. McKEE. I don't think you made it clear that of the 50 requests, we don't have the \$14 million.

Mr. MORROW. We will not be able to program these. We don't have all the money. We are asking many of the sponsors to agree to delay the consideration of their request for the fiscal 1967 program.

Senator MONRONEY. Do you have the total of what these 50 requests run, and how much money you have to fund them with?

Mr. MORROW. I have the total.

Senator MONRONEY. You have \$17 million.

Mr. MORROW. We have requests for the \$17 million.

Senator MONRONEY. How much do you have to fund it?

Mr. MORROW. The total amount of money available for funding is approximately \$10 million, and that would leave us with absolutely zero contingency money in the discretionary fund.

Senator MORTON. And you would still be \$4 million short of the requests still before you.

Mr. MORROW. The present status is if we program 100 percent of the requests we have, we would be short by \$4 million of discretionary money.

Senator MONRONEY. Now you are expecting requests from a great many more airports because of the expansion of short range jet service and the need for converting DC-3 airports, you might say, into short-range jet airports.

Mr. MORROW. That is the largest number and the most urgent request we are getting at the present time.

Senator MONRONEY. How much money do you anticipate is needed for improving airport runways as a result of the short-range jets? How much does it amount to in terms of dollars?

Mr. MORROW. We estimate—the numbers General McKee gave you show that 42 were added during the past year already. That is a very significant figure to show the rapid change in the nature of the air carrier system.

We had 70 airports receiving jet service on January 1, 1965, and we had 112 receiving jet service on January 1, 1966. And we estimate that by 1970 there will be an additional 234, and the cost of improving these runways, of the 234 additional, will be approximately \$205 million to accommodate jets.

I might mention that improvements that are needed to the 112 existing jet airports, those now receiving jet service.

Senator MONRONEY. What is that figure?

Mr. MORROW. 112.

Senator MONRONEY. Those are the ones now receiving jet service?

Mr. MORROW. Yes.

The present estimate we have is that approximately \$56 million of that—

Senator MONRONEY. Improvement on those?

Mr. MORROW. Yes.

And 234 additional jet airports anticipated in the next 5 years, is another \$205 million. And this, by the way, is an estimate, and the estimates have been going up rapidly because of the increased requirements, many of which were unanticipated. This is the best and most accurate statement that we can come up with at this moment, working with the regional people and the local airlines.

Senator MONRONEY. It would help the record if you elaborate on what the conversion of an ordinary small-town airport to jet service would require. What is the length of the runways, and how much heavying up of the surfacing of the runway is required?

Mr. MORROW. If we average the 309 local service airports out—and these are average figures—the average runway length is 5,300 feet. The average length required for jet service is about 6,500 feet.

Senator MONRONEY. Senator Cannon?

Senator CANNON. You say the average is 6,500 feet. Are you referring now to the overall jet average, or are you referring to—

Mr. MORROW. Just local service. There are many airports, of course, that today are still receiving DC-3 service that have runway lengths of 4,000 to 4,500 feet, that are planned to be served by the jet aircraft by 1970, and of course the runway lengthening at those airports and strengthening, too, that would be required, is very substantial.

I think it is ironical also, that communities still being served by DC-3 aircraft are obviously the lowest passenger generating locations and therefore smaller communities, and they probably have the least financial capability to meet this increased requirement. This is one of the reasons for the need for continuing Federal aid to many of these airports. It is very essential if airline services is to continue to be provided at these locations.

Senator MONRONEY. Do you make your allocations and start spending matching money on the announcement of anticipation of jet service, or do you have any other great assurance that the jet service will be put in and is expected to be maintained on a long-term basis rather than on a trial basis?

Mr. MORROW. We work very closely with the airlines in their plan, their equipment purchases, and we base the anticipated requirements on the urgency and the actual plans of the airlines for implementing the jet service. And we have been allocating money only at those airports which are presently scheduled and planned to receive jet service in the near future.

Senator MONRONEY. Of course you can't tell whether they will be able to utilize over a long period of time or not, the runway and the capacity to accept the jets.

Mr. MORROW. We have not programed any money even for development to meet air-carrier requirements at any local service airport where the CAB has indicated either use it or lose it status or where the CAB has furnished us the likelihood of service being terminated.

Senator MONRONEY. What I am trying to get at in my questions is the fact that there may be greater utility in turbine-powered small replacements for the DC-3, for example, in some of these market areas, rather than the heavier short-range jets.

Mr. MORROW. We made a study, Senator, of converting the 309 communities now served exclusively by the local carriers, to existing available American-made turbine-powered air carrier aircraft, something of the order of an F-27, or a turbine-power Convair. Out of the 309 locations we found that the runways would have to be lengthened at 180 of these locations just to take an F-27 or turbine-powered Convair. And the cost of this lengthening at the 180 locations would be on the order of \$100 million.

This did not contemplate any jet operation. So that the conversion to turbine-powered—to a turboprop type aircraft at the local service in the local system would be about \$100 million, and the requirement to go to all jet would be \$205 million.

Senator MONRONEY. So either way it is going to require massive reconstruction of some of these airports that have been used by the

DC-3's to accommodate whatever kind of aircraft the local service people run.

Mr. MORROW. Yes, sir.

Senator MONRONEY. What is the effect going to be when you have these stretch-outs and the increased size of the big, long-range jets on your major hub airports? I know that they are bringing out a stretch-out of the DC-8, and Boeing is coming out with a new, enlarged model very soon. They have announced their production of a plane that will have nearly 500-passenger capability. These will all carry greater loads and present additional wheel-loading requirements for the thickness of the runways, and I presume the length of them. I would like to know what FAA is doing regarding the certification of airports for these supersized planes.

Mr. McKEE. I will answer that question, Mr. Chairman. This has been a matter of some concern to the agency. On January 7 of this year I wrote to the president of Douglas, to the president of Lockheed, and to the president of the Boeing Co. I think for the record here I should read the letter I sent to Mr. Douglas and a similar letter went to the others. Also a copy of this letter went to the Air Transport Association. [Reads:]

DEAR MR. DOUGLAS: You are no doubt aware of the increasing concern and interest in the Government and communities across the country about the levels of noise created by jet aircraft. Coincidentally with the mounting concern about present noise levels and the prospects of an increase in them in connection with the use of heavier aircraft, we have had inquiries about the Agency's policy on allocation of Federal-aid to Airport Program funds for the construction of runways capable of handling heavy, stretched-out versions of commercial jet aircraft. We believe that an outline of the Agency's current thinking on the subject will be helpful to you and your customers.

Our prime concern is with aircraft noise. The present levels have resulted in numerous lawsuits and claims of great inconvenience, discomfort, loss of property values, and invasion of the privacy of private citizens. It is obvious that future generations of aircraft must not exceed current noise levels, quite apart from the fact that a major effort is required to secure a reduction in current levels.

In this connection there is concern that the stretched version of the DC-8 may exceed present noise levels and might not be acceptable at some or all airports for that reason.

The weight problem is also of concern. Our predecessor agency in 1958 adopted the policy that bases pavement design for large jet aircraft on a gross weight of 350,000 pounds on a dual tandem gear. Not only do many airports currently used by commercial jets not meet the standard, but the Airport Operators Council has established its own standard of 325,000 pounds as the maximum weight that can be tolerated by many runways, ramps and taxiways.

The Federal Aviation Agency will continue to consider requests for aid under the Federal-aid to airports program from sponsors to strengthen existing runways to meet the 350,000-pound standard. However, due to many requests for aid on urgently needed airport programs which we now have, the strengthening requests will be considered of low priority.

In this connection we do not anticipate that Federal funds will be allocated solely for the purpose of strengthening existing jet port runways to the 350,000-pound standard. Operators of heavy versions of commercial jet aircraft with gross weights in excess of existing runway capacity will face the alternative of limiting their operations to airports which meet higher poundage standards or off loading to meet the existing airport design limits.

We feel that an obligation to inform you of these problems as we see them and that we would be derelict in our duty if we fail to do so. The prime concern with noise is obviously aggravated by heavier aircraft without compensating noise-reduction efforts.

The growing distress caused by noise levels that undoubtedly was not fully anticipated merits the closest attention to ways in which industry and the Gov-

ernment can cooperate to alleviate the effects of the problem. I am certain you have considered both the weight and noise factors in your design of stretched version and that you and your customers realize the necessity for operating within permissible limits.

Please be assured that in conveying this advice we are available to you to discuss any aspects of these problems that you might wish to take up with us personally. In fact, we would welcome the opportunity to do so to insure continuing ability to operate within permissible limits and hopefully to reduce noise limits.

I felt it my duty as Administrator to inform the manufacturers of these problems as we saw them. I talked to each one personally on both the question of noise and also on the question of weight. I had been assured that their noise limits will be at least the same as the present subsonic jets, or in some cases maybe less. I have been assured by each one of these people personally that with the configuration of their landing gear, that the existing major airports will be able to take these airplanes.

There is—

Senator MONRONEY. When you say you have been assured, are you in your own mind—

Mr. McKEE. No; I have been assured by them that it was. We have the job, of course, of certificating these aircraft. They are up against a problem here because if they don't, it is quite clear, for example, a lot of these airports are not going to have the money or the capability to strengthen runways at 15 or 20 major airports to 450,000 or 500,000 pounds on a dual-tandem gear. So they have to come up with a gear configuration, which they tell me they are, that will distribute the weight so that they can operate on the existing runways.

If they can't, it is quite clear, for example, looking at Chicago or New York or other areas, we cannot permit the operation of an aircraft into these airports where the operations will be unsafe. This is a handle that we have on them.

In addition, the people charged with the operation of the airports are not going to permit the operation of aircraft that are going to tear up their runways. So that is the problem.

Senator MONRONEY. However, if these supersized planes are put on the municipalities, these hub airports could go ahead on their own, even though you refuse or decline to finance the strengthening of runways.

Mr. McKEE. You notice in the letter we said we didn't refuse. We said it would be a low priority. Obviously, the New York Port Authority or the San Francisco Port Authority, if they wanted on their own to go out and strengthen their runways or extend the runways, they have the authority to do so.

Senator MONRONEY. Comparatively they use a much smaller amount of the Federal aid than do the airports that do not have this great hub traffic, such as like John F. Kennedy Airport?

Mr. McKEE. Yes; a smaller percentage.

Senator MONRONEY. Also O'Hare and others. They have their own revenue coming in and oftentimes do their own work without reference to the—

Mr. McKEE. This is true in many instances.

Senator MONRONEY. It might be wise for you to insert in the record the percentage of Federal aid that is used in comparison with the total amount spent at these hub airports.

Mr. McKEE. We will do so.

(See p. 26.)

Senator CANNON. Do you have a number of these larger airports that are stressed now for 350,000 pounds and over, or are most of them within the 325,000-pound limit?

Mr. McKEE. What is the proportion?

Mr. MORROW. The landing gear configuration, Senator, has a bearing on the total gross weight that the runway will handle. Some of the aircraft at present that can go as high as 350,000 pounds gross weight do not produce runway stress, unit stress, that is any higher than another aircraft at 325,000 pounds gross.

Senator CANNON. I understand that. Do you have a posted weight limit on all of the airports, every airport in the country? Every one that I have seen has a weight limit maximum. Do you have any of those that are posted higher than 350,000 pounds today?

Mr. MORROW. I don't know of any. We have a number of airports that potentially would want to go up to 325,000 pounds on an aircraft that would take it. That is, the landing gear configuration would require, that do not have 325,000 pounds capability now.

One thing I want to make clear is that the gross weight figure alone is not the indication of the runway capability. If the wheels are close together, the total weight that a runway will support is—gross weight—is less than if the weight is distributed through landing gear design wider apart, even though it is the same unit stress as the concrete.

We estimate that the cost of strengthening runways to be in the neighborhood of about \$50 million at all of the airports by 1970 that potentially could use, say, a 60 series DC-8.

Senator MONRONEY. That would be a 200-passenger DC-8?

Mr. MORROW. Yes, sir.

Senator MONRONEY. And the 500-passenger, or 480-passenger Boeing, would that require—

Mr. MORROW. The 747 Boeing, DC-8-10, and commercial version of the C5-A. However, the problem of runway strength on the C5-A is actually less than it is with the current model DC-8 because of the landing gear design. That is as far as unit stress on the runway.

Senator MONRONEY. In other words, they could be used on almost any existing hub airport?

Mr. McKEE. That airplane has 24 wheels on it. It looks like a Caterpillar tractor.

Mr. MORROW. The gross weight is not truly a direct measure of the requirement. It has a gross weight in excess of 700,000 pounds, yet it has a unit stress on the runway less than a DC-8 of 325,000 pounds gross weight.

Senator MONRONEY. You are engaged now in making plans and getting designs on the supersonic. What are the airport requirements going to be on this airplane?

Mr. McKEE. The same, Mr. Chairman. We have informed the manufacturers, since the beginning of the SST program, that the airplane had to be able to operate off of the existing major hub airports. We have required the manufacturers to discuss the problem with every airport operator where they expect to operate. They have assured

us so far, and we think from our own studies that the SST can operate on the existing hub airports.

Senator MONRONEY. As to thickness of runways and as to length?

Mr. McKEE. Yes, sir.

Senator MONRONEY. So this will not present any new, additional airport problem unless they go into airports of smaller communities?

Mr. McKEE. I am sure there will have to be some modifications to airports, the extent to which I am not prepared to testify to right now. We don't foresee them as being of great significance in terms of cost.

Senator MONRONEY. You mentioned in your letter that you had written to the aircraft manufacturers about the noise. What are you doing in connection with noise abatement around airports?

Mr. McKEE. We have a major program on noise abatement. Only a very short time ago, a few days, as a matter of fact, I formed a noise abatement staff at headquarters of the FAA. We have been working with the President's scientific adviser, Dr. Hornig, who has been chairing a committee on noise on that committee. In addition to FAA, representatives of NASA, Housing and Urban Development, and Commerce. We are working out an overall noise abatement program in an effort to attack the problem, not only from the point of view of the manufacturers, the point of view of design, research in aeronautics, and research in the area done by NASA, but also through Housing and Urban Development would work with the communities on compatible land use planning.

FAA, working in conjunction with NASA, has done a lot of work and will continue to do so in terms of operational procedures that will help to minimize noise. So, we have an energetic program. As mentioned in the President's transportation message, we would expect to come to Congress for legislation if that seems to be required.

We do consider this a major problem and it will increase as more and more airports get jet service throughout the country and as we get more and more airplanes. We think it requires an aggressive and intensive program on the part of the Government, on the part of local communities, and on the part of manufacturers and on the part of airlines.

Senator MONRONEY. Could you give the committee any idea of a figure that is required each year now for land purchases, additional land purchases for separation of the airport from housing developments or other private use?

Mr. McKEE. No detailed analysis has been made of that problem yet.

Senator MONRONEY. That could be obtained?

Mr. McKEE. It is going to have to be obtained. I don't think that figure is even remotely available. But out of this program, in our work with Housing and Urban Development, we will be able to come up with one. When, I couldn't say. You bring up a good problem that has not been attacked.

Senator MONRONEY. Your supersonic airplane presents no unusual problems for the airport, does it? It is a noise problem as it is going through the sound barrier at a great distance from the airport, perhaps 50 miles.

Mr. McKEE. It is farther than that. You are talking about the sonic boom.

Senator MONRONEY. Yes. I am talking first about the noise at take-off and landing of a supersonic plane.

Mr. McKEE. As far as the noise is concerned on a supersonic transport airplane, this is the first airplane I guess in our history where criteria were set up which specified noise standards that would not be exceeded. This is a part of the specifications of the airplane. So our noise problem with the SST we expect to be less than we have today on the subsonic jet.

Senator MONRONEY. This is around the airport.

Mr. McKEE. Around the airport.

Senator MONRONEY. You don't have figures, though, when it is in full flight.

Mr. McKEE. You won't have—

Senator MONRONEY. And going faster.

Mr. McKEE. You won't have the noise problem as you have with the sonic boom problem.

Senator MONRONEY. That is noise.

Mr. McKEE. It is a different kind of noise problem.

Senator MONRONEY. That I well know.

Mr. McKEE. I am sure you are well acquainted with it.

Senator MONRONEY. There are no peculiar requirements for the supersonic as to noise abatement at the airport.

Mr. McKEE. They can operate around the airport without any problem.

Senator MONRONEY. They require no expenditures or insulation areas?

Mr. McKEE. No, sir.

Senator MONRONEY. I will yield to Senator Morton.

Senator MORTON. Thank you, Mr. Chairman. I have to go over to a conference with the House on a bill on another matter that came from this committee.

One point I want to clear up. For a good many years our appropriations for this Federal-aid to airport program have been made 1 fiscal year in advance, so that you would have a better leadtime in planning. That is correct, isn't it?

Mr. McKEE. That's correct.

Senator MORTON. This was the case last year. Before the Congress adjourned, we appropriated \$71 million for this program for fiscal year 1967, beginning July 1, 1966.

Mr. McKEE. That's correct.

Senator MORTON. In the budget message that we received this year, we are asked to rescind \$21 million of that, as I read the message.

Mr. McKEE. That's correct.

Senator MORTON. This was approximately January 20. Now we are coming along for a 3-year authorization of \$75 million a year, and from your testimony I think that is a minimal figure. Has there been a change in the administration's policy on this?

Mr. McKEE. No. I think the administration feels, and fully supports this bill before you now for \$75 million, that the current rescission of \$21 million is a rescission in light of our current situation, budgetary restraints as a result of our activities in Vietnam, and I

gather this was the reason that it was done. It is a matter of priorities in the overall budget, which doesn't indicate that this is necessarily the pattern for the 3 fiscal years that we are talking about.

Senator MORTON. None of us can anticipate the length of the Vietnam thing. All of us hope it can be brought to an honorable conclusion as soon as possible. But to get the record straight, you are testifying here in support of a continuing authorization of \$75 million per year for the next 3 years, or the 3 years subsequent to present authorization; is that correct?

Mr. McKEE. That's correct.

Senator MORTON. And this Congress did, at its last session, grant \$71 million for this program for the fiscal year beginning July 1, 1966.

Mr. McKEE. That's correct.

Senator MORTON. And the administration requested, because of the tight fiscal situation, or for some reason, that the authorization be cut back to \$50 million; that \$21 million be rescinded of that which was granted last year by the Congress.

Mr. McKEE. That's correct.

Senator MORTON. And in the budget message for fiscal 1967, which would include the appropriation for fiscal 1968, after being authorized \$75 million, do we have any reason to believe that it will ask for a \$50 million appropriation or the full authorization?

Mr. McKEE. I have no information on what the administration will come forward with for fiscal 1968.

Senator MORTON. I think, Mr. Chairman, that perhaps this matter is one that we should discuss with our colleagues on the Appropriations Committee. If we are going to authorize \$75 million, with which I have no quarrel whatsoever, and at the same time rescind \$21 million that we have already appropriated, and in view of the needs which have been so forcefully outlined here by the witnesses. It seems to me that this is a matter that we are going to have to take a look at and discuss with many of our colleagues. Perhaps the Congress will have to make a decision in this area. We have certain responsibilities in the establishment of priorities, too.

I just want to verify my impression that we are being asked for \$75 million, but at about the same time we are being asked, by the same administration to rescind \$21 million of that which has already been appropriated.

Senator MONRONEY. May I ask, would you yield?

Senator MORTON. Certainly.

Senator MONRONEY. Whether we rescind it or not, the Bureau of the Budget has the right to freeze it and deny the expenditure.

Mr. McKEE. I presume they do.

Senator MONRONEY. So without action from Congress, they could limit the expenditures by the \$21 million for the coming fiscal year.

Mr. McKEE. That's correct.

Senator MONRONEY. The present fiscal year we are now in, they are still working on the full amount?

Mr. McKEE. That is correct.

Senator MONRONEY. If we pass this bill for new authority, it will begin a year from the start of the fiscal year July 1, 1966; is that correct?

Senator MORTON. A year from that.

Mr. McKEE. It will be fiscal 1968. You have already taken action on fiscal 1967, on the rescission of the \$21 million for fiscal 1967. We are talking about fiscal 1968 for the next appropriation.

Senator MONRONEY. But your allocations that will be made will be \$21 million less, whether Congress acts or whether it does not act?

Mr. McKEE. That is not necessarily true.

Senator MORTON. As I understand it, Mr. Chairman, we appropriated last summer the money for fiscal 1967 which begins July 1, 1966.

Senator MONRONEY. It is always a year later.

Senator MORTON. Yes. This we appropriated. Now we are asked to rescind \$21 million of that. The \$21 million reduction doesn't apply to the programs that are currently being carried out, but does apply to those which the FAA faces the difficult task of establishing priorities for the year beginning July 1, next. So this is a problem. We are talking about the extra applications that you have and so forth. It is not just getting them down to \$75 million or \$71 million, it is getting them down to \$50 million for the overall picture if we carry out the recommendations.

Senator MONRONEY. I was trying to show in my questions that this is coming at a time when we have this vast expansion of jet service and that airports must be upgraded to accommodate them.

Senator MORTON. One final question. Do you have any knowledge at this time—I don't want to put you on the spot or have you speak for the Bureau of the Budget—as to the action that might be taken if the Congress refuses to rescind the \$21 million? Do you know whether you will be told that regardless of what we appropriate, that you can only spend \$50 million? Have you any assurance one way or another what might happen in that event?

Mr. McKEE. I have no indication of what the Bureau of the Budget will do.

Senator MONRONEY. You have no idea whether the Bureau of the Budget will approve funding at the full level of authorization?

Mr. McKEE. I do not know.

Senator MONRONEY. Has the Bureau of the Budget impounded any funds appropriated for the last year, and if so, how much?

Mr. McKEE. In this program?

Senator MONRONEY. Yes.

Mr. McKEE. As far as I know, they have never impounded any.

Senator MONRONEY. Senator Cannon?

Senator CANNON. Do you use any formula in determining where your funds will be applied, a formula that takes into consideration the prospective traffic that might be generated at some future time?

Mr. McKEE. We have, looking at our present situation, Senator Cannon, a proposed priority list for the allocation of funds. We have had considerable discussion with the Bureau of the Budget. I would be happy to read that priority list to you if you would like to have it.

Senator CANNON. Is that a list of airports as such?

Mr. McKEE. No. It is a list of priorities by type of airports or use of airports.

Senator CANNON. That is what I was referring to on the formula.

Mr. Chairman, would you like to have that read?

Senator MONRONEY. I think it would be wise to have it read.

Mr. McKEE. Our list of priorities, Mr. Chairman, is as follows:

1. Urgent safety facilities to support all-weather operations at major air carrier airports. This would cover in-pavement lights, high-intensity runways, edge lighting, land for the approach lighting system, and generators for standby power at a "continuous power airport."

2. Development for the improved service of modern equipment now being acquired by scheduled airlines. This would cover the lengthening, strengthening, and widening of runways and taxiways with related land acquisition to accommodate new jet aircraft.

3. Improvements to provide additional airport capacity required by scheduled airlines and air taxis such as parking aprons, secondary runways and additional taxiways.

4. Development of airports that accommodate a high volume of activity or tend to divert aircraft operations from the busy metropolitan airports serving scheduled air carriers.

5. Development for public use by general aviation at airports in medium and small communities.

6. Develop needs under a national airport plan not covered under the first five priorities.

In using these priorities a uniform application will be followed in all States having a program requiring the use of discretionary funds. In States where the program can be supported with a State apportionment we would expect some allocation to be made under all of these priorities.

This is our policy under which we are now operating, Mr. Chairman.

Senator CANNON. Do you have a lump-sum figure that you feel would be required to bring the airports up to standard over the next 3-year period, assuming that the funds were available?

Mr. McKEE. Regardless of where the funds came from? Federal or State?

Senator CANNON. That is correct.

Mr. MORROW. Our current national airport plan sets forth the estimated airport development needs for a 5-year period. And it amounts to approximately \$1,200 million at the present time. We believe that this figure is slightly on the low side for two reasons. One has been the rapid increase in airport development costs, as indicated by the conversion of many airports to jet service that we hadn't contemplated.

Second, an escalation of construction costs over and above the unit costs that we used in the original estimates.

I understand that a survey has recently been made by some of the airport industry people setting forth what they estimate the development costs are likely to be within the next—I think they used a 4-year period. I am sure that those figures will be presented to you by others.

Our actual estimate in the national airport plan is approximately \$1,200 million. As I said, I think this is slightly on the low side.

Senator MONRONEY. You say your investment, or will that be total investment?

Mr. MORROW. This is the total investment.

Senator MONRONEY. Ours will be 50 percent of that?

Mr. MORROW. Generally 50 percent. This would indicate approximately \$600 million, or \$120 million a year of Federal funds, total need—identified need. I have to put it that way.

Senator CANNON. Does this include the airports that are not eligible under your program? For example, parking lots?

Mr. MORROW. No, sir. These are only eligible items.

Senator CANNON. Included in your plan do you have a separate estimate for the items needed at the airport terminal but for which aid is not eligible under your program?

Mr. MORROW. No, sir. We have not included that in our plan, and the plan that we develop includes only those items that are possible under the act. The study that I referred to by the industry does include their estimate of terminal buildings, parking lots, and other items that are not eligible under the act. But our program at the moment does not include any items other than those that are eligible for Federal assistance.

Mr. MCKEE. I think, Mr. Chairman, I had better make one point clear here, after listening to Mr. Morrow.

What he has to say is not a pitch on the part of the Federal Aviation Agency to say that we should match these funds on a 50-50 basis. After all, we think that the primary responsibility for the building of airports and their improvement should rest with the State and local governments, and the \$75 million authorization we are asking for we think in the light of the overall picture to be a reasonable figure, and provides an incentive to local communities to go ahead with modernization of their facilities.

I didn't want to leave the impression that we think the Government should carry it on on a 50-50 basis through all these programs. I don't know whether we should.

Senator CANNON. You would recommend that the Government carry on the 50-50 formula as far as your funds are available, wouldn't you?

Mr. MCKEE. As far as our funds are concerned; yes. But if you are talking about over the next 5 years, a billion-dollar-plus program, I am not talking in terms of the Government carrying half of that \$1 billion program by any manner of means.

Senator CANNON. Let me ask: Is this \$75 million a year all that you requested when you drafted your proposed budget this year?

Mr. MCKEE. Yes, sir. We are in full agreement with the \$75 million authorization.

Senator CANNON. I assume that you are in full agreement with it now. What I am trying to find out is did you request more than that initially?

Mr. MCKEE. No; we did not.

Senator CANNON. That is the full amount that you requested?

Mr. MCKEE. We went on the basis of the \$75 million initially.

Senator CANNON. Was that a guideline that was furnished you by some source—

Mr. MCKEE. No.

Senator CANNON (continuing). To stay within?

Mr. MCKEE. Not as far as I am concerned.

It has been in the act right along. It has worked out quite well in the past. We thought this would be a reasonable figure which the Congress could reasonably approve.

Senator CANNON. What did the total request from eligible applicants amount to for last year?

Mr. MORROW. I have it right up to the end of March—3-31. Our requests were \$192,679,809. As of the same date we have actually programmed, allocated, \$92.1 million.

Senator CANNON. When you say you have allocated that, do you mean for future programs to carry over beyond—

Mr. MORROW. This is allocations under the fiscal 1966 program.

In 1965 our requests were \$143 million against which we allocated \$71,011,989.

Senator CANNON. You had enough funds then with the previous year's carryover to make an allocation of \$92.1 million?

Mr. MORROW. Yes, sir.

Senator CANNON. Thank you, Mr. Chairman.

Senator MONRONEY. Thank you, Senator Cannon.

Aside from the additional airport capital improvement money required, what additional air traffic control facilities will be required to accommodate the short-range jets in this expansion?

Mr. McKEE. I will let the foremost expert in air traffic control in the United States, Mr. Thomas, answer that.

Senator MONRONEY. In the world.

Mr. McKEE. In the world.

Mr. THOMAS. Thank you, Mr. Chairman.

There will be, I think, a requirement for instrument landing systems at virtually all the locations that are used by jets. Many of them are coming up in the traffic category now that will require control towers. We do not have the exact figures. I think we can say that it will be at least an instrument landing system at all these airports to be served.

Senator MONRONEY. And this will cost how much in addition? Equipment, not counting the operational expense.

Mr. THOMAS. The equipment runs around \$90,000, if we put in approach lights, as we most likely would, it would be another \$200,000. So I would say a third of a million dollars for each of the airports.

Senator MONRONEY. A third of a million dollars would get all the electronic gear?

Mr. THOMAS. Yes.

Senator MONRONEY. What would this give?

Mr. THOMAS. Assuming the terrain and runway length is satisfactory, this would give you about 200 feet and a half mile visibility.

Senator MONRONEY. And a full vectoring and all with radar?

Mr. THOMAS. No, sir; it would not. If the locations would require—and most of these would not—it would be another million dollars.

Senator MONRONEY. A third of a million dollars on the ordinary—

Mr. THOMAS. Just to give you the reliability of service.

Senator MONRONEY. That would be ordinary air traffic control?

Mr. THOMAS. Yes, sir.

Senator MONRONEY. To get your radar control would be another added million dollars?

Mr. THOMAS. Yes, sir. Most of the ones who would have to be covered en route would not get radar service down to the airport.

Senator MONRONEY. This would include of course your lighting, the matching funds for lighting and things like that?

Mr. THOMAS. Yes, sir.

Senator MONRONEY. That is not counted as airport construction, but as a navigational aid?

Mr. THOMAS. The approach lights are counted as a navigational aid. Senator MONRONEY. We were talking a while ago, General McKee, about the noise problem of jets, and what you were doing about them. Washington, I know, is vitally interested in the outcome of the first week of the jet service into Washington National. I wish you would tell the committee something about the results of this first week, and about the number of calls you have had expressing approval or disapproval of the jets operating out of this airport.

Mr. MCKEE. As you know, Washington National opened to short-haul jet service on Sunday, April 21. It was a beautiful, sunshiny, warm day with everybody out. I checked at noon with the control center. At noon they had some 14 calls, 12 complaints, and 2 compliments. However, by the end of the day I think it rose to 189 complaints.

Senator MONRONEY. One hundred eight or 109?

Mr. MCKEE. One hundred eighty-nine.

The next day we had, on Monday, 325 complaints, 42 compliments; Tuesday, 127 complaints, 30 compliments; Wednesday, 87 complaints, 9 compliments; Thursday, 20 complaints, 4 compliments; Friday, 88 complaints, 2 compliments; Saturday, 68 complaints, 2 compliments.

Some of the people who called me up said, "I thought you were going to put short-haul jets into that airport and get those old prop jobs like the Connies out." What are you doing with those Connies; they are driving me crazy."

Senator MONRONEY. Have you been able to measure the difference in the noise levels between the old reciprocating engines and the jets?

Mr. MCKEE. As you know, we are monitoring from various locations the noise levels. We haven't gotten the results in yet.

Senator MONRONEY. You haven't any readings yet?

Mr. MCKEE. Not sufficiently accurate to make a determination.

Senator MONRONEY. Do you plan to hold traffic at its present count?

Mr. MCKEE. This is a problem that we have to work out. I am convinced that for the time being, until we work out all the problems—and we also have problems any time you change an operation—we should try to hold the traffic at Washington National to generally its present level. There may be exceptions where it is justified in the public interest. But Mr. Thomas and I are working on that problem currently.

Senator MONRONEY. Could you say it will probably be very difficult to get additional flights into Washington National in addition to those that come in under the formula you are now using?

Mr. MCKEE. You could put additional flights into Washington National if you did it on a time basis, when there is no congestion. But I think that additional flights in the busy periods would make our problem more difficult, and that is the theory we want to work on.

Senator MONRONEY. Would you say that the jets have changed the approach patterns so that a new group of people are hearing the airplanes, as opposed to the past when you had reciprocating engines?

Mr. MCKEE. Mr. Thomas will talk to this problem. He investigated this problem in some detail.

Mr. THOMAS. Mr. Chairman, there have been some changes in the patterns with the jets. First of all, we require them to climb higher before they make their turns than we did the piston aircraft.

Senator MONRONEY. You mean they are higher at the time they make their turn?

Mr. THOMAS. In departing. On arriving we ask them to stay at 2,500 feet as long as possible before they start their descent, and there is no change on landings to the north. The instrument landing system serves runway 36. It governs the track, piston, or jet, and there is no change. The principal change that went into effect late in March, and has been most noticeable, I think, since the jets came in, is when we have south winds and we have a southerly landing.

As you know, the longer runway is 18. It does require some turning to get into it. They try to follow the river. Under visual conditions the pilots are instructed to follow the river. However, the radial that avoids the prohibited area, and most closely aligned with the river, since the river is crooked and the radial is straight and not precisely aligned with it, that we use under poor visibility does bring them over 152° down the river and over some of the populated areas, and we are getting complaints.

We are trying to work out better instrument procedure. However, safety is our first requirement. Under restricted visibility we will have some flying over populated areas.

Where visibility is adequate, we will follow the river.

I think we have had quite a series of south winds, south landings in the last week, some few days of reasonably inclement weather. I think it has been under these conditions that we have received the most complaints.

Senator MONRONEY. Have the pilots and the airlines been cooperating in not using maximum power more than needed in the takeoffs and landings?

Mr. THOMAS. Yes, sir; we have worked with NASA, and took some of our own airline planes down to the highly instrumented range at Wallops Island, and we came out with the best combination of passenger comfort, safety in flight, and noise reduction. The pilots on the jets here make a standard takeoff to 1,500 feet, which completes their takeoff, without any power reduction, at which time this normally brings them up to about Memorial Bridge on the northbound takeoff. They reduce power, then, to a level which will give them adequate speeds and a positive rate of climb of at least 500 feet per minute, under the worse conditions. And they continue that up to 3,000 feet, where they are then given their first turn by air traffic control.

At 3,000 feet—and normally at that time you are high enough that the noise is not too troublesome—we start a standard climb again and a return.

Senator MONRONEY. And you are thoroughly and completely satisfied there has been no compromise with safety in an effort to reduce the noise abatement?

Mr. THOMAS. Yes, sir. I made three of those myself this week on instruments. We have gone over it thoroughly with our experts, and with the airline people. There is absolutely no compromise with safety. It is a very comfortable approach. The speeds are up to 210 knots on the most critical airplane, with a 30° bank, where you have 30 percent overall speed, or a little more than that. It is a very comfortable, safe operation.

Senator MONRONEY. You are satisfied that everything in a safety way is being strictly observed and that what can be done to accommodate the people on the ground to noise levels is being achieved under these safety regulations?

Mr. THOMAS. Yes, sir. Safety first, noise second.

We are trying to get the best relations between the noise and the passenger comfort. We could get a little bit quieter by increasing the deck angles, but it would be very uncomfortable to the passengers.

Senator MONRONEY. It would be more dangerous too, wouldn't it?

Mr. McKEE. Mr. Chairman, I would like to make a statement at this point for the record. When the President asked me a year ago to take this job, one of the first things he said to me after he told me I was to take the job was: "McKee, your first priority is safety, and don't forget that." And, believe me, I have never forgotten it. As long as I will be Administrator there will be no compromise at any time with safety. That is No. 1.

Senator MONRONEY. I am glad to hear you say that. I think everyone who realizes the importance of safety knows that you can't play around with it or trim the edges. You have to do the safe thing in spite of the noise.

In the scheduling of flights, is priority given to daytime flights or nighttime flights for noise abatement?

Mr. THOMAS. At the present time, about 16 percent of the schedules out there are jets.

Senator MONRONEY. About how many?

Mr. THOMAS. I believe it is about 16 percent are pure jets. That is 102 operations. They are all, since 92 percent of the traffic is in essentially the daytime hours, all these jets are scheduled in the daytime hours. They are all scheduled between 7 o'clock in the morning and none are scheduled later than 10. Sometimes they will operate late if they are late out of New York for traffic reasons. Their published schedules are, at the moment, between 7 and 10.

Senator MONRONEY. You intend to hold them to that as much as possible?

Mr. THOMAS. The air carriers have made the schedules. They put the schedules in when the people want to travel. We would like to see the present operation continue until we get a great deal more information on the jets into Washington National than we have now.

Senator MONRONEY. So far you have heard from the people and from your advisers that the noise generated has not been above tolerable limits, that is usually found around airports?

Mr. McKEE. Mr. Chairman, I am an expert on the noise business because I live 5 minutes from the airport, Aurora Hills, in Arlington. I have a wife with highly sensitive ears. Mine are normal. Hers are extra sensitive. I must say that we have been able to tolerate the noise without any undue difficulty.

Senator MONRONEY. Getting back to the bill again, before we go on to the next witnesses, how much have you allocated for general aviation for fiscal 1967? Will this reduction demanded by the budget be taken percentage-wise off of the general aviation set aside?

Mr. MORROW. For 1966 do you mean?

Senator MONRONEY. Yes.

Mr. McKEE. We haven't allocated 1967 yet.

Senator MONRONEY. I know, but 1966 was fully allocated. Did general aviation get their full amount in the—

Mr. McKEE. They got the full amount in current fiscal year.

Mr. THOMAS. We have roughly a quarter of the funds. Perhaps you have the precise figure.

Mr. MORROW. I think you said for fiscal year 1967?

Senator MONRONEY. Yes. The coming year that you are going to make the allocations for, where the budget request has been to reduce it by \$21 million. I am wondering what effect this will have on general aviation.

Mr. McKEE. Assuming that the \$51 million stands, how it will be allocated?

Senator MONRONEY. Yes.

Mr. MORROW. We would propose to proportionately reduce all of the different divisions or breakdowns of the appropriations that have been in effect in the past. This would have the effect of reducing the general aviation discretionary fund to \$4,666,000.

Senator MONRONEY. Under no circumstances would you like to see the general aviation set aside cut out?

Mr. MORROW. Oh, no, sir.

Senator MONRONEY. There have been rumors that the Bureau of the Budget has requested that no money be set aside for general aviation. You have no information on that?

Mr. MORROW. I have no information directed to cut it out. As a matter of fact, in our discussions with the Bureau of the Budget they have made it clear that they did not intend that general aviation airports as such should be omitted from the program, and I think General McKee's reading of the priorities that we will apply indicate that general aviation airports are not out of the program; they are at a lower priority level.

Senator MONRONEY. You mean a lower priority than the metropolitan airports?

Mr. MORROW. Yes, sir.

Senator MONRONEY. They will take a greater cut in their percentage, normal percentage, under the present view of the FAA?

Mr. MORROW. Yes, sir.

Senator MONRONEY. We have such a greater need across the country for this, and we are just now beginning to get the ratio of general aviation airports built that we felt the country needs. To cut them back not only in the amount of the \$21 million reduction proportionately spread over the whole budget, but even more, would be a severity that I don't think the program could take and if we are ever to begin to move forward and meet general aviation needs.

You don't have a solid figure?

Mr. MORROW. No, sir. It would be a proportionate cut.

Senator MONRONEY. It would be a what?

Mr. McKEE. I think we had better get clear. What we are really talking about is a proportionate cut. If you had \$75 million, so much of it generally goes to general aviation, so much to the hub airports and air carrier airports. If it is reduced to \$51 million, the air carrier airports will take a proportionate reduction, as will the general aviation airports.

Senator MONRONEY. In other words they would take a percentage reduction proportionate to the percentage reduction that the air carrier airports would take?

Mr. McKEE. I had better let Mr. Morrow answer that.

Mr. MORROW. I want to first explain that the general aviation discretionary fund for those airports which would relieve congestion at busy air carrier airports would be reduced from \$7 million under the \$75 million appropriation, to \$4,666,000. That earmarking of those funds would remain. Then in the balance of the funds, in the allocation of all of the funds available, they would follow the priority schedule that the Administrator read a moment ago. This would probably result in a percentage of funds going to general aviation airports, a lower percentage of funds for general aviation airports, than has been the case over the past 4 or 5 years.

Senator MONRONEY. That would come out of the discretionary funds and not out of the basic allocation of the \$7 million that was being reduced to \$4,666,000?

Mr. MORROW. In those States which do not use all of their State apportionment, it would probably not change at all. In those States that are discretionary, it would probably result in less funding being available for general aviation airports.

Senator MONRONEY. Has general aviation used up its \$7 million set-aside?

Mr. MORROW. Yes. We have used that. There is very little of that money available for programing at the present time.

Senator MONRONEY. To what extent do you coordinate with the CAB in anticipating airport improvement needs?

Mr. MORROW. We have a very excellent working relationship with the CAB, at the present time. Before we sent out the instructions for preparing the National Airport plan, we coordinate these instructions, get the views of the CAB, as to what information should be included in the National Airport plan, in the light of their knowledge of air-line developments.

We also coordinate with the CAB on all requests for Federal aid that are submitted on air carrier airports. We ask them to advise us of the use-it-or-lose-it status, or the temporary status, or the future likelihood of the permanency of the service at these airports. And also they submit their views on the priority of consideration of the projects submitted to them, which is the most critical in their view.

And they advise us of any anticipated change in plans that they may have knowledge of.

Senator MONRONEY. One final question. Assuming that the Department of Transportation is approved and the administration of the airport program is transferred to the Department of Transportation, what advantage, if any, would accrue?

Mr. McKEE. As I see it, Mr. Chairman, if the Department of Transportation is approved and these funds are transferred to the Secretary, from all the testimony I have read and from all my conversations with key members of the administration involved it wouldn't make any significant difference in terms of the allocations to airports because the present job that the FAA has, its functions would be redelegate by the Secretary to the Administrator of the Federal Aviation Agency and carried out very much in the same manner that they are carried out today.

Senator MONRONEY. In other words you wouldn't think that the Department—

Mr. McKEE. As to any improvement, you might get some more support from a Cabinet-level officer who could get in there and help you fight for it.

Senator MONRONEY. Providing he was willing to go along with aviation instead of the Budget Bureau.

Mr. McKEE. I would assume he would go along with aviation.

Senator MONRONEY. What would the Department do better than the FAA is not doing or cannot do today?

Mr. McKEE. I am not in position at this time, in looking at the status of the Department of Transportation, to answer that question specifically. Certainly he would be able to coordinate the programs in the FAA with other important programs in the transportation area. So I would hope at a minimum that it would improve the operation. Certainly it wouldn't hurt the operation in my opinion.

Senator MONRONEY. Senator Cannon, do you have any further questions?

Senator CANNON. No; I have no further questions.

Senator MONRONEY. Thank you very much for your great help, Mr. McKee, and to the members of your staff who helped on this. We will study this testimony and we may want to call you back before we finally report the bill.

(The following information was subsequently received:)

FEDERAL AVIATION AGENCY,
OFFICE OF THE ADMINISTRATOR,
Washington, D.C., May 9, 1966.

HON. A. S. MIKE MONRONEY,
Chairman, Aviation Subcommittee, Committee on Commerce, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: Enclosed are tables providing some of the information you requested for the record during our appearance before your committee on the extension of FAAP.

The first table shows FY 1966 allocations of FAAP funds broken down by airport type. The second table shows the number of airports which are receiving FAAP funds for the first time in FY 1966 broken down into new airports and existing airports.

You also asked what percentage of the total funds spent at hub airports are FAAP funds. Inasmuch as the operators of these airports do not furnish us with the total amounts they spend from all sources, we are not able to state what percentage of the total are FAAP funds.

Sincerely,

(Signed) WILLIAM F. MCKEE,
Administrator.

Allocations, fiscal year 1966, updated through March 31, 1966

Type of Airport	Airports		Federal funds	
	Number	Percent of total	Amount	Percent of total
Airports used by air carriers (trunk and local service).....	198	42.1	Millions \$68.2	74.0
Airports used by general aviation only:				
(a) Reliever for air carrier.....	48	10.2	10.1	10.9
(b) Air taxi.....	133	28.3	7.8	8.5
(c) Other.....	91	19.4	6.0	6.6
Total.....	470	100.0	92.1	100.0

*Fiscal year 1966 airports receiving FAAP allocations for first time as of
March 31, 1966*

	Number	Federal funds
New airports.....	80	<i>Millions</i> \$9.4
Existing airports.....	32	1.5
Totals.....	112	\$10.9

Senator MONRONEY. Our next witness is Mr. John W. Dregge, Director, Office of Community and Congressional Relations of the Civil Aeronautics Board. Mr. Dregge, we welcome you. We appreciate your appearance. You may introduce those accompanying you at the witness table.

STATEMENT OF JOHN W. DREGGE, DIRECTOR, OFFICE OF COMMUNITY AND CONGRESSIONAL RELATIONS, CIVIL AERONAUTICS BOARD; ACCOMPANIED BY O. D. OZMENT, DEPUTY GENERAL COUNSEL OF THE CIVIL AERONAUTICS BOARD; ROBERT L. FROMAN, ASSISTANT TO THE DIRECTOR, BUREAU OF SAFETY; AND FORRIS M. HOLLOWELL, OF THE BUREAU OF SAFETY

Mr. DREGGE. Mr. Chairman, first may I offer Chairman Murphy's apologies for not appearing this morning. He had another appointment, an obligation that he couldn't switch.

Accompanying me this morning are Mr. O. D. Ozment, Deputy General Counsel of the Civil Aeronautics Board; Mr. Robert L. Froman, Assistant Director, Bureau of Safety; and Mr. Forris M. Hollowell, of the Bureau of Safety.

Senator MONRONEY. We are happy to have them with you. You may proceed in your own way.

Mr. DREGGE. Thank you, sir.

Mr. Chairman and members of the committee, this statement has been approved by the Civil Aeronautics Board and is as follows:

The Civil Aeronautics Board appreciates this opportunity to present its views in support of S. 3096, which would extend the time for making grants under the Federal Airport Act.

S. 3096, which was introduced at the request of the Federal Aviation Agency, would extend the appropriation authority under the Federal Airport Act, expiring on June 30, 1967, for an additional 3 years at the existing level of \$75 million per annum. Special funds of \$7 million a year for the development of general aviation airports and \$1.5 million a year for Hawaii, Puerto Rico, and the Virgin Islands would be continued. No other substantive changes would be made in the act.

The Board's interest in the legislation arises out of its general advisory function under the Federal Airport Act, and its responsibility for the promotion of air safety under the Federal Aviation Act of 1958.

It is the opinion of the Board that there is a continuing need for the improvement of airport facilities. Piston aircraft are being re-

placed by jets at many airports. In many instances, runways will have to be lengthened and other improvements and repairs will be required in order to accommodate the jets on a continuing basis.

Expected increases in traffic and in air carrier fleets suggest further that improvements at so-called satellite airports may be required to adequately serve major metropolitan centers. Moreover, increased attention will have to be given to the installation of certain landing aids, such as in-runway lighting and distance markers as a factor in airport safety.

The Board believes that there is a particular need for continuation of the special fund for the development of general aviation airports. The greatest percentage increase in air traffic activity over the past 10 years has occurred in the field of general aviation. This increased activity has diminished the ability of large hub airports to accept additional air carrier traffic. It is most important, therefore, that greater emphasis be placed on the development of additional airports to serve general aviation, and on the improvement of existing general aviation airports in the larger metropolitan areas.

These airports should be equipped with facilities adequate for the needs of general aviation to the extent permitted by the Federal Airport Act in order that congestion at high-density airports may be relieved and the safety and efficiency of operation of these latter airports improved.

In view of the foregoing, the Board recommends enactment of S. 3096.

Senator MONRONEY. Thank you, Mr. Dregge. In other words, the Board is thoroughly in agreement that the \$75 million per year is a minimum that we need to spend as Federal matching funds for the 3-year ensuing period?

Mr. DREGGE. That's correct; yes.

Senator MONRONEY. And that the \$7 million set-aside should not be reduced?

Mr. DREGGE. Very definitely.

Senator MONRONEY. You concur in the testimony that you heard from the Federal Aviation Agency with reference to the expansion of requirements for jet service. Can you give us any figures on how many new communities you expect to give jet service to in the coming year?

Mr. DREGGE. No, sir; we do not have those figures as yet. The schedules have not all been published.

As you know, there is an increased procurement of jet aircraft that will be continuing through the year. However, with local service carriers acquiring the smaller family of jets, there is no doubt that there will be a requirement for improvement of many airports.

Senator MONRONEY. In other words, this would be true both on the pure jets and on the turbine-powered conversions as well?

Mr. DREGGE. Yes.

Senator MONRONEY. About how many in number, do you estimate?

Mr. DREGGE. I don't have the figure at hand, but we can furnish that to you for the record. However, I think it is a well-known fact that there will be more turbine-powered turbojet aircraft required in 1966 than in any previous year.

(The following information was received:)

Local service air carriers—Number of aircraft available for service at December 31, 1965

Aircraft type	Total	Carrier												
		Allegheny	Bo-nanza	Central	Frontier	Lake Central	Mo-hawk	North Central	Ozark	Pacific	Piedmont	Southern	Trans-Texas	West Coast
TURBOFAN:	5						5							
British Aircraft Corp. BAC-1-11.....	1		1											
Douglas DC-9.....														
TURBOPROP:	2			2	14									
Convair:	19	5												
CV-440.....														
CV-580.....														
Fairchild:	7	7												
F-27.....	48		14											
Piston:	6					6								10
Nord: N-262.....														
PISTON:	51													
Convair:	86	21		8	2	8	18	28				25		
CV-340/440.....														
Martin:	15	15												
M-202.....														
M-404.....	77													
Douglas DC-3.....	119			14	10	16			15	9	27	26	14	9
Totals.....	416	48	15	24	26	30	30	45	43	18	85	40	43	19

Source: CAB Form 41 Reports.

Local service air carriers—Number of aircraft on order at December 31, 1965

Aircraft type	Total	Carrier												
		Allegheny	Bonanza	Central	Frontier	Lake Central	Mohawk	North Central	Ozark	Pacific	Piedmont	Southern	Trans-Texas	West Coast
TURBOPAN:														
Boeing B-737.....	4												4	
British Aircraft Corp. BAC-1-11.....	2										2			
Douglas.....	6	1	2											
DC-9-40.....	8	3											3	
TURBOPROP:														
Convair.....														
CV-600.....	10			10										
CV-580.....	6	5			1									
Fairchild.....	39										18			
FH-227.....	3	3												
F-27J.....	6										6			
Nord N-262.....														
Totals.....	84	12	2	10	1	6	20	5	24	4				

¹ CV-240/340/440 airframe conversions to CV-580 or CV-600 either in process or for which contract arrangements have been made at 12/31/65. Source: CAB Form 41 Reports.

Senator MONRONEY. Most of the DC-3's and older prop-driven aircraft, reciprocating engines, will be retired and the conversions of the Convairs or the F-27's or other new turbine-powered aircraft from abroad will be found in many of the fleets of the local service carriers?

Mr. DREGGE. That is correct, sir. We estimate that by 1966, by the end of 1966, there will be only 59 two-engine piston aircraft in the domestic trunkline system.

Senator MONRONEY. In the domestic trunkline system?

Mr. DREGGE. In the domestic trunkline system.

Senator MONRONEY. Fifty-nine?

Mr. DREGGE. Yes.

By the end of 1967 we estimate that there will be only 50.

Senator MONRONEY. This is trunk you are giving me?

Mr. DREGGE. Trunkline; yes. I do not have the local service carrier figures here.

Senator MONRONEY. Their replacement of reciprocating equipment is going up rather rapidly, isn't it?

Mr. DREGGE. It is very definitely. Not only with the acquisition of the small jets but with the conversion of some of the Convairs and Martins to turboprop engines.

Senator MONRONEY. Isn't it a fact that generally your safety people at CAB assign a figure somewhere around two-thirds of the accidents in aviation happening within the vicinity of the airport?

Mr. DREGGE. I will defer to Mr. Froman on that question, if I may.

Mr. FROMAN. Mr. Chairman, it is approximately 50 percent on or in the vicinity of the airport.

Senator MONRONEY. So the airport factor in aviation safety is at least 50 percent of the safety component?

Mr. FROMAN. Yes.

Senator MONRONEY. Any diminution or slackening off of adequate airports with adequate runway lengths, cleared approach zones and otherwise, would be a detriment to air safety?

Mr. FROMAN. Yes, sir.

Senator MONRONEY. Both in the trunks and in the field.

Mr. FROMAN. Yes.

Senator MONRONEY. The trunkline centers that they serve have generally modernized their airports, but the smaller communities have not yet been taken care of; is that correct?

Mr. FROMAN. Mr. Chairman, this is correct.

There is also a problem insofar as efficiency. For airports that are not properly equipped the traveling public must pay a penalty inasmuch as safety factors are injected into the operation which consume a great deal of time—in many cases landing at other airports rather than the airport of destination. So from the standpoint of efficiency and safety, such a program is essential.

Senator MONRONEY. It would be highly doubtful that the CAB would certify new service into local service points where the airports would be served by jet equipment and the runway lengths and the structure of the runways had not been beefed up to meet the new standards?

Mr. FROMAN. Mr. Chairman, the CAB issues the authorization to serve the point. However, the actual authorization to utilize the air-

port is covered in the carrier's operating certificate. This is under the jurisdiction of the FAA, and I am sure that they would not authorize a carrier to use an airport that did not have adequate facilities.

Senator MONRONEY. Isn't it rather doubtful, though, that you would certify or make a certificate valid if a local airport wasn't of sufficient size to accommodate the equipment proposed to be used?

Mr. DREGGE. Mr. Chairman, if I may answer that with a specific example. It is in Senator Cannon's territory, and I am sure he is very familiar with it.

We have a case involving service to Lake Tahoe which serves the California and Nevada area. There has been a stipulation filed by all parties—and the air carrier and the local community recently—that they will approve the use of 727 aircraft to serve that, but it will probably be weight limited.

In other words, if certification is accomplished by the Board, and it is served by jets, it will have to have a weight limit on it, which will be a penalty in their operation.

They state at the conclusion of that stipulation that Pacific Airlines, the participating party, cannot be expected to continue that operation forever, which means that there will have to be an improvement to the airport, an improvement in navigational aids, to accompany that.

Senator MONRONEY. By your statement the Board's position is that there is a continuing need for improvement of airport facilities and that the responsibility for the promotion of air safety under the Federal Aviation Act is necessary to have the most safe facilities for landing that could be made available.

Mr. DREGGE. That is correct, sir.

Senator MONRONEY. And 50 percent of the accidents are within the landing area.

Mr. DREGGE. That's right, sir.

Senator MONRONEY. So the best way to improve air safety is to work on this block safety factor where the plane landing or taking off would require the best possible facilities available.

Mr. DREGGE. Yes.

Senator MONRONEY. And the jet conversions and also to the turbo-powered jets have required a vast modernization of our airport system, particularly to the intermediate- or medium-sized towns.

Mr. DREGGE. That's correct, sir. And I think that it should be remembered that where we are talking about improving a particular point, in order to accommodate the more modern equipment that we have, that we are not only facilitating service to that point but it is over a series of points. All air carriers operate from a terminal to another terminal, and the local carriers, especially, serve the intermediate points.

If one point in that system does not have an adequate airport to take the more modern equipment, it means that that whole segment is going to have to suffer. We have segments today that are still taking DC-3 operations because one point on the route will not accommodate any larger aircraft than a DC-3.

Senator MONRONEY. Since the CAB must assume the responsibility to insure adequate air service, and the adequacies of air service you have just mentioned depends to a great extent in this changing equip-

ment era on adequacies of air service, to what extent does the CAB offer advice and recommendations to the FAA on airport improvement needs? Do you have a formal procedure or is this procedure informally discussed?

Mr. DREGGE. It is usually on the basis of informal contacts between the CAB and the FAA. We work very closely with them.

In a recent case involving service to Columbia and Jefferson City, Mo., airports had to be improved at Jefferson City and at Columbia. However, there was a case involving the possibility of a single airport to serve the two cities. That case has been resolved and the Board determined that service should be rendered through a single airport.

The FAA held up, on the advice of the CAB, any appropriation to improve the individual city airports until the case was decided, and then they went forward with their allocation of funds for the new airport.

Senator MONRONEY. A lot of places, it seems to me, the CAB would have difficulty in certifying improved service into airports where the FAA would say it was completely hopeless to anticipate within the next 2 or 3 years the modernization and improvement of the airport to accept the higher powered and faster equipment. Do you have a chance to notify them that this one airport might deny a whole route structure the new service?

Mr. DREGGE. Yes. We discuss that with them and our Bureau of Operating Rights and the Airport Services of the FAA are working very closely on that sort of a problem.

Senator MONRONEY. Would you not say that with the rapidly expanding, superior equipment that is coming in, that it is absolutely futile to talk about diminishing the Federal Government's participation in the airport construction program?

Mr. DREGGE. Very definitely, sir. I think that it is essential to the continuation of adequate air service.

Senator MONRONEY. And that deep cuts in the general aviation budget, and the \$7 million special fund, would be apt to overcrowd our present hub airports because it would offer no alternative airports for general aviation to use, and it would also diminish the rapid expansion that has been going on in the past through this set-aside of spreading airports throughout the country where they have never had them before, to give local service to many, many towns that would not otherwise have even general aviation.

Mr. DREGGE. I think that is very true, sir. General aviation is, after all, a most important adjunct to our overall air transportation system. It feeds into the air carrier system, as well as providing service for the general aviation public.

Senator MONRONEY. You now have an authorized level, do you not, of air taxi service that can fly scheduled runs into these general aviation airports and serve them?

Mr. DREGGE. Yes, and the Board is encouraging the scheduled air taxi operators to the greatest possible extent.

Senator MONRONEY. How much success have you had in flying the regional airport concept? What are the specific cases in which you have been successful?

Mr. DREGGE. There have been a good many cases where it has worked out very successfully. Some of the specific ones recently, we have had

agreement reached by the communities of Powell and Cody, Wyo., where they have agreed jointly to receive service through a single airport. The *Columbia-Jefferson City* case that I mentioned is another. *Greensboro-High Point-Winston Salem* is another case in point.

The Board has dealt with these on a specific case basis, although they have the general regional airport policy. They do not apply that indiscriminately without complete study.

Senator MONRONEY. How many of these cases that you have attempted to get regional airports for have failed? There have been several examples of that, where towns don't wish to lose the prestige of having their own airport?

Mr. DREGGE. Probably the most notable of those was a case called the *Eastern North Carolina* case, where they proposed to have a single airport to serve the communities of Rocky Mount, Kinston, and Goldsboro. The Board decided that these communities should retain their service.

In a recent case, in Wisconsin, involving cities in Wisconsin, the Board decided that service should be rendered through single airports at Clintonville-Green Bay, Appleton-Oshkosh, Ashland-Ironwood, and Marshfield-Wausau.

Senator MONRONEY. Senator Cannon?

Senator CANNON. Colonel Dregge, how many applications did the Board grant last year that involved service to new airports, that is, to airports that had previously not had schedules? If you don't have that, perhaps you would like to supply it for the record.

Mr. DREGGE. I don't have it. But it is my recollection that there were no new cases—no new points certified last year.

Senator CANNON. Do you know whether or not there are pending applications before the Board now that would involve service to airports that are not presently served?

Mr. DREGGE. There is one that I recall definitely, and that is the service between Los Angeles and Hawthorne, Nev., where the Board has set down for hearing an application by a present air taxi operator who is applying for certification. The service is not rendered to Hawthorne.

Also, there is an application for certification for service between Denver and Aspen, Colo., by an air taxi operator.

The latest case that I know of where there was not even an airport established was a case involving service to Steamboat Springs, Hayden, Craig in Colorado, which the Board certified Frontier to serve, and the airport is being built there.

Senator CANNON. So that it would be fair to assume that as time goes on, we will have more airports coming into this system that will have scheduled service of some sort?

Mr. DREGGE. It is possible, sir, although I think that our air service pattern is fairly well formulated at the present time. I think there will be a reduced number of new certifications.

Senator CANNON. And of course many of these that are new airports, or let's say that are new service applications, actually are going into or proposing to go into airports that have been assisted under the act up to the present time, under the general aviation program.

Mr. DREGGE. Yes, sir; very definitely.

Senator CANNON. Thank you, Mr. Chairman.

Senator MONRONEY. Thank you very much, Senator Cannon.

We appreciate your appearance here with your colleagues very much, Colonel Dregge.

Mr. DREGGE. Thank you, Mr. Chairman.

Senator MONRONEY. Our next witness is Mr. E. Thomas Burnard, executive vice president of the Airport Operators Council, International. Mr. Burnard has been an early-day crusader for many years. He is familiar thoroughly with the problems of the airport operators.

We are delighted to have you appear, Mr. Burnard, on behalf of the bill S. 3096.

STATEMENT OF E. THOMAS BURNARD, EXECUTIVE VICE PRESIDENT, AIRPORT OPERATORS COUNCIL, INTERNATIONAL; ACCOMPANIED BY J. J. CORBETT, DIRECTOR OF MANAGEMENT SERVICES, AIRPORT OPERATORS COUNCIL, INTERNATIONAL, WASHINGTON, D.C.

Mr. BURNARD. Thank you very much, Mr. Chairman. It is always a pleasure to appear before your committee.

Mr. Chairman, I have with me today J. J. Corbett, director of management services for the Airport Operators Council, International, in addition to myself. Depending on your time, I can either give you the highlights of our statement or I can go through it for you.

Senator MONRONEY. This is so important I think you had better go through the statement.

Mr. BURNARD. Yes, sir.

Senator MONRONEY. It is of prime importance, and you should give the full statement. It is not long.

Mr. BURNARD. Thank you, Mr. Chairman.

I am E. Thomas Burnard, executive vice president of the Airport Operators Council International (AOCI), a nonprofit association of the organizations and public agencies which own or operate the principal airports of the 50 States and Puerto Rico, as well as some abroad. In 1965, U.S. member airports enplaned 90 percent of the domestic and all of the international scheduled airline passengers. In addition, our members operate many general aviation airports which supplement the larger airports in their communities and regions.

The local, State, and county U.S. members of the council, whose views this statement represents, are grateful for this opportunity to support S. 3096, a bill to extend the Federal Airport Act. The act, which has authorized grant-in-aid appropriations for the construction and improvement of U.S. public airports since its enactment in 1946, must be extended once again if the airport—the essential ground element of the National Aviation System—is to keep in step with growth and technological developments of aviation.

Mr. Chairman, our statement will be brief. We know of, and greatly appreciate, this subcommittee's past support for the Federal aid to airports program and its awareness of the present necessity for continuing it.

We believe that among the most compelling and urgent reasons for the continuation of the Federal airport program are the following:

First. The air traffic growth in the United States continues unabated. Aircraft operations at airports with FAA control towers have increased 70 percent in the last decade and are forecast to increase 60 percent in the next 6 years.

Second. Airport capacity must be kept in balance with (a) airway capacity, (b) the technological developments in aeronautics, and (c) the ever-increasing air transportation needs of the Nation.

Third. The capital investment needed to bring the airport facilities up to the present and future requirements of the National Aviation System is far beyond the capabilities of the local communities to produce unless the Federal Government continues to contribute its fair share.

Fourth. Stability in civil airport development and in the orderly development of aviation will be lost unless S. 3096, or one with similar purpose and intent, becomes law in this session.

Growth requires capacity, capacity requires a share of investment, investment requires stability, and stability requires a continued Federal aid to airports program.

With respect to growth: Let me merely point out for the record that the airlines have had a 14-percent average growth per year during the last 15 years making air transportation the fastest growing industry in the country. Runnerup was public utilities with 8.4 percent and the U.S. gross national product has been 3.7 percent.

The first quarter of 1966 was 22 percent above the first quarter of last year, and March of this year was 28 percent ahead, which indicates that not only have we had a continuous fast growth for several decades, but that the growth is being accelerated now.

Cargo was up 25 percent in 1965 over 1964 and 38 percent over 1955.

During the next 10 years \$13.7 billion worth of airline airplanes will be bought by U.S. carriers.

General aviation aircraft—the fastest growing element of aviation—will go from 97,300 in 1965 to at least 125,000 by 1975.

More than 160 million people got on or off airplanes last year, and for every thousand passengers now using U.S. airports there will be 1,700 in 1971, and over 2,000 in 1975.

For every thousand aircraft operations at U.S. airports today, there will be 1,600 in 1971, and more than 2,000 in 1975.

General aviation will represent 77 percent of total U.S. aircraft operations by 1971.

This growth means that airport capacity must drastically expand. This will take the form of more runways, taxiways, ramps, and bigger terminal facilities at existing airports; additional airports to serve the larger metropolitan areas where one, two, three, or more airports now exist; and new and expanded airports to supplement and replace airports at the medium and smaller size communities, which will be receiving the small jet in the near future.

It means that an additional capacity and reliability must be built into the system of air navigation, traffic control, approach and land-

ing aids and procedures to assure that the air space capacity and the airport capacity grow and expand together in an orderly fashion.

Increased airport capacity means just that: The ability to handle more aircraft on the landing area and ramps, and more people and goods in the terminal area. This task alone will tax the resources of most communities to the utmost. Increasing airport capacity will involve the expenditure of billions of dollars for additional runways, taxiways, ramps, new and expanded passenger terminals, and cargo terminals, as well as whole new airports. Land acquisition in large quantities will be needed for these additional facilities. However, increased capacity does not mean—and should not imply—land acquisition for noise abatement purposes.

It means that higher volumes of aircraft, generating higher levels of power and thrust, must not render intolerable the habitation and use of land near airports or enroute.

This committee wisely stated in its 1959 report on the Federal Airport Act that “* * * it is time that aircraft be designed to fit the airport system and not vice versa.” But the committee’s recommendations to the executive branch were not and have not yet been carried out.

The subsonic jet of 1958–59 brought not only a jump of 50 percent in the speed and payload of the aircraft, but it also brought runway extensions of 25 percent to 40 percent, plus a need for larger clear zones and expanded approaches at the ends of these runways. The airport had once again been modified to fit the airplane. The stretched subsonic aircraft due to arrive on the runways this summer may cause runway stress and noise problems of a degree never before experienced.

I might add at the smaller airports when the new jets of the smaller family come in there, the same types of problems will arise but on a lesser scale.

And unless prompt steps are taken by the Federal Government to control the aircraft characteristics, the Jumbos and SST’s, relating to runway length, pavement stress, and aircraft noise, then airport capacity can never be intelligently planned or reasonably financed.

Airport operators have been greatly encouraged by President Johnson’s official recognition of the aircraft noise problem as one which requires a Federal solution, and by the work of Dr. Donald Hornig in the White House Office of Science and Technology as well as by Administrator William F. McKee of the Federal Aviation Agency in this regard.

The fundamental solution to the noise problem and to the airport/aircraft compatibility problem—both of which produce local and Federal capital investment problems—lies ultimately in the Congress which must give the necessary authority and financial support to the agencies.

I would like to say that we have been particularly heartened by the work of Administrator McKee. He reported here this morning a number of things he has done in connection with both noise and airport compatibility in terms of letters to the manufacturers and an awareness of the problem which hasn’t previously been officially recognized to the degree he has recognized it.

However, I do want to point this out: The work of the FAA to date in this field has been on what one might call a voluntary and coopera-

tive basis. The problem of airport operators and the Federal Government—being able to predict future needs—is based on the fact that cooperation alone, voluntary cooperation alone, in the past, has not been adequate to hold this problem within reasonable terms.

We urge that this committee support constructive proposals which we believe will be forthcoming in the next future.

Investment: With respect to investment, a great many of the public agencies and organizations which own or operate airports of the United States sincerely wish that these airports could be entirely self-supporting—that no subsidy would be needed from local communities, States, or the Federal Government; that the burdensome regulations of the Federal Aviation Agency applicable to Federal aid to airports program grants could be dispensed with, and that revenues from airport users would be sufficient for airport operation and normal expansion. But that time has not yet come and, unfortunately, we do not see it coming in the near future.

The capital expenditures which will be required to produce the airport capacity needed during the next 5-year period are greatly in excess of the State and local funds which will be available. Capital expenditures have been so great in the past and will continue at a rate so high into the future that the U.S. communities which operate public airports generally are not able to produce sufficient revenues from airport users and tenants to operate and maintain their airports, to retire past debts, and to finance new developments. Until such time as airports reach a period of stability in capital investment requirements—we see no natural end to the need for State and Federal programs to assist local airport development.

The 1965 National Airport Survey conducted by the Airport Operators Council in conjunction with the American Association of Airport Executives and the National Association of State Aviation Officials, which another witness will describe in detail tomorrow morning, shows a need for a \$2 billion airport development program by 1970. After local and State funds are taken into account, over \$150 million in Federal funds will be needed in each of the next 4 years just to maintain airport capacity to meet growth demands.

Noise and technological changes could add substantially more.

Unless the Federal Government contributes its fair share, the national airport system will become the bottleneck of future air transportation in this country.

Stability: No one knows better than the chairman of this committee the critical period our national system of airports has gone through since 1946 because Federal assistance has been too little and too late.

The airport system suffered almost disastrously in the early fifties from widely vacillating Federal financial support from year to year. Then, when a modest 4-year program was instituted in the middle fifties, the jet age imposed huge new requirements on the system.

It has been an uphill battle to get the present \$75 million per year, which is proposed to be continued for the next 3 years by S. 3096. I believe we all know that this should be doubled to meet the demonstrated need. As previously noted, the 1965 national airport survey conservatively indicates a need for Federal assistance in airport construction approximately \$157 million per year. FAA's own 1966

national airport plan lists eligible projects for airport construction and improvement totaling \$1.28 billion over the next 5 years. I was interested to hear the FAA witnesses this morning indicate that they themselves consider this conservative, and we consider it very conservative.

We are realistic enough to recognize that the Congress is faced with the demands for defense funds and broad new social programs. We believe, however, that the national aviation system—the fastest growing and one of the most important parts of the national transportation system being developed under the leadership of President Johnson—can be seriously jeopardized by failure to insure that airport development keeps pace with the technological developments, the growth, and the other federally financed developments in aviation and air safety.

Our U.S. members believe that the national system of airports should be second to none in the world in terms of landing facilities, and passenger and cargo terminals, and that the Federal investment in airports should be consistent with the Federal financial investment in highways, and other mass transportation programs.

Even \$150 million per year won't begin to do the job if the characteristics of the aircraft require that extensive runway extensions and property interest acquisitions be made beyond the boundary of the present airports for safety and noise abatement purposes. Mr. Chairman, with a 5-year continuation of the Federal Airport Act at a high level of annual appropriations, the public airports of the United States will more closely approach the statutory goal of "adequacy" for today and for tomorrow.

We request that this important committee give its support to achieve this goal.

Thank you.

Senator MONRONEY. Thank you very much, Mr. Burnard, for your statement on behalf of the Airport Operators Council International.

Knowing the type of aircraft that are coming into the fleet, the expansion of these aircraft over the local service routes into areas where only DC-3's dared penetrate before, wouldn't you say that viewing both the metropolitan airport and the intermediate city airport, that we face genuinely a year of crises in our airport needs and to ignore this vast requirement that is upcoming would be disastrous to aviation, aviation safety, and further development?

Mr. BURNARD. Yes, Mr. Chairman, we agree with you heartily in that statement. I think it can be said that the crisis today for the medium and smaller sized airports which are facing the jet age is about the same proportion if not a little higher than that faced by the larger airports in 1957 and 1958.

Senator MONRONEY. And had we not gone forward then, to prepare for the jet age, we would have had to limit traffic and deny the passengers the right to have convenient schedules and adequacy of service.

Mr. BURNARD. And more than that, Mr. Chairman, we would have denied the Nation the benefits of air transportation and its addition to the gross national product and the economy of our Nation.

Senator MONRONEY. While we are having hearings on the extension for 3 years of the Federal Aid to Airport Act at a recommended

figure of \$75 million coming from the administration, we are faced with an immediate request for a freezing of \$21 million of airport funds for the coming year's allocation, which would drastically postpone the inauguration or initiation of many desirable airport projects because of the lack of adequate Federal matching money. Is that not correct?

Mr. BURNARD. Yes, sir; it surely is. And although we are acutely aware of the defense needs of the Nation and some of the other problems that our administration must face, we think that it would be shortchanging the taxpayers of the Nation if they were to try to cut down on this particular program at this particular time because the ramifications into the future will be so great and so disastrous to the economy that the relatively few dollars of economy today would be very poor judgment in our opinion.

Senator MONRONEY. And the lack of an adequate amount of Federal funds to match the bond issue money raised by the local communities would result in postponing these bond issues and plans and designs for adequately meeting the needs that are here today.

Mr. BURNARD. Yes, sir. And as I am sure you well know, it is hard enough for local communities to find the funds for airport development which are competing strongly with the desire for funds for hospitals, sewers, bridges, parks, and all the rest of it. If we were to slow the momentum at the moment that a certain amount of stability has been gained in the program in recent years, it would set the program back, and aviation and the country back, considerably, we believe.

Senator MONRONEY. You know from past experience that when there has been the availability of matching Federal funds it has helped people pass the local bond issues. If they had to do it alone there would be very few bond issues to provide the funds for expansion, enlargement, or modernization of their local airports. It would be very discouraging to them.

On air safety, I know you are a strong believer in the beneficial effect of an airport that is adequate and well lighted.

Would you not say this is one of the most important safety factors we could add to the high-performance aircraft to the intermediate-sized communities?

Mr. BURNARD. Yes, sir; and as I said in the statement, the increase in airport capacity must be kept in balance with the increased airspace capacity. Together they insure the safety of aviation and air transportation in this country.

Senator MONRONEY. The best way to separate air traffic is to have more and better airports so that they can operate without overcrowding or overjamming the airways and the air traffic control system.

Mr. BURNARD. Additional airport capacity would not only improve the safety margin but it would decrease the delays that are inherent in overcongested or congested airports and airways.

Senator MONRONEY. As you point out on page 2, you say the airlines have had a 14-percent average growth per year in the last 15 years, and public utilities were second with 8.4 percent, and the growth of the U. S. gross national product has been 3.7 percent. All of this air traffic which has been clearly outlined is indicative that you must have greater

and better facilities for carrying on the takeoffs and landings for this volume, which you predict on page 3, of increasing general aviation by 77 percent—general aviation will represent 77 percent of the total U.S. aircraft operations by 1971, and for every thousand passengers now using U.S. airports, by the year 1975 over 2,000 will use it.

We must get ready for this massive growth that inevitably is going to occur to ready our entire nationwide airport system and the capability of accommodating them.

Mr. BURNARD. That is correct. I am not even sure that the forecasters are optimistic enough. It is astounding to us in day-to-day operations how much increase there has been in traffic in the first 3 months of this year. And certainly within the last year.

Some of our airports are reporting increases of as much as 30 percent the first quarter over the first quarter of last year.

The business seems to be exploding. It is almost impossible to keep up.

Senator MONRONEY. As a matter of fact the airplanes outdistance the railroads in traffic, and the buslines, everything except the individually owned passenger cars, for carrying the mass of passenger traffic. On top of that we have the new bulge of aircargo that is coming up, plus the record growth of the privately owned plane and the general aviation fleet.

So all three require a greater expansion of our airport needs. Yet we are asked to cut back by \$21 million on next year's appropriations for the Federal matching funds.

Can you give the committee some idea of how long it takes for a community to generate the necessary local support and the voting of bond issues, or other financing, to match Federal funds? In other words, an interruption of a year of adequate funds would delay perhaps for 5 years the construction of an adequate airport.

Mr. BURNARD. Yes, sir; I would be happy to do that. First let me say that a major improvement item such as a new runway at a major metropolitan airport will require anywhere from 4 to 10 years from the time the idea is first explored to when the runway or the major improvement can be completed. This is because it requires a great deal of detailed research into capacity requirements, detailed investigation into the physical capability of building the improvement, and when these preliminary decisions are reached, then the financial requirements must be incorporated into the local capital budget program.

These budget programs, as I mentioned earlier, for most communities, do involve many important community facilities and services other than airports, so that airports have to take their place in community planning along with the other facilities.

It may be several times that the airport director will have to present his proposed budget to the city council or to the administrative body before he can get an approval of it in the budget and then the financing locally generally takes several years. It gets to be a pretty long-drawn-out project. The leadtime is considerably longer than most people think.

Senator MONRONEY. One of the strong points Mr. Dregge made was to point out that one airport on a segment of an airline that is incap-

ble of being enlarged or being made ready for jet service can block out a whole segment to be flown by an airline because they couldn't complete the schedules into that area because of the denial of funds to modernize one while the others may have already completed theirs.

Mr. BURNARD. Yes, sir. There is no question but that the scheduling of aircraft by an airline is a very complex matter and the service to many communities can be affected if the airline cannot put a particular type of airplane on a particular route segment in order to give both economy and efficiency to the airline and service to the public.

Senator MONRONEY. Do you also agree that it would be very dangerous to general aviation to reduce the \$7 million figure that we have been earmarking for improvement of general aviation airports?

Mr. BURNARD. Because general aviation is the fastest growing element within the aviation community, and because the major metropolitan areas do have to find more airport capacity both for general aviation and for air carriers, the amount of money available for general aviation must continue to be at a reasonably high level.

Senator MONRONEY. And any reduction below the \$7 million would be spreading it too thin to meet the ever-increasing needs for this; is that not a fact?

Mr. BURNARD. Yes, sir. And as to the proportion of the \$7 million to the \$75 million, I don't think it has ever been made really clear whether it is the right proportion or not. It is a workable proportion and it should continue in the foreseeable future—the immediately foreseeable future.

Senator MONRONEY. As representative of the Airport Operators Council, is it not also a fact that the only way overcongestion might be relieved at some of our busier airports is not to keep the private pilots with their smaller planes off the metropolitan airports and airline airports but to furnish a better airport which they could use for general aviation exclusively?

Mr. BURNARD. This would help the congestion problem in a great many places.

One of the problems of congestion in major metropolitan areas, however, is that many of the general aviation-type aircraft, particularly the corporate type, want to use the same airport that the air carrier aircraft use because of interconnecting traffic. So that although a proportion of general aviation will no doubt have to continue to use what are generally called air carrier type airports for a considerable time in the future, the aircraft which are not interconnecting with air carrier aircraft could be siphoned off into exclusively general aviation airports to relieve both the air space congestion as well as the airport congestion.

Senator MONRONEY. And relieve the air traffic control system of unusual burdens.

Mr. BURNARD. Yes, sir.

Senator MONRONEY. Senator Cannon?

Senator CANNON. Thank you, Mr. Chairman.

I think you made a fine statement, Mr. Burnard. Just one question.

You already indicated that your estimators have been a little too conservative. On page 3 of your statement, in making your projection for the future, you say, "For every 1,000 passengers now using U.S. airports, there will be 1,700 in 1971 and over 2,000 in 1975," and

also "for every 1,000 aircraft operations at U.S. airports today, there will be 1,600 in 1971 and more than 2,000 in 1975."

It would seem to me that with the increase in size, the possible density in aircraft usage, that the passenger numbers would increase very materially more than the aircraft operations. Do you think your estimators have taken that into consideration?

For example, in all of our operations today we are going to bigger aircraft in the commercial field, and theoretically they would like to operate at as high a density of operation in the future as they have in the past. But if your figures are correct, you would have to assume that they are not going to.

Mr. BURNARD. Senator, I think you have raised a very interesting question there. I will double check it. I think the answer is this: That the estimate with respect to the passengers follows the philosophy you just indicated, that with the larger aircraft the passengers would increase.

However, because of the growth in general aviation I think the aircraft operations figure is also in roughly the same proportion because of the increased numbers of general aviation aircraft.

Put slightly differently, if we were only talking about air carrier aircraft, then I would agree that aircraft operations will not go up nearly so fast as the numbers of passengers using terminals. But by including in aircraft operations both general aviation and air carriers, I believe that the forecasters have indicated this way. But I will be glad to double check it.

Senator CANNON. Even in general aviation your passenger density I think is going up as time goes on. You used to have 1 and 2 percent, for example, in most of your aircraft. Now that average is moving up higher all the time. If that is the case then it would seem to me that your passenger loading factor would go considerably at a higher rate. That is not a too important point.

Mr. BURNARD. Our statement said "for every thousand airline passengers."

Senator MONRONEY. Do you not believe that the consideration of airport needs should be put on at least as high a priority as the international highway system? We require only \$75 million a year in Federal funds, and the highway system, as I recall, if my figures are correct, about \$5 billion a year is required to keep that on schedule. So a very small amount in this budget to keep on schedule would give great dividends to the second at least most important transportation system that we have in this country.

Mr. BURNARD. Yes, sir; we surely do. And sometimes a good many of us in aviation, particularly the airport segment of aviation, feel that we have been much too timid in asking for the necessary funds for airport development in light of its relative importance in relation to the highway system and other mass transit programs.

These days it seems to be much easier to get a billion dollars or so for mass transit operations than it does \$75 million for airport construction.

Perhaps we shouldn't be so timid.

Senator MONRONEY. And this is 50-50 matching. Communities have to put up 50 percent of the total cost while only 10 percent of the total cost of the international system has to be put up by the city.

Mr. BURNARD. Yes, sir. There were some statements made earlier today regarding the so-called 50-50 matching provision of the act that I would like to clarify to this extent. This program has been generally thought of as a 50-50 matching program. What isn't quite as well known is the fact that the FAA can match *up* to 50 percent of a specific project. But that particular project they are participating in may be only a very, very small part of the total airport development project. So that among the things that we learned in our most recent national survey is that on a national basis that the participation by the Federal Government hasn't exceeded one-third of the total airport development cost. And, of course, in some airports that proportion will go down considerably below that.

In other words, the larger the airport, the greater the cost of development, the smaller the percentage of Federal participation in that total cost of development.

Senator MONRONEY. Do you have any further questions, Senator?

Senator CANNON. To further that point: There are many, many important facilities in connection with an airport program that do not even qualify, as we had the discussion earlier today, for aid under the program. Of course, the local governing municipalities have to provide for these funds as a part of their overall development program even though the Federal Government doesn't participate.

Mr. BURNARD. Thank you, sir. And of the \$2 billion that we estimated to be needed in the next 4 years, about three-quarters of a billion dollars we expect will be needed for noneligible Federal aid to airport items.

Senator CANNON. So that you really will have only about \$1 $\frac{1}{4}$ billion that will be eligible, even, for Federal assistance.

Mr. BURNARD. Yes, sir.

Senator CANNON. Thank you, Mr. Chairman.

Senator MONRONEY. As a representative of the Airport Operators Council could you supply, or perhaps supply for the record, the total capital investment in the United States in airports, housing, hangars, all the equipment on them, less the flying equipment? Stated another way, if we had no airports whatsoever, what would it cost us to build the airports we presently have?

Mr. BURNARD. Senator, I would be happy to supply that if I thought I could get it. But it is a subject that we have tried to get an answer to on a number of occasions. The Federal Government has tried to get it. Some of the competitors of aviation have tried to get it. The difficulty we found is that because many of the airports in use today were surplus airports from World War II, or landing areas developed for defense purposes, or WPA projects, and so forth, that there is no very reasonable or intelligent way to attach a dollar figure. The best that people have been able to do to date is to tabulate the amounts of money which are known to have been put into airports through WPA projects, defense landing areas, and a certain amount of the surplus airports, plus the amount of capital that has been put in by known organizations and agencies since that time.

The best estimate that we can come up with is about \$6 billion in total capital investments in airports today. And we expect that this, as I said earlier, will go up at a rate of about \$2 billion in the

next 4 years. So that by 1975 we expect it will be in the neighborhood of \$10 billion.

Senator MONRONEY. I think you have shown us very graphically, Mr. Burnard, the doubling of the traffic that we will have in passengers and in aircraft operations by 1975. Certainly to have our airports capable of accommodating this traffic by that time we had better get started and not have a gap in the year 1966 or 1967 in which we regress instead of moving forward to meet the ever-expanding needs.

The cities have to appropriate or authorize bond issues in smaller increments. So to modernize an airport for \$75 million might be one total grant to the cities and communities, and there may be as many as four or five total bond issues.

Mr. BURNARD. Mr. Chairman, it is already very late. I was a little surprised this morning to hear the FAA report that the allocations for the 1967 money probably won't come out until October of this year.

Senator MONRONEY. They are supposed to come out in the spring. Mr. BURNARD. The law says it shall come out on January 1.

Senator MONRONEY. So we have this postponement. I imagine it is the uncertainty as to how much the Budget Bureau will allow them to spend that is holding them up.

Mr. BURNARD. I think that is correct. I hate to think we have to wait until October 1 before we can find the answer.

Senator MONRONEY. Plans cannot be delayed a full year.

Mr. BURNARD. That is right. We will lose a whole construction season.

Senator MONRONEY. We thank you very much for your very comprehensive and helpful testimony that you have been able to give the committee.

Mr. BURNARD. Thank you, gentlemen.

Senator MONRONEY. Our next witness, one of the great friends of this committee and a great aviation leader, is Joseph P. Adams, executive director and general counsel of the Association of Local Transport Airlines. We are happy to have you, General, with us. We will be delighted to have your statement.

STATEMENT OF GEN. JOSEPH P. ADAMS, GENERAL COUNSEL AND EXECUTIVE DIRECTOR, ASSOCIATION OF LOCAL TRANSPORT AIRLINES, WASHINGTON, D.C.

General ADAMS. Senator Monroney, Senator Cannon, distinguished members of the Aviation Subcommittee of the Senate Commerce Committee.

It is a great pleasure to once again appear before you.

My name is Joseph P. Adams. I am executive director and general counsel of the Association of Local Transport Airlines (ALTA) with headquarters in Washington, D.C. Its membership represents a voluntary nonprofit association whose members are pledged to "improve passenger travel, reduce subsidy and strengthen member airline finances."

Specifically, I appear as general counsel of the Association of Local Transport Airlines on whose behalf I urge the passage of S. 3096,

being a bill to amend the Federal Airport Act to extend the time for making grants thereunder, and for other purposes.

The members of this association meeting in Houston, Tex., November 4-6, 1965, at the regularly scheduled fall quarterly regional meeting, discussed the renewal of the Federal Aid Airport Act, and adopted a resolution strongly supporting such legislation when introduced.

The annual meeting the association held January 24-25, 1966, in Washington, D.C., saw further steps taken to enlist the support of each carrier member in providing statistical data which would strongly support the proposed legislation which has since been introduced as S. 3096. The carrier members have been enthusiastic in providing the material which is included in this report and basically the statistics indicate that—

(a) The carrier members of this association presently serve in excess of 619 airports;

(b) Of this total number, they are presently operating under various weight restrictions in some 252 airports;

(c) Based on equipment planned for delivery within the next 18 months, it is indicated that weight restrictions may be applicable in 103 additional airports;

(d) Of the airports discussed in the above capitulation, there are 57 airports presently actively being upgraded and improved under the active cooperation of the civic governing body and the Federal Aviation Agency.

The individual situation concerning each of the carriers, together with their geographical area of operation, is probably the greatest indication of the degree of interest on the part of the carriers and what it means in terms of airline service to the passengers of the 50 States affected. To that end, this statement will now take up alphabetically the situation particularly concerning each of the member carriers.

I would like to stress, having heard the witnesses this morning, I was naturally pleased with the unanimity and forcefulness with which they urged this legislation. They mentioned the local service airlines and the industry. However, from the statement that I have here, I am pleased to note that the managements of many of our carriers have singled out instances where it is the passengers that are truly the beneficiaries of this legislation. The passengers and the taxpayers are by far and large the greatest beneficiaries of this legislation.

ALASKA AIRLINES

This carrier is presently restricted at 4 airports out of the 10 it serves with Super Constellations and the proposed immediate use of Boeing's 727's. The combination of one-direction runways and runway lengths is the contributing factor for the weight restrictions.

The full payload and lower operating cost of jets will not be reflected in much lower fares as full advantage cannot be realized. Single runways cause many overflights when wind is wrong with resulting poor service and innumerable passenger misconnects out in remote areas where little or no layover facilities exist. This year one village

didn't receive service for 1 week due to wrong direction winds and much of their food, fresh milk, and perishables are delayed or frozen due to offloads and transfers.

ALASKA COASTAL-ELLIS AIRLINES

This carrier is basically an amphibious type water operator but presently serves six airports and has a Convair 240 on order, the operation of which will be restricted at most of these airports by reason of surrounding terrain. The significance of the passage of the instant legislation is best expressed in the words of the carrier:

We cannot overemphasize the significance of FAAP to our airline and the passengers we serve, which currently amount to over 130,000 annually. The people of our area (S.E. Alaska), have long been deprived of modern pressurized air service because the absence of airports has restricted air carrier operations to small and inefficient amphibious aircraft which are becoming progressively more obsolescent every year. Only six of some 50 communities we serve in scheduled service have airports. It should be noted that none of the communities in this area is inter-connected with any other by either road or railroad, which means that except for limited ferry and boat service between the major communities, no alternate means of surface transportation exists. The immediate need in our area for airports (let alone airport improvements) is obvious and critical.

Airport financing for our infant state is a real problem. Currently, our State Legislature is wrestling with this problem in attempting to fund just the State's matching share under the FAAP formula and then only for the more vitally needed airport projects. Unless the FAAP is continued, prospects for any real improvement in airline service or reduction in subsidy are extremely bleak.

ALLEGHENY AIRLINES, INC.

The following indicates restrictions by types of planes based on a standard 85 degree day by aircraft on order and to be placed in service in midsummer 1966:

Equipment type	Number of restricted airports	Extent of restriction (as percent of average payload capacity)			
		0 to 10 percent	11 to 25 percent	26 to 50 percent	Over 51 percent
F-27.....	11	0	6	5	0
CV-580.....	9	1	6	2	0
DC-9-30.....	25	1	0	17	7

As a basic proposition, Allegheny believes that any airport certifies for airline service is entitled to the runways and landing aids needed to assure maximum and reliable service.

From their passengers' standpoint, the FAAP program translates into (a) the ability to operate over longer stage lengths, thus reducing intermediate stops and travel time; (b) the possibility of no-change-of-plane service to primary destinations via carrier interchange flights; (c) availability of additional airlift capacity, in terms of both seats and cargo; this relates also to reducing the oversales sometimes resulting directly from last-minute seat limitations due to a combination of IFR weather and short runways; (d) greater safety; (e) in the case of the jets it means the comfort and appeal of travel by jet;

(f) the economies of the jet where it can be operated on an almost unrestricted basis can result in significantly lower fares to the traveling public.

From the community's standpoint, (a) maximum return on their already substantial airport investment, (b) air service fully equal to the larger cities with whom they are competing for new industries and worldwide markets, (c) additional airport income through more flights by heavier aircraft.

From the carrier's standpoint the primary benefits will be (a) an ability to offer better service to the traveling and shipping public, (b) increased revenues coupled with the lower operating costs resulting from longer stage lengths and selection of low-cost refueling points can make a major contribution to the financial strength of the regionals. A direct and desirable byproduct of this is a clear possibility of a lower annual subsidy bill.

ALOHA AIRLINES

Aloha Airlines serves six airports, two of which are presently served by F-27's and Viscounts with weight restrictions and when the carrier inaugurates service with the BAC-111, it will meet weight restrictions at two additional airports.

One of Aloha's major reasons for desiring extension of Federal-aid airport program is to enable them to have an airport at Kona of adequate size to cope with the new equipment which they will be operating. At the present time Aloha is operating F-27 aircraft, Viscount 745 aircraft and will soon add the BAC-111 aircraft. For obvious reasons, they would like to reduce to at least two types of aircraft on their system; however, the F-27 aircraft cannot be released due to the fact that it is the only airplane in their fleet which can serve the Kona Airport with its limited runway.

BONANZA AIR LINES

Bonanza was the first of the local service airlines to go to all turbine-powered aircraft. They serve all of the certified points, and the greatest loss is either to passengers who are off-loaded on certain weather and temperature conditions, and then, of course, there is another interest that goes through this entire statement. When you talk about some 225 airports where these carriers operate with weight restrictions, think what that could possibly mean in the matter of subsidy, in the matter of subsidy reduction.

While I don't have a computer available to me, I honestly believe that over a period of time, 60 to 90 days, it is possible maybe to keep track of the number of passengers, the amount of cargo, off-loaded on all of the flights involved in all of these carriers, the loss in commercial revenue, and that translates quite directly into present subsidy costs.

I do not believe that has been specifically discussed to date but it is a very important matter in the considerations.

The Federal-aid airport program is important to Bonanza. For example, when the length of a runway is extended, the payload capabilities of any aircraft increases and thus can be better utilized. A direct result of this is better service to the public. Airport improvements under the program have enhanced safety and aircraft reliability.

CARIBAIR

This carrier serves 10 airports at which weight restrictions are presently in force at 4 airports by reason of the use of the modern turbojet CV-640. The carrier has on order a DC-9-30 aircraft and these weight restrictions will apply at four additional airports. Four of the above listed airports are presently engaged in active application for FAA airport matching funds to eliminate the necessity for the present weight restrictions.

Caribair feels that the extension of the Federal air airport program is of great significance to the airline industry, as well as Caribair, in order to better serve our flying public. Two of the airports that they now serve, namely, St. Thomas and St. Croix, provide the only means of air transportation to and from the island; this includes passenger, mail, and cargo services.

Furthermore, Ponce and Mayaguez in Puerto Rico would be limited in operation due to the fact that Caribair is converting its Convairs to turboprops and will be operating pure jets in the near future. Caribair feels that the economic effect on the public of Ponce and Mayaguez would be greatly hampered if the airports are not provided with Federal aid in order to accommodate modern day aircraft.

CENTRAL AIRLINES, INC.

Central Airlines operates on an extensive six-State system with 3,000 unduplicated route miles and serves 61 airports.

With the advent of the new turboprop Convair 600 equipment it develops that the carrier will suffer weight restrictions at approximately 30 of these airports. With but two or three exceptions where obstructions are a problem, all of these weight restrictions stem from runway-length restrictions.

FRONTIER AIRLINES, INC.

This carrier serves 59 airports and presently is restricted at 25 of the airports by reason of 11—runway length; 9—runway length due to gradient; 1—runway length and obstruction; and 4—runway length and strength.

Five airports that are presently being considered for Boeing 727 service will need improvement in runway length and strength. Ten airports served by Frontier will require airport improvements when DC-3 equipment is replaced by Convair 580 equipment.

Eight of the airports included in the above lists are currently engaged in active application and processing of FAA airport matching funds to improve airport adequacy.

There are only a few remaining cities on Frontier's system which do not have airports which are reasonably adequate for Convair 580 operations. Frontier's experience with the replacement of DC-3 aircraft with the larger, faster, more comfortable Convair 580 has demonstrated that the larger aircraft generate substantially more traffic than the DC-3's to the extent that the operations of Frontier's services with the Convair 580 is more economical than the operation with DC-3 equipment.

The failure to carry through with the few remaining airport projects would seriously handicap Frontier in its efforts to upgrade its

entire system to the turbopowered Convair 580 equipment. The number of airports which are not adequate to handle this equipment are so few that it is possible Frontier would have to seek suspension of service at those cities which have not been able to upgrade their airports since the operation of a fleet of DC-3 aircraft for these relatively few isolated cities would be economically impractical.

This goes, of course, to the point that Colonel Dregge mentioned this morning on behalf of the CAB. While these suspensions that are discussed here in several cases are generally considered to be temporary in nature, the fact remains that there are in the case of Frontier, situations where there is one or so of these DC-3 points on different widely separated segments. It is not a case of maintaining the DC-3's to operate a series or group of segments.

It is of importance to note that generally the cities which now need funds for the improvement of their airports are cities which have relatively few financial resources to carry out such projects since they are small cities having relatively limited revenues from their airports. These cities probably have a more acute need for Federal assistance than many cities which have already been provided with such assistance under the Federal aid to airports program.

HAWAIIAN AIRLINES

Hawaiian serves nine airports and presently is operating with weight restrictions at six. The present equipment and restrictions are as follows:

	Takeoff	Landing
Convair 340/440.....	4,400	4,000
Convair 640 (340D).....	11,000	12,000
Douglas DC-9.....	10,000	10,000

The average weight loss is from runway limited airports. Not all six are equally restricted. Restrictions are weight reductions from maximum allowable landing and takeoff weights.

The State of Hawaii is in no position financially to maintain and improve its airport system. Without additional revenue or matching funds from the Federal aid airport program, improvement and expansion of present airport facilities would literally be nonexistent.

It is conceivable that the State of Hawaii could gain self-sufficiency of its airport system through an increase of taxes and landing fees. However, since eight of the nine airports in Hawaii are served by only the local carriers, we would be in no position to carry this burden.

LAKE CENTRAL AIRLINES

Lake Central Airlines serves 37 airports and operates under varying weight restrictions at 30 of the airports. These restrictions are related directly to runway lengths and obstructions.

The Federal aid airport program takes on added significance this year with the knowledge that U.S. air carriers are undertaking aircraft expansion and equipment programs for the period 1965-69, which tops \$3.7 billion.

The airline initiative in investing high sums of money in jet aircraft to enlarge and upgrade air transport service for the shipping and traveling public must be met with a concurrent commitment to develop the national airport system. To the extent that this is done, the new and improved equipment can be operated to full potential at the more than 600 airports served by the airlines throughout the United States.

NORTH CENTRAL AIRLINES, INC.

North Central serves 67 airports and because of inadequate runways operates under weight restrictions at 30 of them. These airports are served presently with Convair 440 equipment.

With the implementation of 5 DC-9's on North Central's routes in 1967, they will suffer moderate to severe weight restrictions at 20 of the 27 airports due to receive this service.

At the present time, there are several airports which are inadequate for Convair 440 aircraft. When the DC-3's are retired in 1967, it may be necessary to temporarily suspend service to several of these airports if runway extensions have not been completed. We would not plan to delete any of these cities on a permanent basis.

The Federal airport aid program has been invaluable in enabling North Central to provide service to many small cities where local funds would never have been adequate to construct an airport capable of handling large aircraft. Since most of the local service carriers will soon be inaugurating jet service to many communities, it is absolutely essential that FAAP funds be available so that service to the traveling public may be upgraded.

There are many cities on North Central's system where the local tax base is so small that needed improvements would be impossible without aid from the Federal Government. If these cities are to be incorporated into the national transportation system, it is essential that they have facilities adequate to handle modern aircraft.

NORTHERN CONSOLIDATED AIRLINES

Northern Consolidated serves 19 airports with large aircraft and 25 airports with small aircraft. At the present time they operate under weight restrictions at four of the airports for large aircraft. The weight restrictions involved in the shorter airports are on their Fairchild F-27B aircraft.

Northern Consolidated is presently restricted in the F-27 aircraft at four airports. The same four airports will be further restricted with Boeing 737 equipment to such a degree that the airports will not accommodate the new plane. Northern Consolidated has on order at the present time one Boeing 737 with an option for another.

This is quite illuminating to this committee on the part of what Alaska has in mind by way of cooperating with your Federal aid extension.

All of the airports involved in restricted takeoff weight for the F-27 and the proposed Boeing operation are State-owned airports. Northern Consolidated made application through ATA master airport plan for the State of Alaska to upgrade these airports to a minimum of 5,750 feet and surfacing, which will permit maximum landing weight,

but still have a restricted takeoff weight. The flow of traffic is not critical on the takeoff weight of the outlying intermediate airports as much as the landing weight so that the maximum takeoff capability could be provided on all aircraft departing Anchorage and other main bases. As a result of the application, a bill has been submitted to the State legislature, HB 412, providing for the issuance of general obligation bonds in the amount of \$11,500,000. The purpose of the bonding issue is to upgrade restricted airports owned and operated by the State of Alaska to a minimum standard that will permit jet-age aircraft. This not only applies to Northern Consolidated's routes, but to the routes of other Alaskan certificated carriers.

Extension of the Federal airport aid program is vitally essential to the normal growth of the State of Alaska by participating with the State to provide airports necessary for better transportation. Jet aircraft will provide a more economical transportation system, resulting in reduction of rates to the general public and assist in the growth of the State. The proposed bonding issue exceeds somewhat the amount of money presently available through the current FAAP. The bonding issue is not sufficient to match the FAAP money to the extent of airport construction and airport upgrading. Continued participation by the Federal Government through the FAAP is very essential to the needs of the State of Alaska and to its economic development. Many of the airports served by Northern Consolidated and other certificated carriers are served practically 100 percent by air with the exception of limited boat transportation in the summer months. The remaining part of the year—100 percent requirement for all transportation is by air. Tremendous progress has been made in the State of Alaska since inception of the FAAP. Its continued authorization is vitally required.

OZARK AIR LINES

Ozark Air Lines provides service to 48 airports and is restricted on their DC-3 aircraft at 1 airport; on their M-404 aircraft at 6 and on F-27 aircraft at 12. The carrier states that as a general runway requirement for their aircraft to operate unrestricted, the following runway lengths would apply: DC-3, 3,600 feet; M-404, 5,000 feet; F-27, 5,800 feet.

With the addition of the new FH-227 aircraft, the carrier will suffer weight restrictions at 29 additional airports and with the implementation of DC-9 jet aircraft at 16 additional airports.

It is most important that the Federal aid airport program be not only extended, but increased. Ozark is carrying out an airport survey, including visits to 23 of their cities. It is their intention to inform these communities of their requirements for new equipment and to impress upon them the importance of making airport improvements so that they will not suffer service restrictions when the new equipment is introduced. They are also pointing out that the cost of their reequipment program is in the neighborhood of \$55 million which, of course, represents an investment for service improvement of over \$1 million per city that they serve.

It is significant to note that of the 21 cities visited to date, only 3 of these do not have plans for runway improvements. From this, it is

apparent that the FAA is going to have many more applications for aid than they will have money to appropriate and, obviously, a great number of these applications will have to be disapproved for lack of funds. If Ozark's region is representative of the other areas with respect to number of applications, it is obvious that this will become a problem of national importance having great impact on the service capabilities of the local service industry as a whole.

Since the role of the local service carriers in the national transportation system is destined to increase greatly in importance in the next few years, it is obvious that this legislation carries the greatest significance for both the industry and the communities that they serve.

PACIFIC AIR LINES

Pacific Air Lines serves 30 airports and presently operates under weight restrictions at 7 due to runway length, temperature, terrain clearance, and runway width.

The limiting factors of an airport which vary the payload capabilities of an aircraft indirectly result in a disservice to the airline passenger. For example, obstructions or runway limitations could result in the refusal of passage to several passengers who have made the trip to the airport expecting to be boarded.

Mr. Chairman, you mentioned at several points in the testimony this morning the question of runway lighting and navigation aids. I would like to now cover that in Piedmont Airlines, which is quite indicative of many of our carriers.

PIEDMONT AIRLINES

Piedmont Airlines serves 43 airports and presently operates under weight restrictions at 21 where it is using F-27's and M-404's due to inadequate runway lengths.

Ten of the twenty-one above listed airports are currently engaged in active application for FAA matching funds to improve or eliminate the airport deficiencies stated above.

From the above it can be readily ascertained that approximately 49 percent of the airports that Piedmont serves are inadequate for full gross loads. Most of this inadequacy is due to insufficient runway lengths and a few because of obstructions in the approach area of the runway. Because of the load restrictions oftentimes it is necessary to unload freight and express and defuel the aircraft in order to accommodate the passenger load. Again, at times, with marginal weather, passengers are unloaded to accommodate the necessary fuel for the alternate airport required for IFR operations.

Another problem which exists on the Piedmont system is the non-existence of adequate landing aids for some of our airports which have sufficient runway length for full gross loads. Such airports have to be overflowed because of the high weather minimums established for that particular airport. As an example, Roanoke, Va.—enplaning 119,862 passengers and deplaning 108,735 passengers in 1965—has runways of adequate length to accommodate full gross loads for our present aircraft; however, airline landing weather minimums for that airport require no less than 1,000 feet ceiling and 3 miles visibility.

I am sure this committee is aware of how great a restriction that is. The Federal aid airport program should be continued so that all communities can eventually have first-class airline service as well as be beneficial for defense purposes.

REEVE ALEUTIAN AIRWAYS, INC.

Reeve Aleutian serves 16 airports and presently operates under weight restrictions at 7.

Curtis C-46 and DC-3 type aircraft are being used due to runway length insufficiencies to handle DC-4 and DC-6 type equipment.

The carrier has not ordered new equipment pending the solution to the present airport inadequacies. Two of the fields found presently inadequate are USAF and the balance are State fields, and no funds are available at present.

Reeve Aleutian cannot operate an effective economical airline with the present weight restrictions. The carrier states that the lifeblood of these Alaskan communities are predicated on adequate air service.

SOUTHERN AIRWAYS, INC.

Southern Airways is presently serving 49 airports, and 17 of these are served under weight restrictions during hot weather and with zero wind conditions. Fifteen of these airports are presently being served with M-404 aircraft and two airports being served with DC-3 aircraft. In all cases the payload is restricted due to effective runway length.

New aircraft—DC-9—on order will have payload restrictions at 5 airports in addition to the 17 listed above. As a result of the phaseout of the DC-3 the Martin 404 will have payload restrictions at 2 additional airports to those listed above. The extension of the Federal-aid airport program is of the greatest significance to the air traveler as inadequate or restricted facilities may affect safety; and, second, due to payload restrictions, Southern reduced fuel loads from originating points in order to accommodate available payload. This results in frequent en route refueling at points less well equipped for fueling service, causing delay in trip completion. During hot weather days, Southern is subject to leaving express and freight in order to accommodate passenger loads.

The net result of payload restrictions is inconvenience to passengers through fueling delays and to shippers through failure in prompt delivery of express and freight, all of which adds up to poor, or less than the best, service.

TRANS-TEXAS AIRWAYS

Trans-Texas Airways serves 49 airports, and weight restrictions have not been significant with DC-3 and Convair 240 aircraft. The carrier is reequipping with Convair 240D (600), which is a turboprop modernization, and at this writing the effect of the new aircraft on airports served has not been completely analyzed.

The carrier has on order jet planes, and with the inauguration of this planned DC-9 service, it will be economically impossible for many of the cities they serve to provide adequate runway and navigational aids without the continued support of the Federal aid to the airport

program, thereby depriving many of their passengers of improved air service.

WEST COAST AIRLINES

West Coast Airlines serves 42 airports and at present operates under weight restrictions at 15. F-27 equipment is used at all but five of the restricted airports. Three of the five airports will not handle an F-27 aircraft. Restrictions are runway lengths, in all cases.

The carrier has ordered DC-9 aircraft and states that four additional airports will be unable to handle the DC-9 in the area in which it will probably be scheduled.

It strikes me that the following is more or less a symbol of what is happening to all of these communities in the postwar period.

Many communities now being served by each local service airline have airports that were originally intended for general aviation use only. These airports have been only partially adequate in size and runway length. Practically every community has grown at a greater rate than its airport capability. To keep abreast of the community growth rate, the air carriers have been required to acquire and operate larger, faster aircraft, which are of a modern design and require larger airports. From this, it seems obvious that the Federal-aid airport program should be extended to provide communities the opportunity to use the new services being offered by the local airlines.

To me, that summarizes what has actually happened. The planning, I wouldn't describe it as having been inadequate because I don't believe anybody could reasonably have imagined the extent to which this aviation growth would occur.

In my own case, with 6 years' experience on the Civil Aeronautics Board, I must confess that I don't believe I at any time focused on the growth that we have experienced in the past 10 years. Of course, that has come since the jet aircraft.

In one case I talked to the president of one of our carriers yesterday, and his airline in the first 20 days of April had a 40-percent increase in passengers over April of last year.

That is the type of explosive development that is occurring throughout the entire 50 States. This is the most important legislation that I can conceive of to insure a safety growth in this ratio, and also to maintain and save this product that we are developing, this economic product.

I honestly believe that aviation has come to be one of the most important increments in all of our industrial planning and operations.

In conclusion, then, it is the unanimous opinion of the members of this association that passage of S. 3096 is in the public interest in the broadest political, social, and economic sense. Further, it is a necessary legislative step to insure that the encouragement and development of an air transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the postal service, and of the national and civil defense continue unabated.

Once again, on behalf of the 21 members of this association of local transport airlines, and myself personally, we wish to express our appreciation for your continued aggressive support of not only this legislation, but all legislation affecting civil aviation.

Thank you.

Senator MONRONEY. Thank you for a very complete and impressive document on the need for not only the present Airport Act provisions in financing but also for eliminating the cutback that is being proposed for the fiscal 1967 year of appropriations already made by the Congress.

The figures that you give on page 2 indicate that out of a total of 615 airports served by the local service carriers that they are already operating under various weight restrictions in some 252 airports. If new equipment is added, that would likely add another 103 restrictions, which would make economic operations of the 615 infeasible at a total of 355 of your airport stations; is that correct?

General ADAMS. That is correct. You would only have to subtract from that, according to these figures, improvements presently underway at 57. There are others, no doubt, in the planning stage.

These restrictions, Mr. Chairman, I have not treated as a completely technical matter. I just lumped them all under weight restrictions. There are different types of weight restrictions. Runway length, but runway length due to gradient, runway length due to obstruction and runway length and strength. I have made no attempt to analyze on a technical basis because I don't feel that is our area of concern. These weight restrictions lumped together are presently in effect.

Also they probably are in effect to a greater extent in times of poor weather conditions, such as heavy rains which could cause ballooning, and also in hot weather when you have to use your standard average temperature at the airport. That is where most of these weight restrictions come in.

Senator MONRONEY. How about the length? You have a weight restriction on a runway that is too short, which is generally the case, or if it goes up hill in grade. If the runway is too short to take a DC-9 or B-111, the British plane, or a 727, then you are not going to be able to get into that field. So it is more than a weight restriction, it is just an elimination of that area of the country from receiving any kind of certificated airline service. Is that not true?

General ADAMS. You see, they are presently operating at 252 airports with these weight restrictions. So communities are receiving the service.

Senator MONRONEY. That is including DC-3 service, isn't it?

General ADAMS. Yes, sir. That includes the Convair-type equipment and Martins.

Senator MONRONEY. That is still too short to take care of jets, is it not?

General ADAMS. Yes, sir.

Senator MONRONEY. And turbine-powered aircraft?

General ADAMS. The 103 additional airports, subparagraph (c), that is meant, I believe, to take the pure jets that are going to be added. All of the carriers have ordered any one of three pure jets, either the BAC-111, DC-9, or Boeing 737. The deliveries will start, I believe, in Allegheny, the first pure jet, this July. I happen to know west coast gets their first jet in September of this year. But the 18 months covers most of those jets that will be put in the fleets, that is where we come up with the figure that in addition to the 252, there will be 103 additional airports where they will operate with weight restrictions.

Senator MONRONEY. I would think it would be very helpful to us if you could ascertain at this time and submit a supplementary statement showing us how many of the airports now being used, of these 619, under certain restrictions, would be impossible to use with your pure-jet-powered equipment unless the runways are materially lengthened or strengthened in one way or another. This is a revolution in local service equipment. There is no use in talking about replacing the present reciprocating engines if you can't get into a large number of your airports that would otherwise be having jet equipment.

You are in a better position to tell us how many airports will have to be modernized to bring this present-day modernized equipment to full service in the U.S. local service network.

General ADAMS. That is correct in this sense, Mr. Chairman. The plans for the individual carriers will have to be studied, and I know that they will be pleased to do that because it will be up to the planning of each management as to where they intend to operate these jets. To date no carrier has indicated that they will go to one piece of equipment. This jet is basically being scheduled into the highest density points and they in turn automatically become the larger cities. So it wouldn't be feasible, for example, to match the needs for one of these pure jets in all of the 619 cities because the management plans and the topography and geography of the various areas would indicate in many cases that they wouldn't require or need that type aircraft.

Senator MONRONEY. Ozark indicates that their statement that they have to have 3,600 feet for a DC-3, 5,000 feet for a Martin 404, and on a F-27, 5,800 feet. That is not for turbine-powered aircraft, is it?

General ADAMS. The F-27, yes, sir.

Senator MONRONEY. Your Convair, which is being used by Ozark also, I think, and other lines, I don't know what its required footage is, but I venture to say it is at least 5,800. So, you have a great many of these airports that simply must have the additional work done, and with the cutback in the aviation funds that we face and the expiration, if it should happen, of the Federal Aid to Airport Act, would be fateful to bringing modern-day aviation to so many of the 600-odd communities that are served principally by your local service carriers.

General ADAMS. That is why I like the one sentence in this one statement at the end where simply stated, "Practically every community has grown at a greater rate than its airport capability." That is exactly what has happened.

Of course, the thought of not having a Federal Aid Airport Act extension is really too grim to focus on because the effect on the economy of these States and these cities would be disastrous.

I just can't conceive of anyone in the Federal Government, once the facts are brought to light which are being brought to light by your committee, hesitating at any time in advocating the present extension and, also, advocating increased expenditures.

Senator MONRONEY. Many of these cities, in fact most of them, have suffered the greatest loss of their rail service. So there is no service except private automobile, bus or airport. If the conversion to faster performance aircraft occurs, as it will, they might also be denied their

air service by lack of funds to advance their modernization of the airports.

General ADAMS. That is true. I would assume that the most direct appeal to you from the cities themselves may well come through the NASAO because it is the city, the community, which should have the greatest concern in this. The carriers are concerned as part of their management responsibility and as part of their attempt to maintain financial stability under our free enterprise system. But basically the people concerned here are the taxpayers and the passengers who live in these communities. They are the people who really should be here.

As I say, I imagine that they are here through the CAB and the FAA, but it is these communities that have the most at stake in this legislation.

Senator MONRONEY. They certainly do, or they will lose one of their vital means of transportation. I venture to say more are apt to lose it if the Congress fails to pass the bill than are presently realized. Certainly, as was pointed out by an earlier witness, if you have one airport on a route segment that fails to improve its airport, it is liable to make the entire route structure infeasible for the new high-performance aircraft that would be put on the run.

General ADAMS. That is correct.

Senator MONRONEY. You are relying, I feel sure, after hearing testimony for many days from the local service managers, on the introduction of this new high-performance aircraft to greatly stimulate the traffic on many of the local service airlines. This new equipment will speed up the service and enable it to be more frequent and perhaps even carry aircargo and more mail, first-class mail, at less than airmail rates to these communities.

General ADAMS. Yes, Mr. Chairman. The fact that these carriers are using postwar planes now almost exclusively means that for the first time they can carry freight on many of their flights. With the DC-3 there was a restriction that was both weightwise and spacewise. Now with this modern equipment the expansion in both their freight and also surface mail on the segments where it is permitted can be tremendous. In fact, I think it is rather frightening the pace at which these carriers are growing. I couldn't have believed it, didn't believe it was possible. But in the last 90 days alone, when these first-quarter figures are rounded out, I believe it is going to be a phenomenal disclosure.

Senator MONRONEY. I wish you would, if able, furnish to the committee, and we can send it on to the CAB, a list of your cities that are served by local service lines so that we can have the FAA give us the runway lengths and the weight capacities of the airports now serving these cities, so that we can ascertain to some degree the number of communities that will be ineligible for receiving a continuation of service when modern equipment is put in.

General ADAMS. Yes; I will take that up with our members and see that we work out such a program.

Senator MONRONEY. They probably could furnish you the number themselves, without going through FAA.

General ADAMS. That is true.

Senator MONRONEY. It would be very helpful.

We appreciate very much your splendid statement and the very clear warning that time is limited and we had better get our house in order for our national airport system to accept the faster and more desirable aircraft on the network which you so well serve throughout the United States and our possessions in the Caribbean. We appreciate your attention.

General ADAMS. Thank you very much. It is our pleasure and business to be here.

Senator MONRONEY. The committee will stand in recess until tomorrow morning, at which time we intend to hear nine witnesses.

I doubt very much if we will be able to hear all of them at our session tomorrow. If not, we will have to schedule another day later on in the week. We would like to be notified by those who are here from out of town so we will be sure to reach them, because there will be a gap of a few days before we resume our hearing.

The committee will stand in recess until 10 o'clock tomorrow morning.

(Whereupon, at 1:05 p.m., the subcommittee was recessed, to reconvene at 10 a.m. on Tuesday, May 3, 1966.)

The purpose of this study was to determine the effect of
 various factors on the rate of absorption of a drug
 administered orally. The study was conducted in a
 laboratory setting using a series of experiments.
 The first experiment was designed to determine the
 effect of the rate of gastric emptying on the rate
 of absorption. The second experiment was designed
 to determine the effect of the rate of intestinal
 motility on the rate of absorption. The third
 experiment was designed to determine the effect
 of the rate of blood flow on the rate of absorption.
 The results of the experiments are discussed in the
 following sections.

FEDERAL-AID-TO-AIRPORTS PROGRAM

TUESDAY, MAY 3, 1966

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

The subcommittee met at 10 a.m. in room 5110, New Senate Office Building, Hon. A. S. Mike Monroney (chairman of the subcommittee) presiding.

Senator MONRONEY. The Subcommittee on Aviation will resume its hearings on the bill S. 3096, a bill to amend the Federal Airport Act to extend the time for making grants thereunder, and for other purposes.

We are honored to have the distinguished Under Secretary of Transportation, Department of Commerce, Mr. Alan S. Boyd, to testify today.

Mr. Boyd has flown all night from California to get here. We appreciate having him make his appearance before our committee so we can move forward. We have some nine witnesses for the day.

You may proceed in your own way, Mr. Boyd.

STATEMENT OF ALAN S. BOYD, UNDER SECRETARY FOR TRANSPORTATION, DEPARTMENT OF COMMERCE

Mr. BOYD. Thank you, Mr. Chairman. I appreciate this opportunity to discuss with you the proposal to extend the Federal Airport Act.

The Department of Commerce favors enactment of S. 3096 which would extend for the 3 fiscal years, beginning with the fiscal year ending June 30, 1968, authorization of funds for grants in aid under the Federal Airport Act. I would like to make a statement supporting the extension of the program.

The Department is interested in this bill as a result of the responsibilities of the Secretary of Commerce to foster, promote, and develop the foreign and domestic commerce and the transportation facilities of the United States. The Department's interest also extends to the national defense aspects of an adequate national system of airports.

It is the Department's view that the provisions of the bill will facilitate airport development and we are of the opinion that extension for another 3-year period is essential to allow for adequate planning of the national transportation system. Aviation is an implement of commerce, and the technology and economics of aviation assume an important relationship to the requirements of the transportation market. Fast and efficient air transportation, both passenger and cargo, speeds the flow of commerce and enhances the gross national product.

Faster and more convenient cargo schedules to points abroad encourage greater export of U.S. products with consequent benefit to our balance-of-payments accounts. Improved airport capacities thus will promote further expansion of trade.

S. 3096 calls for an appropriation amounting in the aggregate to \$225 million over 3 fiscal years beginning with the fiscal year ending June 30, 1968. This figure represents a reasonable amount viewed from the standpoint of funds requested by sponsors on the one hand and from a realistic budgetary concern on the other hand. The total figure mentioned breaks down as follows: \$199,500,000 over the 3 fiscal years allocated for the several States; \$4.5 million over the 3 fiscal years for Hawaii, Puerto Rico, and the Virgin Islands in the ratio of \$1.8 million, \$1.8 million, and \$900,000 respectively; and \$21 million over 3 fiscal years would be allocated for aid to general aviation reliever airports. This money will help to provide better facilities for the increasingly active general aviation aircraft sector and the allocation will aid in removing some of the overall traffic congestion at our busiest airports, a matter of continuing concern. A substantial portion of the delay incurred in major terminal areas results from deficiencies in airport capacity. Aviation has become an integral part of our transportation system and is playing an ever-increasing role in the movement of passengers and cargo. However, the future still holds even greater promise and we must do all we can to keep abreast of the demands that will be made on our transportation system. Recent announcements concerning the development of a large subsonic aircraft that will be capable of carrying some 500 passengers cannot fail to capture our imagination. It will bring improved service and holds the promise of substantially reduced passenger fares and cargo rates. It is recognized, however, that such an aircraft will also bring with it a challenge in regard to the handling of passengers and cargo.

Although these large subsonic aircraft will not be in commercial operation until 1969, we cannot be complacent and wait until the first plane is delivered before the necessary airport improvements are made to accommodate the aircraft, passengers, and cargo. The military is developing an even larger subsonic aircraft and in a commercial version it will have a capacity of from 700 to 900 persons. This aircraft, the C-5A, is expected to be in service by 1969. In addition to the large subsonic aircraft, there is every indication that in the not too distant future the supersonic aircraft will be available. The British-French aircraft, the Concorde, is estimated to be in service in the 1971-1972 period and the United States SST is planned for 1974.

These new developments in the large subsonic aircraft and the SST's present a challenge. However, even more pressing is the increased number of jets, both large and small, that are presently being put into service by the air carriers, with resulting improvements in convenience, comfort, and safety for the traveling and shipping public. Not only are there more jets in service, but more airports are receiving jet aircraft service. Seventy airports received jet aircraft service in early 1965. One year later, early 1966, 111 airports were receiving jet service. By 1967 it is expected that 130 airports will have jet service and by 1970, it is estimated that this number will increase to some 300 airports. These projections call for a continuing airport development

program if jets are to offer the maximum service advantage and maintain the uncompromising safety standards that have been set.

Revenue passengers carried by air in domestic operations have been consistently setting new records. In 1964 some 82 million passengers were carried. By 1970 the Federal Aviation Agency estimates that some 107 million passengers will be carried. This will be an increase of 31 percent. The revenue passenger miles for 1964 were some 41 billion and the FAA estimate for 1970 is some 61 billion, or an increase of 48 percent. General aviation is also expected to continue its growth. In 1964 general aviation had a fleet of 89,000 aircraft; by 1970 it is estimated that this will increase to a fleet of 143,000, or an increase of 61 percent. The hours flown by these general aviation aircraft in 1964 were about 15.7 million hours; it is estimated by 1970 this will increase to 19.5 million hours, or an increase of 24 percent.

According to the U.S. Bureau of Labor Statistics, civil aviation employment amounted to about 280,000 in 1960. It is forecast that this will reach 360,000 persons by 1970. In addition, many more jobs were indirectly related to civil aviation activity. For the year ending September 1965, the U.S. certificated and supplemental air carriers had a total operation revenue of \$4.8 billion.

Just as aviation is an integral part of our total transportation system, airport development is an integral part of the aviation system. Airport development is not only important because of the improved capability connected with the handling of aircraft on the ground; it is also important in regard to air traffic control. As ways are found to increase the use of air space, ground handling must keep pace to complement these benefits. If ways are not found, valuable time will be lost on the ground and we will not fully benefit from the developments of improved air traffic control.

As technology improves in the area of vertical and short takeoff and landing aircraft (V/STOL) and an economic aircraft is developed, additional demands will not only be made on existing airports but a whole new concept will have to be worked out for close-in airports.

Mr. Chairman, if I may interject here, I would like to provide you with a copy of a study which was recently made for the Department of Commerce by the Massachusetts Institute of Technology, which contains a systems analysis of short-haul air transportation. This is a little large to put in the record. In that connection, I would like to say that copies of this report are available at the Commerce Clearing house for Federal Scientific and Technical Information, U.S. Department of Commerce, Springfield, Va. These copies sell for \$1 and we make no profit.

Senator MONRONEY. Thank you very much. We will receive this for the committee files but not for the printed record.

Mr. BOYD. There is no doubt that the work that is being done by the military in developing an aircraft with V/STOL capability will have useful application in the civilian sector. The development in an overall transportation system in the United States. At present, the passenger taking a relatively short trip takes up a larger proportion of his time on the ground than he does in the air. With the development of the V/STOL and an airport program that keeps pace, much can be done to reduce the time presently taken up on the ground. I just ad-

verted to the study which was made by MIT. This study concerned itself with looking at the potential of air transportation in the Northeast corridor in the 1970-80 time period. Among other things, the report considers the travel demand and the ground facilities necessary to meet that demand. Continued improvement of present airports and development of city center sites play an important part in the planning of an air transportation system that will assist in the development of a unified national transportation system.

Assistance through the Federal-aid airport program should be continued to assure our peacetime expansion of air transportation and its contribution to the growing economy of the Nation. There is also a requirement to assure sufficient flexibility of air movements under emergency conditions. As you know, the Department of Commerce has been delegated the responsibility for planning, programing, and initiating actions designed to assure an adequate and effective utilization of air transportation and related facilities in the event of an emergency. An Office of Emergency Transportation was established within the Office of the Under Secretary for Transportation to include, among other things, a centralized control of all modes of transportation including air, ground, water, and pipeline, under all degrees of national emergency. Further responsibilities cover the proper apportionment and allocation of the total civil transportation capacity, or any portion thereof, to meet essential civil and military needs.

The current civil reserve air fleet (CRAF) allocation to the military lists 358 air carrier aircraft, 81 of which are designated for the domestic CRAF, the remaining 277 aircraft for the overseas CRAF operations. There is little need to stress the importance of adequate airports and ground facilities to the successful implementation of both domestic and overseas CRAF operations.

Additionally, the Department has allocated the remaining U.S. air carrier aircraft to the Civil Aeronautics Board for use in the war air service program (WASP), which will also make an important contribution to the national defense effort. The effectiveness of both these programs is related to an adequate national system of airports and related facilities.

The aircraft manufacturers, the airline industry, and general aviation are all playing an important role in the commerce of the United States. In addition, all are making contributions to the overall transportation system. Whether they are to have their maximum impact and fulfill their potential will depend to a large degree on the capacity of the airports. As the committee is well aware, while aviation is an important part of the transportation system, it cannot perform its function in a vacuum. The aviation system, to be fully effective, must be adequately supported by related surface transport, airport access, airport development, et cetera. This support applies to passengers and cargo, and covers highway, rail, and maritime links. Programs such as the Federal-aid airport program must increasingly be viewed in terms of their contribution to a total and coordinated transportation system.

Extension of the Federal Airport Act will help us keep pace with the technological advances that are continually being made and thereby contribute to the development of a broad-based transportation system.

Thank you for this opportunity to present the Department's views on this bill.

Senator MONRONEY. Thank you very much, Mr. Secretary, for a very comprehensive statement and for sketching out the urgency of the need for this legislation.

As a former distinguished Chairman of the Civil Aeronautics Board, you are very current concerning the drastic expansion that is taking place in the character of our jet transportation on a nationwide basis, with the local service carriers getting into this improvement of their equipment by both turbine-powered and pure jets, all demanding greater lengths of runways and probably greater weight capability.

Would you say that the need is greater now for airport construction with Federal aid than at any time since the first passage of the act?

Mr. BOYD. Yes, sir; I think so.

Senator MONRONEY. If we are to reach out to these new areas that are wanting and demanding improved service, we must contemplate the expansion of the airports to serve and open up these new routes.

Mr. BOYD. We have the increased technology on the one hand, represented by the jets, and the increased passenger demand on the other, represented by the greater mobility of the population and the greater disposable income available for travel. This is a nation in which the Government historically has been responsive to the demands of the public. This is a major demand of the public and it is becoming more and more important as a segment of the transportation system all the time.

Senator MONRONEY. You also point out, on page 4 of your statement, that the general aviation fleet, which in 1964—2 years ago—had 89,000 aircraft and by 1970 will have a fleet of 143,000.

Mr. BOYD. That is unbelievable, almost, but it is a sound projection, I am convinced.

Senator MONRONEY. Sixty-one percent, you show. These planes will also require landing facilities and particularly around metropolitan areas as you mentioned they need an auxiliary field to use so as not to further encumber the crowded traffic patterns at some of our metropolitan airports.

Mr. BOYD. Yes, sir.

Senator MONRONEY. The only way to relieve this congestion is to provide the \$7 million which has been in the bill for general aviation.

Mr. BOYD. Yes, sir.

Senator MONRONEY. You strongly support that provision?

Mr. BOYD. Yes, sir. Absolutely.

Senator MONRONEY. The airport numbers are expected to increase from 70 airports in 1965; 1965, 111 airports were receiving jet service, and by 1967, 1 year from now, 130 airports will have jet service, and by 1970 the estimate is for 300 airports receiving jet service.

Mr. BOYD. Yes, sir.

Senator MONRONEY. This is a rather carefully checked base and expansion that you feel is reasonably sure to occur?

Mr. BOYD. Those are the figures of the Federal Aviation Agency, and I accept them, Mr. Chairman. I am sure they are very carefully checked out.

Senator MONRONEY. Without Federal aid from a practical standpoint it is almost impossible for the average municipality to launch an airport program, is it not?

Mr. BOYD. I would hate to generalize on that, but I think as a general proposition that is correct.

Senator MONRONEY. In other words the 50-50 matching has the same stimulus as the matching formula has had in the Federal aid to highways.

Mr. BOYD. Yes, sir.

Senator MONRONEY. Even as you move it up to the 90-10, on the Interstate, you see the influence of encouraging the States to invest their money in that. So this is a very important factor in our transportation system.

Mr. BOYD. Absolutely, a major factor.

Senator MONRONEY. And cargo requirements, which you are familiar with, and the almost exploding nature of its development, will require greater airport facilities, probably greater runway and taxiway services, and even auxiliary airports in some of the hub areas.

Mr. BOYD. I don't think there is any doubt about it. In fact I was just thinking, in 1948 Prof. John Fredericks, of the University of Maryland, wrote a book about the breakthrough of aircargo. I did some work with him at that time and became a disciple of his. I think we finally reached the breakthrough predicted for 1949.

Senator MONRONEY. We have always considered the ground facilities and the importance of having a sufficient number of runways, aprons, and things of that kind. Isn't it also a fact that the only way you can relieve air traffic congestion often is by the construction of additional airports, that you just don't have the airspace above all airports that you need to accommodate the traffic that will want to get into many of these important and populous areas?

Mr. BOYD. Yes, sir; that is certainly correct, although this is an area where I am really not competent because you get into conflicting situations sometimes with the location of auxiliary fields having an impact on the existing air traffic control.

A number of our airports are close to the saturation point, there is no question about that.

Another factor here which I also alluded to in my testimony is that for the free flow of traffic we have got to have good access facilities on the ground so that people can get in and out of the terminal.

Senator MONRONEY. From the downtown areas to the landing field will require special surface transportation, you feel?

Mr. BOYD. Yes, sir.

Senator MONRONEY. Do you feel that toll roads or superhighways will be the proper access facility?

Mr. BOYD. I think so. I think that is a very good possibility, Mr. Chairman. In fact I am convinced that the wisdom of restricting the use of the highway to Dulles is going to be abundantly clear in the not-too-distant future.

Senator MONRONEY. In other words, Dulles still has hopes of being a ready access airport if they manage to maintain the superhighway facility to the field.

Mr. BOYD. That is correct.

Senator MONRONEY. Do you feel there is no question about the Federal responsibility in this area of airport aid, the 50-50 matching?

Mr. BOYD. Yes, I think it is within the context of this legislation; I certainly think so.

Senator MONRONEY. And you think the amount specified, \$75 million, would be adequate per year, or would be running pretty close?

Mr. BOYD. I think that it will be adequate but I don't expect to see much surplus in the fund.

Senator MONRONEY. Assuming that the Department of Transportation is approved, and the administration of the airport program is transferred to the new Transportation Department, what effect do you anticipate on the Federal aid to airport program?

Mr. BOYD. My guess is, Mr. Chairman, that the Department of Transportation will continue to be a strong advocate, as has been the FAA, because of the demand on the part of the public. This is the way the system has got to operate and the Government has got to operate, to satisfy the demands of the public, because they are paying for this system.

Senator MONRONEY. Do you think it would bring a closer coordination maybe with surface transportation to expedite the trips to and from the airport?

Mr. BOYD. I think that will be one of the great benefits of the Department of Transportation; yes, sir.

Senator MONRONEY. To arrange for more convenient movement to and from the airport.

Mr. BOYD. Yes, sir.

Senator MONRONEY. That would be coordinated closely if they were both in the same agency?

Mr. BOYD. There is no doubt about it.

Senator MONRONEY. You would not expect any diminution of the interest of the Federal aviation branch, whether it is independent or whether it is incorporated in the Department of Transportation?

Mr. BOYD. Far from it. The aviation branch, being a major part of the Department of Transportation tree, will grow and prosper.

Senator MONRONEY. Is your Department doing any work in the area of jet airport noise?

Mr. BOYD. Yes, sir.

Senator MONRONEY. Could you tell the committee what you are doing?

Mr. BOYD. We are participating on a committee which was established under the aegis of the President's Office of Science and Technology, Dr. Hornig, to go into all of the aspects of noise and noise abatement. This involves the technical aspects, sound diminution on engines, the legal aspect, which would include zoning and things of that nature.

This committee has just recently been established as a result of a direction by the President.

There has been technical research going on for a year and a half or 2 years.

It seems to me that it started at Oklahoma City, Mr. Chairman, but there has been more to it—I am sure you are aware of the Oklahoma operation—

Senator MONRONEY. This was the sonic boom mostly.

Mr. BOYD. That is true.

Senator MONRONEY. I am talking about the subsonic airport noise. The sonic boom is another subject that we will get into later when we get the SST.

Mr. BOYD. The Committee is working on subsonic specifically. It will also have involved the research in connection with the sonic boom. But there is a considerable similarity because the supersonic aircraft will be operating at subsonic speeds in the vicinity of the airport. There is a major concern that in their operations in and out of airports at subsonic speeds the PNdb do not exceed those of existing jet aircraft. In fact, in some communities in this country there is considerable concern about the noise level of existing jet aircraft.

The Committee is specifically working on subsonic.

Senator MONRONEY. In the light of the undisputed need for more airport development and the rapidity with which it has to be brought into being, do you think that the administration should reconsider its request that \$21 million of the amount appropriated for fiscal year 1967 be rescinded?

Mr. BOYD. I would hope that the administration was not rigid in this area, but that it would be willing to reconsider and, if there were any additional facts or additional ways of looking at the facts, that it would.

Senator MONRONEY. Its recommendation you think should be examined but that the Congress will have to make up its own mind as to whether this amount should be spent or not.

Mr. BOYD. Yes, sir.

Senator MONRONEY. And restore the \$21 million.

Do you anticipate that the administration in the next 2 or 3 years will continue to request appropriations less than the Airport Act authorizes?

Mr. BOYD. I have no reason to anticipate that.

Senator MONRONEY. You would not favor at this time going above the \$75 million even though the dramatic increase you have outlined in your statement is apt to occur in all fields of aviation?

Mr. BOYD. No, sir; I would not. I am very much interested in trying to delve into this matter to see whether we are taking the only approach to aiding the communities in developing airports. It seems to me that we ought to take a fresh look at this, to ascertain whether or not there might be other alternatives. I frankly don't know.

Senator MONRONEY. You have been very helpful to us, Mr. Secretary, with the information and outlining the urgency and the need of the Federal Airport Act. I appreciate the service you have rendered us as Chairman of the Board, particularly the safety improvements that you brought about during your administration. I am grateful to you for testifying. I know that you have been up all night flying here from California.

Mr. BOYD. Thank you. It is a pleasure to be here, Mr. Chairman.

Senator MONRONEY. Our next witness is Mr. Francis Fox, general manager, Los Angeles Department of Airports, for the American Association of Airport Executives of Wilmington, Del., accompanied by Mr. Russell Hoyt, the executive director.

I understand Mr. Fox was unable to be here and Mr. Hoyt will appear in his behalf.

STATEMENT OF FRANCIS FOX, GENERAL MANAGER OF THE LOS ANGELES DEPARTMENT OF AIRPORTS AND PRESIDENT OF AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES, PRESENTED BY RUSSELL HOYT, EXECUTIVE DIRECTOR, AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES

Mr. HOYT. Mr. Chairman, Mr. Fox was, until yesterday afternoon, planning to be here. He urgently wished to appear because he firmly believes in what the program has done and the urgent need for it in the future. He called me last night and said his father had become seriously ill and he felt he should stay closer to home under such circumstances.

Senator MONRONEY. We regret the circumstances.

Mr. HOYT. The elder Mr. Fox, at age 85, went out there and into business for himself, so I guess he is a good stalwart citizen.

Senator MONRONEY. Do you have a copy of your statement?

Mr. HOYT. Yes, I do.

Senator MONRONEY. You may proceed.

Mr. HOYT. The American Association of Airport Executives is a professional group of airport executives with 900 members. Included in this group are the men who have the responsibility of operating, maintaining, and developing some 500 public-use airports. I think it important to emphasize that the airport administrators in our membership represent an excellent cross section of airports throughout the United States—from the large air terminals down through the medium-sized airports to the small general aviation fields. It is for this reason that I believe that we can comment rather authoritatively with respect to airport needs and development.

Gentlemen, there is an urgent need for a continuation of the Federal-aid-to-airports program. Airports will in the next 5 years, according to FAA forecasts, be required to handle 55 percent more passengers; double the number of jet transports; and 64 percent more general aviation aircraft. These are impressive forecasted increases—however, they are undoubtedly conservative—to date, aviation's actual growth has consistently exceeded forecasted growth by significant margins.

In 1963 when an extension of the act was in process, the big future problem appeared to be the supersonic transport but that was a good 10 years away and would serve only 15 or 20 of the large airports. Now, just 3 years later, the SST problem has paled into insignificance compared with such recent developments as the C-5A, the DC-10, the 747 which may be in service as early as 1970. Such aircraft will gross over 500,000 pounds and carry in excess of 500 passengers and large volumes of cargo.

The stretch DC-8-61, announced only last year, is now being test flown and will be in scheduled operation later this year. New short-haul jets will soon be bringing service to communities now served by DC-3's. Business jet aircraft will in increasing numbers be speeding busy executives and air shipments to and from airports that only recently had to accommodate small prop aircraft, much less demanding in runway lengths.

To determine just what airports would be required to do to cope with aviation's tremendous growth, the American Association of Airport

Executives, together with the Airport Operators Council and the National Association of State Aviation Officials during the last few months of 1965 conducted a survey of needed airport development during the 4-year period, 1966 through 1969. Questionnaires were sent to most of the 3,600 publicly owned airports in the United States, and returns were received from 1,799 of these airports, or 50 percent—certainly a very adequate sample. The survey indicated that the airports must make improvements which in the next 4 years would total \$2 billion. What improvements are needed, how they will be paid for, what airport development was accomplished in the past 5 years—these and other findings of this national airport survey are contained in a report which AAAE recently prepared.

I will not take the time now to read this report, but I do request that it be included in the record of these hearings.

Senator MONRONEY. How voluminous is it?

Mr. HOYT. It is not very large.

Senator MONRONEY. That will be fine.

Mr. HOYT. This is the fourth such survey that the three associations have conducted since 1955. We are satisfied that the figures derived from the surveys are reasonably accurate and on the conservative side. For example, since 1956 a year-by-year review of the estimated cost of planned development as found by the surveys compared with the total of requests for aid under the Federal-aid-to-airports program shows that the survey figures, rather than being pipedreams or wishful thinking have been, consistently understated. The next 4 years will be no exception, we believe.

As mentioned earlier, there is an estimated need for \$2 billion in airport development during the period 1966-69. This is what only half of all the publicly owned airports say is needed.

Senator MONRONEY. Is that during the period 1966-69, the 3-year period?

Mr. HOYT. Four years—through 1969.

It would not be statistically sound to double the need indicated by 50 percent of the airports in order to arrive at a 100-percent figure. Nevertheless it is safe to assume that many of the airports not reporting in the survey will initiate airport improvements during the period covered by the survey, thereby making the estimates of \$2 billion needed for airport development very conservative.

The local governments assisted in many cases by the States stand willing to do their share. Local sponsors will have \$1.3 billion available for needed improvements during the next 4 years; however \$760 million must be spent for urgently required improvements which are not eligible for Federal aid and hence must be financed 100 percent locally. About \$570 million will be available as matching funds for such eligible Federal aid projects as runway extensions, land acquisition and lighting. This leaves a deficit of \$627 million during the next 4 years, or approximately \$157 million annually.

There are urgent demands for Federal assistance in many areas and activities, just as there are almost insatiable demands on the local governments for improvements to schools, streets, sewers, and slums. Airports are vital to the economic well-being of the communities they serve; they are also extremely important to the Nation in interstate commerce, civil defense, military operations, and the carriage of mail.

As the benefits of an adequate national system of airports are both local and national, the costs of development should be shared locally and nationally.

These benefits are not derived solely from those airports having scheduled air service. The so-called general aviation airports play a vital role in serving the needs of business flying, air taxi service, aerial applicators, the carriage of the mails, forest fire protection, and so forth. The dollar needs of such airports are relatively small compared with those of the large air carrier airports but the needs are nonetheless urgent. To provide for a truly adequate national system of airports, we urge that the needs of the general aviation airports be given full recognition in the establishment of priorities and allocation of funds in the Federal aid to airport program.

The local governments have in the past invested approximately \$3 for every \$1 of Federal money for airports. They are prepared to continue to do so, but the Federal-local partnership must continue. We therefore urge an extension of the Federal Airport Act at a level of \$150 million yearly, respectfully reminding this committee that there is a proven need for at least \$157 million in Federal aid annually. We also ask that serious consideration be given to an extension of the act for at least 4 years, preferably 5, on a contract authorization basis.

It was my privilege—and this is Mr. Fox talking—to serve as a member of President Kennedy's task force on national aviation goals "Project Horizon." With respect to the need for advance funding, the report of this task force urged "that Congress commit funds for as long a period of time as possible—with 5 years being the absolute practical minimum. The substantial sums of money required for major airport improvement or construction imposes great and time-consuming burdens on communities. Likewise the legal and political considerations inherent in large general obligation bonds issues or revenue bond financing do not permit a precise time schedule and in many cases take years to accomplish. The ability, therefore, for communities to count on the availability of funds which may not physically be drawn down for a period of time in the future is a necessary ingredient of sound financial planning with the political and fiscal atmosphere in which many communities must plan and work."

Regarding Federal airport aid, the report stated—

One of the greatest single contributions to the progress of the Nation's air transportation service has been the enlightened attitude of Congress in providing funds for airport construction and improvement under the Federal airport aid program. In our opinion, this program is sound in concept and with the increasing requirement for additional landing areas throughout the country on the one hand, and the need to attain highest safety and operations standards at existing terminals on the other, the continuation of enabling legislation for the period of time embraced in this report (through 1970) is imperative in national interest.

Gentlemen, thank you for the opportunity to appear in Mr. Fox's behalf.

Senator MONRONEY. Thank you, Mr. Hoyt, for your statement and for the material contained therein.

You agree, and you speak for Mr. Fox, when you state that we are in a period of spectacular growth in air traffic of all kinds?

Mr. HOYT. There is no question about that in my mind, Mr. Chairman. The forecasts, both FAA and the manufacturers who get their

bread and butter from making airplanes, have very startling forecasts of future growth.

Senator MONRONEY. Your request is that the period be increased to 5 years, and that the amount per year should be raised if we are realistic about it, from \$75 to \$150 million, and you propose also that we have contract authorization to give the airports additional time for the planning and construction of the works and improvements?

Mr. HOYT. Yes; I think this is very important.

Senator MONRONEY. We should be careful on the budget figures because the war in Vietnam would make it very dangerous, I would think, to go far over the amount that the administration has agreed to, which is \$75 million a year for the coming 3 years. The 3-year period might have enabled us to get quicker to a figure that may be more compatible with your request of \$150 million as we see this growth coming on and the planning take place.

Your estimate of the airport needs totaling \$2 billion for the coming 4 years is most impressive. You and all other people familiar with airport requirements generally agree that somewhere around \$2 billion will be the total amount spent.

Mr. HOYT. Yes. We in fact think this is rather conservative because this is 50 percent of the airports reporting. Of course, those 50 percent are the largest airports. Nevertheless, the \$2 billion, in our opinion, is quite conservative and it is borne out by the performance over the last 15 years.

Senator MONRONEY. How much of that \$2 billion would be amounts eligible for matching under the Federal Airport Act? You state a good portion of that is for items which are not eligible, such as terminal areas.

Mr. HOYT. It is at least \$700 million.

Senator MONRONEY. That would not be eligible?

Mr. HOYT. That would be.

Senator MONRONEY. At least \$700 million would be eligible?

Mr. HOYT. Yes, sir.

Senator MONRONEY. Over the 4 years that would be about \$150 million a year that would be required on a 50-50 matching basis.

Mr. HOYT. That is correct.

Senator MONRONEY. Do you have any ideas of how we can help relieve the time consumed between downtown and the airport? It is becoming increasingly an important factor with traffic congestion as the distances from the downtown areas to the airport become greater because of the jet fields being located farther from the center of town.

Mr. HOYT. I think it is important that the cooperation between the planners of the Interstate System be very good so as not to route the Interstate System closer to airports but also to provide access and egress at that point. There has been some problem in that respect. Unfortunately, it seems that many of these high-speed common-transit systems leave from downtown but many of the air passengers don't necessarily leave from a central point downtown. They must reach there by their own means.

Senator MONRONEY. Going by their own cars.

Mr. HOYT. Yes.

Senator MONRONEY. Has there been a study made of that?

Mr. HOYT. Yes. We have not made such a study but I believe there have been several private companies under contract that have checked the origin and destination of passengers to and from airports.

Senator MONRONEY. You would say that even though the expenditures are increasing, that the revenues of the metropolitan airports at least are also increasing as the planes become larger and landing fees are increased to meet the size of the planes and as more frequent schedules of landings and takeoffs are put in the timetables.

Mr. HOYT. I think the revenues will be increased but they will be hard pressed to keep up with these larger airplanes, not only with their weight but cargo and passenger carrying capacities. This will impose an enormous burden on many airports to provide physical facilities to accommodate them.

Senator MONRONEY. Lots of these physical facilities will be required in new ramp space, I would presume, that can accommodate heavier loads and larger planes, and also on areas of impact on the runways, and even to the lengthening and improving of the runways.

Mr. HOYT. And overpasses, taxiways passing over highways, and even runways will have to be strengthened.

Senator MONRONEY. In order to accommodate the airport to the landing speeds and takeoff speeds of the new jets, existing ones may have to be strengthened. One further question. As I understand, there was a decision by the Comptroller General—I believe Mr. Fox mentioned it to me—with reference to the noise element. The Comptroller General has ruled that Federal aid to airport funds cannot be used to purchase land around an airport to establish a noise buffer zone. Do you know anything about that?

Mr. HOYT. Just in individual cases, that there has been some reluctance to grant Federal funds purely on that basis.

I think there are two reasons for it. It is a little more nebulous than obstructions to the approach.

Second, under the present system, no one has any assurance that if they go out and get these buffer zones or approach zones that they will be adequate in a few years. In other words, under our present setup there is nothing to prevent the aircraft from taking advantage of freer approaches, or greater areas with noise problems, to increase the weight of the aircraft, and increase the noise propagation. This is a real problem.

Senator MONRONEY. You do have a problem in clearing funds that are granted not specifically for safety but are primarily granted for noise abatement; is that correct?

Mr. HOYT. That is my understanding; yes, sir.

Senator MONRONEY. Do you believe that the noise problem is of sufficient importance to justify Federal aid for land acquisition in this field?

Mr. HOYT. Yes. The airports certainly need assistance in this respect because to date it has been the airports and not the aircraft operators that have been taking the brunt of noise complaints and noise suits, and so on. Something will have to give somewhere.

Senator MONRONEY. Are many airports buying up land because of noise abatement?

Mr. HOYT. They are attempting to, or attempting to exercise some control over infringements.

Senator MONRONEY. Zoning and things of that kind?

Mr. HOYT. Yes, sir.

Senator MONRONEY. One further question.

With the development of the supersonic aircraft, and its eventual use in scheduling in land operations, do you expect to see special supersonic airports built to serve 2 towns that may be 50, 75, 100 miles distant from one another, regional airports, because of the peculiar nature of the supersonic jet, cruising at some 70,000 feet altitude, and the obvious expense of frequent landings which I am sure the operators will seek to avoid?

Mr. HOYT. I am just wondering if the volume of operation would be sufficient to support an exclusive airport for SST operation.

Senator MONRONEY. This is my question, with particular reference to the need to serve an area with one landing.

Mr. HOYT. Such an airport might be established and fed from other airports. In other words, a short-haul flight to the supersonic site. However, the manufacturers claim that presently this aircraft will be quite economical to operate in short stage lengths. In other words, as it develops a load, perhaps stopping at two or three places before it goes supersonic on a long haul. That, perhaps, remains to be seen.

Senator MONRONEY. In other words, it could make two stops within one State or even three, and pick up a load and go forward. But would it be apt to make two or three stops in an area because of the expense of the landing and takeoff, aside from the original pickup at the start of the flight?

Mr. HOYT. Probably not. I hesitate to give figures on what it might cost to land several times to develop a good payload.

Senator MONRONEY. It is the feeling of the American Association of Aircraft Executives, is it not, that a plane should be capable of using our present airport system?

Mr. HOYT. Yes. I think that with our advanced technology that we must somewhere along the line fit the aircraft to the existing real estate which we call the airport now. We do that in connection with highways and canals and so on. It would seem to me that there must be a practical limit for runway extension.

Senator MONRONEY. And you could get these on and off without building a completely new airport system.

Mr. HOYT. Yes, sir.

Senator MONRONEY. Thank you very much for your very helpful testimony, Mr. Hoyt. We appreciate your appearing here to help us out in understanding this bill.

Mr. HOYT. Thank you, sir.

(Report of national airport survey follows:)

NATIONAL AIRPORT SURVEY

Planned airport development during 1966, 1967, 1968, and 1969

REPORT OF A SURVEY OF THE NATION'S PUBLIC AIRPORTS CONDUCTED JOINTLY BY AIRPORT OPERATORS COUNCIL, AMERICAN ASSOCIATION OF AIRPORT EXECUTIVES, AND NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS, DECEMBER 1965

(This survey is the fourth survey of airport development needs conducted by the three associations since 1955)

INTRODUCTION

Both government and private enterprise forecast tremendous growth in the number and capacity of aircraft. The demands on airports to provide the necessary improvements to keep pace with this growth will be great.

At the beginning of 1965 there were 9500 airports in the United States. Approximately 5900 of these, or 62%, are privately owned. The remaining 3600 airports are publicly owned primarily by units of local government.

The local governments, considering the many other demands for their funds and the many national benefits derived from an adequate system of airports, cannot be expected to finance entirely the needed airport improvements. Although the local governments in some cases are receiving considerable assistance from their state governments, funds from other sources will be required.

Both to determine the need for continuance of the Federal Aid to Airports Program (FAAP), and to demonstrate the significant role the local governments are playing in the development of a national system of airports, a national airport survey was conducted during the last three months of 1965.

The information sought by the survey was primarily:

(a) The total estimated cost of airport development required during the four-year period 1966 through 1969, with the costs separated between those items of development which are eligible for funds on a matching basis under the Federal Airport Act, and those not eligible;

(b) The estimated amount of state and local funds that will be available to meet the costs of this future airport development;

(c) The actual cost of public airport development projects, both eligible and ineligible for federal matching funds, completed during the five year period 1960 through 1964.

This National Airport Survey was conducted jointly by the Airport Operators Council, American Association of Airport Executives, and National Association of State Aviation Officials, and is the fourth such survey to be conducted by these three associations since 1955.

Following the procedure used in past airport surveys, Coordinators in each State sent questionnaires to all known airport operating agencies or local governmental units which owned a public airport, or proposed the development of a new airport within the next four years. Questionnaires once completed were returned to the State Coordinators who were responsible for tabulating the returns and compiling state summaries. These summaries were forwarded to the American Association of Airport Executives at Wilmington, Delaware, National Survey Headquarters, where a national tabulation was completed.

The condensed tabulation below shows the estimated costs of planned airport development (1966-1969) as indicated by the survey.

Estimated costs of planned airport development for 4-year period 1966 through 1969

Item of development eligible for Federal matching funds:	
Land acquisition-----	\$255, 379, 000
Landing area-----	810, 817, 000
Lighting-----	85, 335, 000
Service buildings-----	45, 109, 000
	1, 196, 640, 000
Other airport development planned (passenger and cargo terminals, hangars, other service buildings)-----	759, 169, 000
Total costs of airport development (1966-69)-----	1, 955, 809, 000
Sponsor funds expected to be available (1966-69)-----	1, 328, 750, 000
Needed Federal assistance for airport development-----	¹ 627, 059, 000

¹ Approximately \$157 million annually.

ESTIMATED COST OF PLANNED AIRPORT DEVELOPMENT

The 1965 National Airport Survey indicated that the cost of needed airport improvements will continue quite uniformly during the next four years.

Year:	Cost of planned improvements
1966-----	\$473, 023, 000
1967-----	503, 390, 000
1968-----	493, 571, 000
1969-----	485, 825, 000
Four years-----	1, 955, 809, 000

Airports reported future development under five broad categories and the national tabulation shows the following distribution :

		<i>Percent</i>
1. Land acquisition.....	\$255,379,000	13.1
2. Land area.....	810,817,000	41.4
3. Lighting.....	85,335,000	4.4
4. Service buildings.....	45,109,000	2.3
5. Other development.....	759,169,000	38.8

1. Costs to acquire land needed for: airport expansion, landing aids, approach protection, noise buffer zones; also, costs of air rights or easements.

2. Costs of site preparation (including clearing, draining, filling, and grading), sodding, paving, resurfacing to build or improve landing strips, runways, taxiways, loading and parking aprons.

3. Costs of materials and installation of lighting for runways, taxiways, and aprons.

4. Costs of buildings to house field maintenance equipment and crash fire-rescue vehicles.

5. Costs of all improvements presently not eligible for federal aid, e.g. terminal buildings, cargo facilities, hangars, auto parking areas, etc.

Items 1 through 4 are eligible for federal matching funds. A national total of such items amounts to \$1,196,640,000, with land acquisition making up 21.3%—landing area 67.8—lighting 7.1%—and service buildings 3.8%.

As noted on Page 3, airports will spend \$759 million for passenger terminal buildings, cargo facilities, parking areas and certain other items which are not eligible for federal aid under the FAAP.

This relatively large investment in passenger and cargo handling facilities is understandable when viewed in relation to the rapidly increasing carrying capacity of air carrier aircraft. This increased capacity per aircraft may, at many airports, result in a requirement for increased accommodations for passenger and cargo without necessarily significant improvements in the landing area.

The local governments, assisted by the states, will be required to provide 100% of the funds needed to build or improve passenger and cargo facilities and related items. Hence, \$759 million of the total \$1,328,750,000 of local and state funds estimated to be available must be used exclusively for these improvements. This will mean that \$570 million will be available as sponsor's funds for projects eligible for federal matching funds.

As \$1.2 billion (Federal and sponsor) will be required to meet all FAAP eligible airport development projects during the 1966-1969 period, there is an indicated need during the next four years of \$627 million FAAP funds, or about \$157 million annually. This contrasts sharply with the level of \$50 million for the Federal Aid to Airports Program proposed by the Administration for fiscal year 1967, and \$75 million per year for 1968, 1969, and 1970.

THE U.S. SYSTEM OF AIRPORTS—SURVEY PARTICIPATION

Of the 3600 publicly owned airports in the United States and Puerto Rico, 1799, or 50%, responded to the survey. It would not be statistically sound to double the \$2 billion need indicated by 50% of the airports in order to arrive at a 100% figure. Nevertheless, it is safe to assume that many of the airports not participating in the survey will initiate airport improvements during the period 1966 through 1969, thereby making the \$2 billion figure of planned airport development very conservative.

The questionnaires returned show the following participation by Hub Airports:

Hub	Total number	Number in survey	Percent
Large.....	21	16	77
Medium.....	38	36	95
Small.....	83	69	83
Non.....	373	270	72
Total.....	515	391	76

AIRPORT USAGE

Each airport participating in the survey was requested to provide actual or estimated number of aircraft movements during 1964, divided into three broad categories: air carrier, military, and general aviation. The national tabulation shows that at the 1799 airports reporting there were:

	Number	Percent
Air carrier operations.....	6,299,000	17.3
Military aircraft operations.....	2,791,000	7.6
General aviation operations.....	27,414,000	75.1
Total operations.....	36,540,000	100.0

Because "general aviation" is such a broad segment of aviation, including as it does everything that is not air carrier or military, the airports were requested to subdivide general aviation aircraft movements into air taxi, business aircraft, and "other." Not all airports provided this breakdown and of those that did, most stated the figures were estimates.

Using these estimates, it was found that general aviation movements were comprised of:

	Number	Percent
Business aircraft.....	6,035,000	22.0
Air taxi.....	1,782,000	6.5
Other general aviation.....	19,597,000	71.5
Total general aviation.....	27,414,000	100.0

It is interesting to note how closely these figures correspond with the FAA estimates of general aviation flying throughout the nation. The FAA Statistical Handbook of Aviation—1965 edition, under "General Aviation Aircraft by Type of Flying, 1964" lists:

	Percent
Business.....	24
Air Taxi.....	6
All Other.....	70

COMPARISON WITH PREVIOUS SURVEYS

The results of the 1965 National Airport Survey indicated that the survey conducted in 1960 was accurate as to *estimated* 1961-1965 development costs and thus gives validity to the accuracy of the recent survey's estimate of future needs during the period 1966 through 1969.

The 1960 survey estimated that \$1,125 million was needed for planned airport improvements during the four-year period July 1961 through June 1965, or an average of approximately \$280 million per year. The survey just completed indicated that during the five-year period 1960 through 1964, the airports in fact improved facilities in the total amount of \$1,251 million, or an average of approximately \$250 million per year.

An explanation of the difference, approximately \$30 million per year, between the estimated amounts to be spent on improvements, and the amounts actually spent, can be found in the tabulation appearing on page 7, which indicates the consistently low level of FAAP allocations compared with the level of sponsors' requests. During the 11-year period 1956-1966, sponsor requests exceeded actual Federal allocations by an average of \$86 million a year.

Federal funds allocated in relation to planned development and sponsor requests

[Millions of dollars]

Survey No.	Year	Total estimated cost eligible items (col. 3)	Eligible Federal contributions (50 percent) (col. 4)	Federal funds requested (col. 5)	Federal funds allocated (col. 6)
1.....	1956	281.0	140.5	154.9	58.4
	1957	187.4	93.7	127.8	55.7
2.....	1958	379.9	189.9	145.2	55.0
	1959	275.2	137.6	200.2	63.6
	1960	216.8	108.4	129.5	57.1
	1961	195.3	97.6	150.4	58.8
3.....	1962	297.0	148.5	158.1	69.5
	1963	238.4	119.2	163.2	74.2
	1964	195.3	97.6	143.4	75.9
	1965	243.5	121.7	137.4	72.6
4.....	1966	317.3	158.6	161.7	84.5
	1967	307.6	153.8	-----	-----
	1968	275.8	137.9	-----	-----
	1969	296.0	148.0	-----	-----

NOTES

Column 3: Lists the total estimated cost of items of planned airport development as forecasted by the 4 national surveys conducted by the Airport Operators Council, American Association of Airport Executives, and National Association of State Aviation Officials, but excluding cost of those items which at the time of the surveys were not eligible under the Federal aid airports program.

Column 4: Shows the amount (50 percent) of the total cost of planned projects that could have been matched by the Federal Government had Federal funds been available.

Column 5: Indicates the actual amounts of Federal funds requested by the sponsors through submission of project applications each year—and col. 6, the amounts actually allocated by the Federal Aviation Agency.

A comparison of the figures in Columns 5 and 6 indicates the consistently low level of Federal aid in relation to the indicated need.

With the exception of 1958, the subsequent project requests have been significantly greater than the survey estimates of planned development, which confirms the opinion that the estimated development costs of Survey No. 4, made in 1965 for the four years 1966 through 1969, are conservative.

FEDERAL-STATE-LOCAL FINANCIAL PARTICIPATION IN AIRPORT DEVELOPMENT

With respect to funding, the 1965 National Airport Survey showed that the Federal Government provided \$301.1 million, or about 24 percent, of the total cost of all public airport development reported during the five-year period, 1960 through 1964.

	Amount	Percent
Local funds.....	\$851,788,000	68
State funds.....	98,200,000	8
Federal funds.....	301,114,000	24
Total.....	1,251,102,000	100

This indicates that during the period 1960 through 1964, for every dollar of federal money, there were three dollars from local and state sources used to improve the nation's airport system.

The \$1.25 billion for airport development included \$360 million for terminal building construction or improvement. The latter were not eligible for federal financial assistance and were paid for 100% by local governments, assisted in some cases by states. To arrive at the cost of airport improvement projects that were eligible for federal funds on a matching basis, the total spent on terminal buildings was deducted:

Total completed airport development..... \$1, 251, 102, 000
 Less cost of terminal building construction..... 359, 822, 000

Total eligible under Federal aid airport program..... 891, 280, 000

The survey coordinators recognize that there were other projects in addition to terminal buildings which were not eligible for financial assistance under the Federal Airports Act; for example, cargo buildings, auto parking lots, etc. However, the cost of these other projects on a national basis represented such a small portion of the non-FAAP eligible airport improvement that it was judged reasonably accurate to consider all airport projects except those involving terminals and related items as projects for which federal aid could be requested.

On the basis of \$891.3 million total airport development as eligible to be funded 50/50% by federal and local governments, the survey found that in actual performance it was a 67/33% split:

Financing of FAAP-eligible airport development

	Amount	Percent
Local funds.....	\$492, 000, 000	56
State funds.....	98, 000, 000	11
Federal funds.....	301, 000, 000	33

The above percentages are derived from the national tabulation. On a case-to-case study, at some airports Federal assistance amounted to approximately 50% of the total cost of eligible project development; at others, the Federal contributions do not exceed 5%.

NOTE.—Inquiries regarding the survey or the national summary may be directed to the National Survey Coordinator which, for this particular survey, was: Mr. F. R. Hoyt, Executive Director, American Association of Airport Executives, P. O. Box 767, Wilmington, Delaware 19899.

APPENDIX.

Survey Questionnaire.

State Summary Form—Past Airport Development.

State Summary Form—Future Airport Development.

Number of Airports Completing Questionnaires.

Cost of Planned Airport Development, 1966 through 1969, by States, related to the Federal-Aid-to-Airport Program.

Cost of Past Airport Development, 1960 through 1964; Cost of Planned Airport Development, 1966 through 1969; Sponsors Funds Available; and Additional Funds Needed.

SURVEY OF AIRPORT DEVELOPMENT COSTS

1966 - 1969

Conducted by: AOC — AAAE — NASAO

NAME OF AIRPORT

LOCATION
(CITY) (COUNTY) (STATE)

1. Is this airport existing or proposed
2. Actual, or estimated, number of landings and takeoffs during 1964 by:
 - Air carrier Air taxi
 - Military Business aircraft
 - Other General Aviation
3. During the last five years (1960 thru 1964) what was the total cost* of all airport development projects \$.....
 - a. Of this amount: how much was contributed by Federal Gov't.
 - b. Of this amount: how much was contributed by the State
 - c. Of this amount: how much was spent for terminal bldg. construction

(* Include all capital improvements; do not include costs of operating and maintaining the airport or purchasing field equipment, fire trucks, etc.)

4. FUNDS NEEDED TO BUILD OR IMPROVE THE AIRPORT DURING THE NEXT FOUR YEARS:

	1966	1967	1968	1969	TOTAL
a. COSTS OF ACQUIRING LAND (See Note 1)					
b. COST OF DEVELOPING LANDING AREA (Note 2)					
c. COST FOR NEW RUNWAY & TAXIWAY LIGHTING					
d. COST OF NEW SERVICE BUILDINGS (Note 3)					
SUB-TOTAL (Items a thru d)					
e. COST FOR OTHER IMPROVEMENTS (Note 4)					
TOTALS (Items a thru e)					†

- † TOTAL adding across the columns should equal TOTAL adding down.
- NOTE 1: Include all costs to acquire land needed for: airport expansion, landing aids, approach protection, noise buffer zones; also costs of air rights or land easements.
- NOTE 2: List all costs, including site preparation (clearing, draining, filling, grading, etc.), sodding, paving or resurfacing, to build or improve landing strips, runways, taxiways, loading and parking aprons.
- NOTE 3: List all costs for buildings needed to house field maintenance equipment, and/or crash fire-rescue vehicles.
- NOTE 4: Include all improvements not eligible for federal aid, for example: terminal bldgs., cargo bldgs., hangars, auto parking areas, access roads, etc.

5. FUNDS AVAILABLE OR ANTICIPATED FROM ALL SOURCES, EXCEPT FEDERAL AND STATE, TO ACCOMPLISH THE ABOVE DEVELOPMENT PROJECTS IN THE NEXT FOUR YEARS:

	1966	1967	1968	1969	TOTAL
Funds on Hand or Budgeted					
Future Anticipated Funds					
TOTAL					

6. How does the airport and air travel improve the economy of your area?
(Please use the reverse side of this form—blue copy only—to answer in narrative form; give specific examples of how the airport has helped the local economy)

SUBMITTED BY..... TITLE..... DATE.....

Total number of airports, and airports participating in survey

State	Publicly owned airports		
	Total number per FAA figures as of January 1965	Number of airports receiving questionnaires ¹	Number of airports completing questionnaires
Alabama.....	73	64	16
Alaska.....	400	² 37	37
Arizona.....	78	37	13
Arkansas.....	56	² 14	14
California.....	253	195	77
Colorado.....	61	50	19
Connecticut.....	14	10	9
Delaware.....	2	2	2
Florida.....	116	97	42
Georgia.....	77	96	44
Hawaii.....	21	² 8	8
Idaho.....	118	30	6
Illinois.....	68	² 64	64
Indiana.....	49	76	43
Iowa.....	72	100	45
Kansas.....	107	² 6	6
Kentucky.....	42	² 56	56
Louisiana.....	57	² 10	10
Maine.....	46	50	23
Maryland.....	17	² 13	13
Massachusetts.....	37	² 40	40
Michigan.....	114	² 71	71
Minnesota.....	111	² 141	141
Mississippi.....	63	² 31	31
Missouri.....	70	91	12
Montana.....	111	² 78	78
Nebraska.....	85	80	49
Nevada.....	36	² 5	5
New Hampshire.....	13	² 12	12
New Jersey.....	19	² 3	3
New Mexico.....	52	50	28
New York.....	59	69	44
North Carolina.....	46	² 27	27
North Dakota.....	66	² 60	60
Ohio.....	54	57	23
Oklahoma.....	92	125	25
Oregon.....	78	36	25
Pennsylvania.....	64	65	57
Rhode Island.....	7	² 5	5
South Carolina.....	43	² 26	26
South Dakota.....	58	² 51	51
Tennessee.....	53	² 81	81
Texas.....	212	256	75
Utah.....	50	² 58	58
Vermont.....	12	² 22	22
Virginia.....	39	80	64
Washington.....	110	² 12	12
West Virginia.....	15	² 24	24
Wisconsin.....	84	² 62	62
Wyoming.....	42	² 27	27
Puerto Rico.....	14	² 14	14
Total.....	3,636	2,774	1,799

¹ Includes 271 new (proposed) airports.² Number of questionnaires sent to airports was not reported or questionnaires were not distributed to airports but completed by State or National survey coordinator.

FEDERAL-AID-TO-AIRPORTS PROGRAM

Cost of planned airport development, 1966-69

[Dollar amounts are in thousands]

States	Publicly owned airports	Airports reporting in survey	Total cost of planned airport development	Federal-aid-to-airports program		
				Total cost of FAAP eligible items	Sponsors funds available	Additional funds needed
	(1)	(2)	(3)	(4)	(5)	(6)
Alabama.....	73	16	\$13,621	\$10,782	\$4,269	\$6,513
Alaska.....	400	37	43,659	39,574	15,014	24,560
Arizona.....	78	13	19,810	16,118	5,847	10,271
Arkansas.....	56	14	9,000	7,188	2,651	4,537
California.....	253	77	141,441	96,137	75,812	20,325
Colorado.....	61	19	23,566	5,875	2,530	3,345
Connecticut.....	14	9	36,389	22,856	10,115	12,741
Delaware.....	2	2	2,985	2,710	815	1,895
Florida.....	116	42	82,847	40,832	16,392	24,440
Georgia.....	77	44	32,198	17,565	5,772	11,793
Hawaii.....	21	8	25,654	16,446	10,116	6,330
Idaho.....	118	6	5,803	5,093	1,384	3,709
Illinois.....	68	64	252,507	148,495	70,782	77,713
Indiana.....	49	43	28,936	20,320	9,881	10,459
Iowa.....	72	45	18,003	13,377	4,835	8,542
Kansas.....	107	6	5,658	5,030	2,599	2,431
Kentucky.....	42	56	38,991	27,931	7,192	20,739
Louisiana.....	57	10	29,759	25,351	14,034	11,317
Maine.....	46	23	6,429	5,416	2,994	2,422
Maryland.....	17	13	26,378	15,336	4,731	10,605
Massachusetts.....	37	40	78,423	47,629	35,014	12,615
Michigan.....	114	71	62,076	50,404	25,305	25,099
Minnesota.....	111	141	27,099	12,141	4,566	7,575
Mississippi.....	63	31	13,744	12,407	5,411	6,996
Missouri.....	70	12	58,089	29,648	13,187	16,461
Montana.....	111	78	10,974	6,936	1,987	4,949
Nebraska.....	85	49	15,107	12,207	4,224	7,983
Nevada.....	36	5	12,032	10,662	3,577	7,085
New Hampshire.....	13	12	3,842	3,087	1,160	1,927
New Jersey.....	19	3	117,019	18,819	10,509	8,310
New Mexico.....	52	28	5,571	3,887	1,616	2,271
New York.....	59	44	149,537	68,775	11,670	57,105
North Carolina.....	46	27	20,291	16,182	4,523	11,659
North Dakota.....	66	60	5,002	3,662	1,933	1,729
Ohio.....	54	23	27,155	17,805	8,475	9,330
Oklahoma.....	92	25	7,319	5,241	2,743	2,498
Oregon.....	78	25	11,421	8,694	3,926	4,768
Pennsylvania.....	64	57	102,122	52,095	23,295	28,800
Rhode Island.....	7	5	4,678	4,130	1,452	2,678
South Carolina.....	43	26	2,445	2,445	1,302	1,143
South Dakota.....	58	51	9,246	7,208	3,606	3,602
Tennessee.....	53	81	62,316	41,520	23,612	17,908
Texas.....	212	75	140,180	83,139	47,461	35,678
Utah.....	50	58	6,361	5,052	1,841	3,211
Vermont.....	12	22	12,210	10,484	3,211	7,273
Virginia.....	39	64	28,252	22,460	10,367	12,093
Washington.....	110	12	27,843	15,823	7,392	8,431
West Virginia.....	15	24	39,892	38,594	17,991	20,603
Wisconsin.....	84	62	25,128	21,295	8,473	12,822
Wyoming.....	42	27	4,360	4,057	1,658	2,399
Total, States.....	3,622	1,785	1,932,918	1,178,920	559,252	619,668
Puerto Rico.....	14	14	22,891	17,720	10,329	7,391
Total.....	3,636	1,799	1,955,809	1,196,640	569,581	1,627,059

1 \$627,059,000 in additional funds needed is for the 4-year period, or approximately \$157,000,000 annually.

NOTE

Col. (1): Federal Aviation Agency figures for U.S. publicly owned landing facilities (including seaplane bases and heliports) as of Jan. 1, 1965.

Col. (2): Publicly owned airports reporting in this survey either directly, or indirectly through State aviation departments. Included 271 proposed airports which accounts for the fact that for some States the number of airports reporting exceeded number of airports as shown in col. (1).

Col. (3): Cost of planned development including eligible Federal-aid-to-airport projects, and ineligible projects such as terminal buildings, cargo facilities, hangars, etc.

Col. (4): Cost of planned airport improvements that are eligible for Federal airport aid on a matching basis.

Col. (5): Total of State and local funds that are anticipated to be available to meet the costs of development per col. (4).

Col. (6): Additional funds needed to meet the cost of development per col. (4).

Cost of past airport development, 1960-64 and cost of planned airport development, 1966-69

(Thousands of dollars)

State	Cost of past airport development, 1960 through 1964			Cost of planned airport development, 1966 through 1969							Sponsors funds estimated to be available, 1966 through 1969			Additional funds needed
	Total	Contribution		Land acquisition	Land- ing area	Lighting	Service build- ings	Total FAAAP eligible	Terminal build- ings and other	Total	Local	State	Total	
		Federal	State											
Alabama.....	12,881	4,268	754	7,859	4,594	882	511	10,782	2,889	13,621	7,108	(2)	7,108	6,513
Alaska.....	23,229	13,387	9,046	7,996	35,448	1,227	1,054	39,574	4,085	43,659	1,800	17,239	19,000	24,660
Arizona.....	13,226	4,033	102	9,091	9,872	1,290	405	16,118	3,692	19,810	4,169	350	4,463	10,577
Arkansas.....	3,961	1,209	-----	1,852	4,150	1,581	456	7,138	1,812	9,050	17,111	4,000	121,110	2,325
California.....	101,806	31,370	422	70,014	36,080	3,627	1,965	96,137	45,304	141,441	20,221	-----	20,221	3,345
Colorado.....	31,659	10,223	-----	21,636	4,804	278	501	5,875	17,694	23,569	20,400	-----	20,400	12,741
Connecticut.....	7,989	2,663	4,472	554	5,106	1,575	1,070	22,856	13,553	36,389	1,090	-----	1,090	1,895
Delaware.....	1,174	398	-----	776	2,230	180	150	2,110	42,715	82,847	-----	-----	82,847	24,440
Florida.....	27,478	16,269	608	28,560	9,393	3,257	1,257	40,832	42,715	82,847	19,405	1,000	58,407	11,793
Georgia.....	45,437	16,269	35,065	28,560	7,181	740	707	17,466	14,633	32,106	19,405	1,000	20,324	6,330
Hawaii.....	39,913	4,848	-----	1,658	8,788	5,233	896	15,093	9,298	24,355	2,094	(2)	2,094	3,709
Idaho.....	191,360	15,438	12,129	621	109,453	9,757	6,840	148,495	108,562	257,057	157,619	16,725	174,344	77,713
Illinois.....	11,769	4,963	-----	6,806	14,501	639	594	30,377	8,616	28,936	18,497	-----	18,497	10,439
Indiana.....	7,887	3,203	223	4,461	1,201	915	220	5,030	4,626	18,003	3,227	400	3,227	8,542
Iowa.....	2,520	5,962	1,921	9,845	9,218	1,845	730	27,931	11,060	38,991	17,052	1,200	18,252	20,739
Kansas.....	17,404	9,767	15,455	15,455	2,248	1,123	141	95,351	4,468	29,759	16,442	2,231	11,317	11,422
Louisiana.....	24,000	9,767	430	10,637	4,440	670	204	5,416	1,013	6,429	1,776	-----	1,776	4,422
Maine.....	1,371	1,833	50	5,780	673	926	120	15,336	11,042	26,378	14,773	1,000	15,773	10,605
Maryland.....	7,154	7,037	-----	36,790	38,865	4,671	215	47,629	30,794	78,423	64,608	1,200	65,808	12,615
Massachusetts.....	45,269	11,431	5,591	9,720	34,174	5,424	1,737	50,404	11,672	62,076	18,540	18,437	36,977	25,099
Michigan.....	32,842	6,688	2,666	22,830	1,183	1,183	250	12,141	14,958	27,099	16,774	2,750	19,524	7,575
Minnesota.....	13,908	4,880	7	9,021	9,091	1,194	371	12,407	1,337	13,744	6,488	-----	6,488	6,996
Mississippi.....	21,876	6,908	-----	14,970	5,682	1,877	374	29,648	4,039	58,089	40,428	1,200	41,628	16,461
Missouri.....	8,242	3,913	1,030	3,999	5,102	877	374	6,936	4,039	10,975	3,743	2,283	6,026	4,949
Montana.....	13,108	9,104	1,152	3,031	4,504	737	617	12,207	2,901	15,108	5,745	1,380	7,125	7,983
Nebraska.....	9,480	3,749	247	5,484	4,785	285	377	10,662	1,369	12,031	4,946	(2)	4,946	7,085
Nevada.....	3,893	1,597	666	1,300	2,511	721	377	3,887	755	4,642	800	-----	800	1,927
New Hampshire.....	10,829	1,828	9,001	700	14,764	721	2,634	18,819	98,200	117,019	108,709	-----	108,709	8,310
New Jersey.....	4,824	993	39	3,792	2,803	672	122	3,887	1,683	5,570	3,029	270	3,299	2,271

See footnotes at end of table.

FEDERAL-AID-TO-AIRPORTS PROGRAM

Cost of past airport development, 1960-64 and cost of planned airport development, 1966-69—Continued

(Thousands of dollars)

State	Cost of past airport development, 1960 through 1964				Cost of planned airport development, 1966 through 1969							Sponsors funds estimated to be available, 1966 through 1969			Additional funds needed
	Total	Contribution		Land acquisition	Land- ing area	Lighting	Service build- ings	Total FAAP eligible	Terminal build- ings and other	Total	Local	State	Total		
		Federal	State											Local	
New York.....	229,623	16,654	-----	212,969	20,365	42,572	2,355	3,482	68,775	80,762	149,537	92,432	-----	92,432	57,105
North Carolina.....	9,881	3,998	-----	5,883	2,330	12,042	1,474	335	16,182	4,109	20,291	8,632	-----	8,632	11,659
North Dakota.....	5,874	2,162	78	3,634	737	2,496	324	105	3,662	1,340	5,002	3,096	177	3,273	3,729
Ohio.....	20,408	7,747	50	12,611	5,385	9,523	1,407	1,479	17,805	9,850	27,155	12,825	5,000	17,825	9,330
Oklahoma.....	11,891	4,387	51	7,453	1,351	2,355	1,060	475	5,241	2,078	7,319	3,521	1,300	4,821	2,498
Oregon.....	10,257	5,057	145	5,055	2,020	5,194	1,162	318	8,694	2,727	11,421	6,653	-----	6,653	4,768
Pennsylvania.....	47,812	14,685	4,952	28,175	5,662	36,476	6,553	3,274	52,095	50,027	102,122	67,522	2,000	73,322	28,800
Rhode Island.....	1,718	851	-----	867	480	3,007	226	416	4,130	548	4,678	-----	-----	4,678	2,678
South Carolina.....	8,661	2,419	950	5,292	180	2,220	45	416	2,445	-----	2,445	741	561	1,302	1,143
South Dakota.....	3,101	2,050	98	953	497	6,026	377	307	7,208	2,038	9,246	4,048	1,596	5,644	3,602
Tennessee.....	44,840	16,113	4,888	23,839	7,274	29,433	3,499	1,264	41,520	20,796	62,316	41,308	3,100	44,408	17,908
Texas.....	36,379	9,451	253	26,645	21,728	56,032	3,817	1,562	83,139	57,041	140,180	103,502	1,000	104,502	35,678
Va.	7,820	3,376	425	4,019	350	4,051	319	354	5,052	1,309	6,361	2,550	600	3,150	3,211
Vermont.....	13,385	662	440	1,308	1,308	7,703	1,203	270	10,484	1,726	12,210	1,405	3,532	4,937	7,273
Virginia.....	4,879	4,879	1,548	4,065	1,308	16,265	1,493	606	22,460	5,792	28,252	10,159	6,000	16,159	12,093
Washington.....	13,881	5,094	-----	12,002	4,806	6,281	1,695	30	15,823	12,021	27,844	19,413	(²)	19,413	8,431
West Virginia.....	6,287	2,962	3,365	6,423	3,365	16,528	2,211	1,187	28,772	1,298	30,892	12,306	(²)	12,306	20,603
Wisconsin.....	2,609	1,264	311	1,044	963	2,730	321	43	4,057	3,833	26,128	12,306	(²)	12,306	12,822
Wyoming.....	1,244,201	298,858	93,555	851,788	248,795	800,010	85,122	44,980	1,178,920	753,998	1,932,918	1,176,177	200	1,376,177	619,688
Puerto Rico.....	6,901	2,256	4,645	(¹)	6,584	10,807	200	129	17,720	5,171	22,891	15,500	(¹)	15,500	7,391
Total.....	1,251,102	301,114	98,200	851,788	265,379	810,817	85,922	45,109	1,106,640	759,169	1,865,809	1,176,177	152,573	1,328,750	627,059

¹ Sponsors funds are those of the Puerto Rico Ports Authority, an agency of the Commonwealth of Puerto Rico.

² Information on anticipated State aid, if any, was not provided.

³ Included in local sponsors funds is some State and Appalachia program aid.

⁴ Details not provided.

NOTE.—Due to rounding of figures to nearest thousands, there are minor differences in addition across and down the columns.

Senator MONRONEY. Our next witness is Mr. Byron W. Leydecker, National Association of Counties. Mr. Leydecker will be introduced by Congressman Don Clausen of California.

We appreciate your being here, Congressman, to have your support of the Federal Airport Act and to introduce your distinguished constituent.

STATEMENT OF HON. DON H. CLAUSEN, A REPRESENTATIVE IN THE CONGRESS OF THE UNITED STATES, FROM THE FIRST DISTRICT, STATE OF CALIFORNIA

Mr. CLAUSEN. Thank you, Mr. Chairman.

I am pleased to be before your committee and have this opportunity to introduce the chairman of the Board of Supervisors for Marin County, Mr. Byron W. Leydecker, who will be not only presenting the case for Marin County, that he represents, but also for the National Association of County Officials.

Mr. Chairman, as you I am sure will recall, I am proud to have been a member of the fraternity of supervisors, having served in my own county.

Following Mr. Leydecker's remarks, Mr. Chairman, I would like to add a few of my own. I intend to build my case over in the House. With that I would like to introduce Supervisor Byron Leydecker, chairman of the board, Marin County.

Senator MONRONEY. We are very happy to have Mr. Leydecker. You may proceed in your own way.

STATEMENT OF BYRON W. LEYDECKER, CHAIRMAN OF THE BOARD OF SUPERVISORS, MARIN COUNTY, CALIF., ON BEHALF OF THE NATIONAL ASSOCIATION OF COUNTIES

Mr. LEYDECKER. Thank you, Mr. Chairman.

I should like to thank you for this opportunity to present the views of both the National Association of Counties and of the county which I represent as well.

The primary purpose of my appearing before you is to urge your support of S. 3096, which will extend the Federal Airport Act 3 additional years, commencing with the 1967-68 fiscal year.

As you know, the bill envisions a total expenditure over this period of \$199,500,000, most of which will be matched with local funds. I believe that the benefits which have been derived from the Federal Airport Act are self-evident. The Federal Government, in partnership with local government, has made substantial progress and achieved commendable success in providing cities, counties, and States with sorely needed airport facilities. There is, in fact, no serious body of informed opinion which contends that this outstanding program should be abandoned.

Therefore, on behalf of Marin County, Calif., as well as the other counties in the United States, I earnestly urge your support of S. 3096.

CURTAILMENT OF EXPENDITURES FOR GENERAL AVIATION AIRPORTS

I would also like to take advantage of this opportunity to discuss, very briefly, the serious problems which would be created by the proposed curtailment of presently appropriated airport funds, as re-

quested by the administration. You are, no doubt, aware that the President has requested the Congress to delete \$21 million from the \$71 million appropriated for airport development during the 1966-67 fiscal year. This proposal contemplates that primary emphasis in grants will be placed upon interstate airports, with an ensuing reduction in expenditures for development of general aviation airports.

Although it is impossible to gage the total impact of this unexpected change in policy, the serious effect of the proposed curtailment of airport funds on Marin County may be of some guidance and interest to you in considering the ultimate effect of this reduction, if applied throughout the United States.

I am not unaware that, because of the present demands on our national resources, Federal funds must be channeled into areas of the greatest immediate urgency. I do believe, however, that the continued construction and development of general aviation airports is nonetheless of sufficient importance as to merit your serious consideration, and on a continuing basis in the upcoming fiscal year.

Marin County is located on U.S. Highway 101, directly north of San Francisco. It is one of the nine counties comprising the San Francisco Bay area. With a population of 192,000, Marin County has the highest per capita income of any county in California, and the eighth highest income per capita, in the United States. Since 1937, the county's population has more than tripled. Statistics indicate this trend continues. Although the county's area is only 521 square miles, 65 percent of its land is still undeveloped.

Because of its desirable location, climate, and topography, the primary land use in Marin County is residential. As a result, despite apparent affluence, the unceasing demand for increased local services has placed a disproportionately heavy burden on residential property taxpayers, and the amount of property taxes available for less immediate services, such as airport development, are severely limited.

One of the most important fundamental problems facing Marin, and other similar counties, is the necessity to achieve a balanced tax base by reversing the trend to primarily residential land use. Development of general aviation airports can be a key factor in breaking this cycle.

Throughout the United States, areas of high median family income have experienced increased general aviation activities. Unfortunately, however, the lack of adequate facilities in Marin County has had an exceptionally negative effect upon this tendency. Our present airport has been maintained on a quasi-public basis for almost 10 years. Yet there are now only 61 planes based at the airport. There are no adequate facilities for storage of planes; the field may be used only during the very best weather; and the physical facilities are decidedly inferior. Because of the relatively large cost of land and clear zones, the county has been unable to take decision action to improve this airport.

There is considerable evidence that unsatisfactory airport facilities have had a decidedly adverse effect upon the urgently needed expansion of our tax base through attraction of business and industry. Development of an efficient general aviation airport, obviously cannot, by itself, reverse present land-use trends in the

county. However, the lack of a decent airport continues to impede the development of land for light, industrial, and other higher property tax yield uses, whereas the existence of a good general aviation airport can be a substantial inducement to such an endeavor.

THE PRESENT APPLICATION

After the endless planning work, community discussion, and consultation necessary to develop a reasonable plan, Marin County has filed an application for airport development funds in the approximately amount of \$200,000. I might say parenthetically at this point that in view of the long planning and developmental processes involved in providing for adequate airport facilities, it would appear to me that an extension of the Federal Airport Act for a period of up to 5 years would be meritorious.

Additionally, in view of the well-documented need in terms of airport facilities of all categories, an increase in funds in the amount of some \$100 million a year also is advocated by me and I understand as well by the National Association of Counties.

This application will be considered in relationship to airport development appropriations for the coming fiscal year. If general aviation development funds are curtailed, most of our hard, exacting effort to develop this airport in a manner consistent with the reasonable expectations of our citizens will be lost. The county does not have sufficient resources to do all of the necessary work itself and must rely upon Federal appropriations which it had been led to believe would remain available.

While it may not appear that the postponement or prevention of airport development in Marin County is, of itself, a major consideration, a similar story can be repeated without question by innumerable communities throughout the United States.

Our concern lies, not in the need for an airport as a recreational facility, but in the fact that the proposed airport can, and will, in a very positive fashion, enhance business development to the benefit of all concerned. There are many Federal programs which will provide for payments, subsidies, and grants, and there are few programs which will, in the final analysis, provide a lasting community asset which will enhance the local tax base while providing identifiable long-term benefits.

Counties such as Marin are the population centers of tomorrow. If they lack the means to encourage development in a manner which allows for expansion of their tax base as the demand for services increase, the problems which might now be solved will become impossible dilemmas in the future.

I respectfully urge that this honorable committee support Marin County and other counties throughout the United States in opposing any curtailment of Federal funds for this vital program.

Thank you.

Senator MONRONEY. Thank you, Chairman Leydecker, for your statement.

Congressman Clausen, you said you would like to make a statement following the chairman.

Mr. CLAUSEN. Thank you, Senator.

In addition to Mr. Leydecker's testimony, while he has referred to Marin County in general, I can tell you that I have discussed the particular airport facility with the supervisor from that particular district.

I think we should establish additional data for the committee because of the unique location of Marin County to the financial center of the West; namely, San Francisco.

As Mr. Leydecker has pointed out, the undeveloped land is substantial but there are terrain factors that are also unique.

As the gentleman sitting in the chair knows, I have had substantial background flying in and out of San Francisco as a former professional pilot. We are genuinely concerned, sir, about the air space patterns in the highly congested areas of the bay area.

Marin County, and this particular airport, will add immeasurably to the safety factors as they relate to air space usage. Having been a former member of the Bay Area Aviation Committee I know that this is of great concern to many people.

What we are after of course is to develop a general aviation gateway, if you will, to the financial center of the West, and in turn to promote the general economic area.

I have had much correspondence, telegrams from supervisors, who have been friends of mine and former colleagues, as well as the organizations known as the California Association of Airport Executives. I was formerly a charter member of this organization. They are deeply concerned about this proposed cutback with the deletion of \$21 million and its overall effect on general aviation airports.

If you will, Mr. Chairman, I would like to suggest that there be a reinstatement of these funds. I believe that we should continue the Federal Aid to Airport Act for the next 3 years and then go through a complete reevaluation of our airport finance program throughout the country.

As you know, Mr. Chairman, I am a member of the Roads Subcommittee of the House. We passed legislation calling for a study of the entire Federal-aid program as it relates to highways. I sincerely believe that this is going to be necessary as we go through this transition toward the development of a balanced airport system in America.

While most of the emphasis has been placed on commercial and military aspects of aviation, certainly with the economic expansion and with business aviation taking to the air, it becomes increasingly important to give more consideration to the development of general aviation type airports close to communities because certainly no community is going to be on the so-called business map unless they have an airport providing access to that particular community.

Also the land planning problems. Many of the municipalities, cities and counties in particular, have a great deal of difficulty in making their plans that are rapidly changing with each passing day when we have a sort of stop-and-go program. I think the next 3 years, Mr. Chairman, could provide us with a marvelous opportunity to work in conjunction with the State and local units of government in the development of a more realistic financed program for the development of airports at all levels of government.

Thank you, Mr. Chairman.

Senator MONRONEY. Thank you very much, Congressman Clausen.

You are speaking of the bulge in the general aviation which in 1964 was 89,000 aircraft, and by 1970, it is reliably estimated, will increase to a fleet of 143,000, or an increase of 61 percent.

The only way that these general aviation aircraft cannot further encumber the air traffic control systems at your hub airports such as San Francisco-Oakland, would be the construction of satellite airports in these communities such as you have.

We are trying to provide, and we intend to take this opportunity, the \$7 million set aside for general aviation. Before we had that general aviation was a stepchild in the airport program, and very little money was available for it.

Your \$200,000 figure, may I ask, Mr. Leydecker, for your airport, is that the local contribution or is that the total?

Mr. LEYDECKER. That would be the Federal contribution. The local contribution is something in excess of \$200,000.

Senator MONRONEY. It would be greater than that?

Mr. LEYDECKER. Yes.

Senator MONRONEY. You would need \$200,000 Federal funds for the airport?

Mr. LEYDECKER. Yes, sir.

Mr. CLAUSEN. You have the 56-44 percent ratio.

Senator MONRONEY. I note you ask that the bill be extended to 5 years. It would be practically impossible I think in this tight budget situation to provide for a greater sum. That is one of the reasons we are proposing only a three-year extension. We hope when times are normal that we can be more realistic in meeting the needs of the local communities in the establishment not only of their principal airline airports but also a sufficient number of general aviation airports to serve communities such as yours.

We hope we can keep the \$7 million in for general aviation. We will make every effort to do so. We also take notice of what Congressman Clausen has said with reference to cutting out of the \$21 million of funds already appropriated. This is a poor time, with the explosion in air traffic of all kinds—I don't like the word "explosion"—with the vast increase of air traffic of all kinds to be faced with a reduction of this magnitude because it would leave work undone that must be done to accommodate the increase in air traffic that we know will occur.

Would you say that the reinstatement of the \$21 million is important not just because it is a significant amount, but because it might set a bad precedent for the future?

Mr. LEYDECKER. Absolutely. In terms of our own experience, our application last year was declined on the basis of inadequate funds. So our planning process has been carried over at least a year at this point.

Our interest in having the funds restored in the 1966-67 bill, or at least not omitted as the administration has asked, is a substantial one.

The precedent I think would be terribly adverse in terms of the development of adequate airport facilities in communities throughout the country. The change in emphasis to interstate airport facilities only I think would be misplaced.

Senator MONRONEY. Once you have a short fall below the \$75 million figure, it is apt to be continued.

Mr. LEYDECKER. It is.

Senator MONRONEY. You have your money on hand now?

Mr. LEYDECKER. Yes.

Senator MONRONEY. And you are paying interest on bonds?

Mr. LEYDECKER. This is from general property tax levies that it has been accumulated.

Senator MONRONEY. The money is accumulated and waiting for Federal matching funds and was turned down because of matching money last year?

Mr. LEYDECKER. Yes. We have proceeded with land purchase in the area, conditioned upon approval by FAA.

Senator MONRONEY. For general aviation you have a certain amount of fog, do you not, and problems of weather?

Mr. LEYDECKER. This, as it happens, is probably the most favorable area in the entire bay area in terms of fog problems. This is the last area to be socked in. This is just north of Hamilton Air Force Base which operates in clear weather when many other airports, including San Francisco International and Oakland International, are closed.

Senator MONRONEY. So this would be an additional safety factor to general aviation which in California is very important for intrastate usage in business and other commercial purposes.

Mr. LEYDECKER. Yes, sir.

Mr. CLAUSEN. Mr. Chairman, I wonder if I can respond briefly to that point.

Senator MONRONEY. Yes, sir.

Mr. CLAUSEN. I have always looked upon the air space pattern in the San Francisco Bay area in terms of quadrants. San Francisco Airport, International Airport, will serve the southwest quadrant. The Oakland Airport will serve the southeast quadrant. Over the northern portion of San Francisco Bay you have the Napa Airport facility. This is principally a general aviation airport serving that particular section.

Marin County, because of its geographic location, and principally because of the surface transportation access downtown, is in a unique position to provide the maximum and most expeditious entre into this financial center. This will take care of the northwest quadrant, if you will.

One further point. There is a mountain that provides a natural boundary that separates the Hamilton Air Force Base and this particular site.

In other words, the traffic pattern would lend itself toward further safety as you commit general aviation to that particular facility, and it will be a lesser involvement as I view it from a pilot point of view to any of the traffic problems in and out of Hamilton Air Force Base, thereby enhancing the safety to that section.

All of these comments about fog that Mr. Leydecker has made I fully concur in. As you know, in addition to this, we are hopeful not only of building a facility but moving forward to provide navigational aids so as to increase the reliability of the schedules of general aviation aircraft which are carrying very busy businessmen to everything they can do to expand the economy of America.

Senator MONRONEY. Thank you very much, Congressman Clausen. And thank you for your very helpful testimony, Mr. Leydecker.

Mr. LEYDECKER. Thank you.

I would like to say as one citizen, Mr. Chairman, that I would like to offer my thanks for the very significant efforts you have made individually for the development of adequate airport facilities throughout our country.

Senator MONRONEY. Thank you. We consider an adequate airport system as one of the greatest safety devices for aviation.

Mr. CLAUSEN. If the Senator will permit me, I would also like to concur with Mr. Leydecker's comments in recognizing you certainly as the champion of aviation on the Senate side. I hope we can pick up a few House Members to cooperate with you.

Senator MONRONEY. Thank you very much.

Our next witness is Mr. Sam Massell, vice mayor, city of Atlanta, Ga., testifying for the National League of Cities and the U.S. conference of mayors.

We are very happy to have you, Mr. Massell, come to Washington to testify in the interest of this airport legislation.

STATEMENT OF SAM MASSELL, JR., PRESIDENT OF THE BOARD OF ALDERMEN AND VICE MAYOR OF ATLANTA, GA.; ACCOMPANIED BY J. KINNEY O'ROURKE, GENERAL COUNSEL, NATIONAL LEAGUE OF CITIES

Mr. MASSELL. Thank you, and good morning, Mr. Chairman. I am Sam Massell, Jr., president of the board of aldermen and vice mayor of the city of Atlanta. I serve as chairman of the city on airports of the National League of Cities.

Accompanying me this morning is Mr. J. Kinney O'Rourke, general counsel of the National League of Cities.

I appear before you in support of S. 3096, on behalf of the city of Atlanta, the U.S. conference of mayors, and the National League of Cities—formerly known as the American Municipal Association. Atlanta is the capital city of the Southeast with over 1,200,000 in metropolitan population and the fourth busiest airport in the Nation. The conference of mayors consists of cities of over 30,000 population, and NLC represents 13,500 cities and towns of all sizes throughout the United States.

I am here to comment upon legislation which would extend the Federal aid to airports programs for another 3 years. I do so almost 3 years and 2 weeks from the date I last appeared before this subcommittee to support similar legislation. I appreciate permission to testify again, and I am sure I will want to voice endorsement equally as strong in 1969, or 1971, if suggestions we will make for a 5-year extension of the program are adopted.

This point, the failure of Congress to make this a continuing long-range program, is of increasing concern to me and those I represent. True, your committee and aviation spokesmen in the Senate have been the mainstays of solid support, but the lack of interest is evident elsewhere in the Federal Government. We wish to go on record, therefore, as fully supporting the legislation before you as far as it

goes toward meeting the pressing problems facing our Nation's system of public airports.

I would, however, criticize its proposed funding level which fails to recognize the wide scope of airport problems communities face as they find themselves more deeply emerged in the jet age and the oncoming supersonic era. Gentlemen, you are undoubtedly aware of the fact that small, medium, and large airports in all parts of the country are faced with the necessity of undertaking major capital improvement programs if they are to provide safe and adequate facilities for the new types of aircraft that wish to utilize them.

According to a recent article which appeared in Nation's Cities, the official publication of the National League of Cities, the airlines had on order, at the beginning of 1965—less than 18 months ago—over 290 jet aircraft valued at more than \$1.5 billion. Only a few months later, as recently as last summer, these figures had increased to more than 480 aircraft valued at \$2.4 billion. In addition, millions of dollars are being spent for general aviation aircraft which are almost too numerous to count.

Increased landing area facilities, of safe and modern construction, will be needed to service this fantastic increase in aircraft. It must also be noted that more and more people are turning to aviation as the most convenient and expedient mode of transportation in our rapid urban age, and will, to a hitherto unprecedented degree, fill up the extra seats being provided.

The importance of aviation safety is increasing in direct proportion to the ever-growing increase in aircraft seating capacity, increase in number of patrons, increase in number of aircraft, increase in number of flights, and increase in airborne hours—and every prediction is that these figures will constantly swell—yet the Federal aid to airports program has not kept pace and, in fact, struggles for existence at the same funding found inadequate 6 years ago.

These facts clearly indicate to us that a greater and higher priority must be given to this program.

The financial plight of local government is well documented. In the areas of housing, education, poverty, and a score of others, we are pressed for adequate funds to complete the tasks that lie before us. We value Federal assistance in these programs too, but, as important as these fields are, the benefits are primarily local whereas airports are of coast-to-coast service. The need for expanded airport development in any given city, mine or yours, is directly determined by economic considerations affecting one or more additional city, and it is important to the economy of any active community that airports and other centers of commerce be adequately developed.

The cities and towns of this country cannot be expected, in light of the demands that have been placed upon them by their citizens for local governmental services, to finance all of the needed improvements in the field of aviation ground facilities from which the whole Nation benefits. Thus, it is imperative that you and the members of your committee review this legislation to realistically indicate the serious problems which the communities face in this vital area.

I would suggest that an amendment be included in S. 3096 by way of a purpose section to dramatize the needs of local government

for continued airport construction assistance. The statement of purpose we suggest for this extension of a Federal aid to airports program should be worded in such terms that it will justify our next suggested amendment to the bill.

A recent survey of public U.S. airports, which was undertaken by the Airport Operators Council International, the American Association of Airport Executives, and the National Association of State Aviation Officials in cooperation with a number of other associations which represent local governments, clearly indicates, as has already been indicated to you, that \$2 billion will be needed by 1970 to improve existing airports and to build new ones to insure that our Nation will be able to withstand the full impact of the jet age.

The survey also indicated that local governments are or will be able to shoulder \$1.3 billion of this total, largely through revenue bonds. However, a minimum of \$150 million per year by way of Federal contributions to these local efforts will be necessary to make up the difference. Thus, we strongly urge you to amend the legislation before you today to increase the authorization for this program to \$150 million per year for a period of 5 years. This longer extension period would benefit airport sponsors by providing a basis for longer term planning than is possible at present.

A third amendment on which we would urge your consideration is contained in the following statement unanimously adopted by the National League of Cities' Committee on Airports at its national legislative conference on March 29, 1966:

Comprehensive airport plans including the need for area expansion frequently project a long-range need for land not scheduled for use until several years in the future as predicted service increases. Municipalities and other airport sponsors find it economically impossible to purchase land to hold, yet the history has been that such properties in the interim are being developed and thus cost far in excess of their original values when the purchase is delayed until actual use is intended. In the interest of minimizing final expansion costs, the Congress is urged to provide the authority and funds to the FAA for the purpose of direct Federal acquisition of such lands incorporated in approved comprehensive plans for subsequent sale to the municipality or other airport sponsor under the then prevailing participation formula.

By amending this legislation in these three respects, we believe that those Members of Congress and the administration who fail to recognize the value of the program and to understand its important impact on the economic growth of our Nation will become more vividly aware and will be more easily convinced of the desire of the Congress in these respects.

Mr. Chairman, to further illustrate our strong feelings about the legislation before your subcommittee today, we would like to request that two brief documents be included in the record on this legislation as part of our testimony. These are:

(1) "Airports and the New Jets," an article which appeared in the April 1966 issue of *Nation's Cities*, the official monthly publication of the National League of Cities, which you will recall I referred to earlier, in the course of my testimony, and

(2) Sections 2-1 through 2-7 of National Municipal Policy, the official declaration of the 13,500 member municipalities of the National League of Cities, which 7 sections of policy were unanimously adopted by the membership of NLC at its most recent annual meeting, held in

Detroit, Mich., in July of 1965. I believe that these two documents will clearly indicate the attitude of the Nation's municipalities toward the vital and important legislation before you today.

Again, and in light of the somewhat clouded history of this program in recent years, we want to thank you, Senator Monroney, for your special and continuing interest in the problems of the Nation's airports. We hope that you will find our suggested amendments acceptable as improvements in the legislation which will bring this vitally needed Federal aid program into the proper perspective which it so justly deserves in light of the overwhelming local needs in this field.

Thank you for giving us this opportunity to testify before you.

Senator MONRONEY. Thank you very much, Mayor Massell, for your testimony.

You are, in the light of your testimony, strongly opposed to the \$21 million cut in funds already appropriated as requested by the administration?

Mr. MASSELL. Yes; very definitely. We feel that this would set a bad precedent, that the \$75 million was not enough in itself and to cut it would make it an intolerable situation.

Senator MONRONEY. I have the record of the appropriations when the Congress started permitting cuts to be made in 1949 and 1950. We dropped from \$49 million and \$44 million in those 2 years to zero in Federal grants by 1954. The cut, and the acceptance of that below the necessary level, would be apt to be followed by other cuts to where the Federal aid to airport programs would be abandoned.

It was only when we appropriated adequate funds to meet most of the needs of the cities in the airport construction were we able to get the vast expenditures by municipalities such as Atlanta and other major hub arteries for their excellent airport operations.

I am certain that Atlanta had to put up far more than its 50 percent in matching money.

Mr. MASSELL. Yes.

Senator MONRONEY. Can you give me any idea how much Atlanta has invested in its airport?

Mr. MASSELL. Atlanta's airport as you know is one of the older ones, and in fact played a part, through its manager, in the development of the old Civil Aeronautics Administration. I am not as old as the airport, in fact, so I can't give you exact figures.

I know that some \$30 million in Federal funds have been invested, which we matched and went beyond. But I think the important point is that Atlanta's airport, with its many millions, as modern as it stands today, won't be adequate tomorrow. And by the same token, no matter how adequate it may be, it will mean nothing to our city or the other centers of commerce if in fact these other areas did not develop as well in their airports.

It doesn't do any good to have a good airport at Atlanta if you can't land in New Orleans or Dallas or whatever city you may have interchange with in your commerce and industry.

It is a national problem. We are as vitally interested in all the cities of the Nation as we are in our own.

Senator MONRONEY. You ask for yourself and also on behalf of the conference of mayors and the National League of Cities for a 5-year program at \$150 million a year, plus the authority for the FAA with

its funds to buy land within the region of the airport to protect the cities by holding that for future expansion of the airports; is that correct?

Mr. MASSELL. Yes. We feel this would actually minimize future costs of airport development, reduce the cost, if, in fact, the Federal Government could make direct acquisitions of lands now that are in approved plans which FAA has said will definitely be land needed for this particular airport for expansion, by buying them at today's market price, which the municipalities are unable to do with the lack of funds, and the Federal Government being able to lease these, in my opinion they would earn more with their money than they do in some other areas where the Federal moneys are loaned in direct loan programs, then selling them back to the municipalities even at a profit, for that matter, but not the type of profit that we are having to contend with where properties are developed over which we have no control.

In my particular instance in Atlanta we are surrounded by three other municipalities at our airport. So we have no zoning control or other control over the development of these properties. The property we may know we will need 4, 5, or 8 years from today may be a vacant lot today and have a warehouse on it then.

Senator MONRONEY. It presents quite a problem, although the shortage of Federal funds and the stringency in our budget is as great if not greater than that of municipalities at this time. For that reason we are anxious to get a bill through that will continue at least at some level, however inadequate, the present 50-50 matching program that we have had in the past.

We do appreciate your stressing the need because we think this is a period of vast expansion of the aviation industry and that the inadequacies of ground facilities to accommodate it safely and adequately will hinder and damage the growth of aviation and the development of many new lines of cargo and other vast services that aviation can supply.

May I ask you one question regarding the attitude of the Conference of Mayors and National League of Cities with reference to the general aviation set-aside on the \$7 million.

Mr. MASSELL. The National League of Cities, Committee on Airports, which I chair, and which just recently met, is encouraging an increase in the amount of general aviation.

The U.S. Conference of Mayors—I'm not certain whether the U.S. Conference of Mayors has taken a definite position on this. The National League of Cities has.

I know from my personal standpoint as vice mayor of Atlanta that we are very much concerned because we are anxious for the general aviation to have its own facilities because it is not a very comfortable condition when you have an airplane waiting in the air with 80 to 100 people circling around while a private plane with 1 or 2 is getting in position to land or take off. This, in fact I am sure, is running up the costs of commercial travel.

So we are in favor of more support for general aviation, too. We would hope it would not be deducted from that amount for the carrier aircraft operations.

Senator MONRONEY. It comes as a separate fund. We feel it has served a good purpose in stimulating the development of general aviation airports to relieve your hub airports of a certain amount of congestion they otherwise would have.

Mr. MASSELL. In regard to congestion, Mr. Chairman, I have some figures on Atlanta's airport which show the impact of the dramatic growth of air transportation in our area. Over the last 4-year period the number of aircraft operations have increased roughly 30 percent.

Senator MONRONEY. In 4 years?

Mr. MASSELL. In 4 years. This is 1965. We haven't 1966 figures completed, of course.

Mail tonnage has increased 60 percent. Express tonnage has increased 60 percent. Number of passengers has increased 85 percent. We were at 4 million in 1962 and we are over 7,700,000 in 1965. Freight has increased 100 percent in 4 years. And there is no reason to think that these figures won't continue at this same growth pattern.

Senator MONRONEY. Particularly when your planes have greater capacity, such as your C-141, which is made adjacent to Atlanta, at Marietta, as it gets into private operation, and also the C-5A, which is scheduled for production there. We are on the threshold of a tremendous increase in aircargo service.

This will require, because of the bulk of cargo, certain expansions of our municipal airports, or to limit very greatly the use of aircargo as a supplement to our aviation industry. We don't have the space and the kinds of airports that can consolidate freight and move it in these large patterns.

Mr. MASSELL. Atlanta is very conscious of the value of transportation. Our city came into being because of the railroad line that ran down to a section they then called Terminus. The rail lines extended out, as General Sherman said, like fingers on your hand, and that is why our city was then destroyed. Our city, with foresight, redeveloped and has kept pace with transportation, with adequate trunklines, buslines, pipelines, with the interstate freeway system, and other highways.

And the airlines are of such vital importance that we know from experience what they can mean to a city.

We also are very conscious of the importance of safety. As I mentioned before, as you get more people in an airplane, as you have more flights going up, as you stay up in the air longer, the safety is just that much more important. Having, as you know, lost over a hundred of our fine citizens in an air crash some 4 years ago, Atlanta feels that it would be foolish economy on the part of the Federal Government or anyone else to cut back when safety is involved.

Senator MONRONEY. That is certainly true. One of the best safety devices known is an adequate airport system.

Mr. MASSELL. That is exactly my point.

Senator MONRONEY. We thank you very much, Mayor Massell, for your testimony, and for your cooperation with the committee.

Mr. MASSELL. Thank you, sir.

Senator MONRONEY. Our next witness is Mr. John Colonna, director, Department of Aviation, City of Baltimore, Friendship International Airport, Md.; president and representing the Municipal & Airport

Division, American Road Builders' Association; accompanied by Burton F. Miller, deputy executive vice president, ARBA.

We are very happy to have you, Mr. Colonna, and your associate, Mr. Miller. You may proceed in your own way.

STATEMENT OF JOHN COLONNA, DIRECTOR, DEPARTMENT OF AVIATION, CITY OF BALTIMORE, FRIENDSHIP INTERNATIONAL AIRPORT, MARYLAND; PRESIDENT AND REPRESENTING THE MUNICIPAL AND AIRPORT DIVISION, AMERICAN ROAD BUILDERS' ASSOCIATION, WASHINGTON, D.C.; ACCOMPANIED BY BURTON F. MILLER, DEPUTY EXECUTIVE VICE PRESIDENT, ARBA

Mr. COLONNA. Our association includes within its membership approximately 300 municipal and airport administrators and engineers. We are vitally interested in the development of our Nation's air transportation facilities, in the belief that the development of these facilities is essential to the economic growth of the United States and vital to the needs of the national defense.

We have, for many years, held a firm position in favor of a balanced transportation system for our Nation, by which we mean that all modes of transportation should be utilized in such proportions as to assure maximum efficiency, economy, and convenience in the transportation of freight and passengers, and that the assistance of the Federal Government should be so directed as to bring about the full economical utilization of all modes of transportation.

As this policy relates to the Federal aviation program, we have, for many years, advocated the development of a Federal-aid airport system, patterned somewhat after the Federal-aid highway system.

The airport system concept seems to be somewhat harder to understand than the highway system concept. It is easy to visualize an interconnected system of highways, with the main trunk roads supported by tributary roads which act as feeders and distributors of traffic. Airports, on the other hand, are not physically connected with one another, and the airways, although they are often spoken of as "highways of the air," are comparable to highways only in a limited sense.

Nevertheless, the concept of an airport system is quite practical. The national airport system can, and should, be developed in conformity with a functional classification system similar to that which guides the planners of highway facilities. The Interstate Highway System, for example, is designed in accordance with certain uniform standards, applicable to all of the States. The States have considerable latitude in designing individual segments of the system, but, nevertheless, the interstate highways have certain characteristics which are important from the standpoint of traffic service, and these characteristics remain the same in every State. The layout of the system is determined by the projected traffic demand in the various traffic corridors.

As this concept could be applied to airport construction, certain cities would be recognized as regional hubs for air traffic movements, and the Federal-aid airport program would be directed toward bringing the air facilities of these hubs up to specified standards. Other

cities of lesser importance in air traffic movements would be encouraged to meet standards appropriate for their air traffic functions.

The development of such an airport system requires a high degree of cooperation between the Federal Aviation Agency, on the one hand, and the State and local aviation authorities on the other. The Federal-State cooperative procedures followed in the conduct of the Federal-aid highway program might well be emulated.

Another requirement for the success of a Federal-aid airport program is that it have sufficient continuity to permit the drawing up of long-range plans with some reasonable degree of assurance that means will be made available to carry out the plans. The Federal-aid airport program has been beset with so many uncertainties that local planners are never sure that Federal-aid funds will be available when a given project moves to the construction stage. The appropriation of funds on a year-to-year basis is unsatisfactory for airport aid, because of the time required to plan and design airport improvements.

Despite the fact that the Federal-aid airport program has failed to keep pace with the growth of aviation in this country, aviation continues to grow at a phenomenal rate. Within the next 10 years, the number of airline passengers is expected to double. The number of aircraft landings and takeoffs will likewise double. General aviation—with its great potential for spurring economic development by encouraging the growth and dispersal of industry—will grow even faster than airline operations. The number of aircraft involved in general aviation will increase from 97,300 in 1965 to at least 125,000 in 1975.

A 10-year national airport development plan is needed, with sufficient legislative authority behind it to give reasonable assurance that sufficient Federal-aid will be forthcoming to carry out the plan.

Within the next 4 years, as others have stated, we need to put at least \$2 billion into the development of our airports, just to keep pace with the growth of aviation. As determined by the 1965 national airport survey, conducted by the Airport Operators Council, the American Association of Airport Executives and the National Association of State Aviation Officials, State and local funds will be forthcoming to meet more than half of the indicated need, provided that Federal aid of about \$628 million can be obtained. Without the stimulus of Federal aid, the pool of State and local funds which will be made available will be diminished. Thus, the survey indicates, a Federal-aid program providing \$157 million per year for the next 4 years would do no more than keep pace with the need for airport facilities.

As airport facilities become more crowded, flying will become more hazardous and less efficient.

To delay the start of an adequate airport program would only compound the difficulties. We speak on this point with the authority of long experience with highway programs, which involve many of the same engineering skills, many of the same materials, and many of the same contracting organizations which are involved in the paving of runways and aprons. Construction costs and, to an even more marked degree, the costs of acquired land, are constantly rising. The cost of doing a given amount of airport construction work will be higher next year, and the next year, and the next year.

Highway construction costs have been rising, on the average, about 2½ percent a year. We believe that the general increase in the costs of airport construction is similar.

We wholeheartedly support S. 3096 as a bill vital to the continued efficiency of air transportation, but with the hope that the committee will find it possible to increase the level of authorizations to \$150 million per year, which approximates justifiable requirements, and in no case to reduce the appropriation below the \$75 million.

In this connection, it may be of more than passing interest to this committee to note that the President has recommended the transfer of the revenue from the Federal tax on aviation gasoline, amounting to approximately \$28 million per year, from the highway trust fund to the general fund of the Treasury. If this recommendation is adopted by the Congress, the application of these new funds to bolster the Federal-aid airport program would appear to be sound and well founded.

As a supplement to this statement, we request the inclusion in the record of a pertinent resolution adopted at the 64th annual convention of the American Road Builders Association last February. In the United States the Federal Government owns and operates very few commercial airports. But in most of the world the federal government operates all the airports. And unless proper Federal aid is forthcoming to the airports in the way of capital funds, you may someday find yourself faced with the necessity of the Federal Government taking over the airport system of this country. And I would certainly deplore that.

(Resolution follows.)

RESOLUTION ADOPTED BY AMERICAN ROAD BUILDERS' ASSOCIATION

FEDERAL-AID AIRPORT PROGRAM

Whereas air transportation of freight and passengers is an important and growing part of the National economy; and

Whereas the extension and improvement of the National Airport System is essential to keep pace with the growth of both common carrier and general aviation; and

Whereas efforts are being made to reduce by \$21 million, the Federal-Aid appropriation for the 1967 fiscal year; and

Whereas studied investigations have indicated a need for Federal-Aid at the rate of \$157 million per year; and

Whereas a large proportion of air movements are interstate movements, and hence, clearly a matter of Federal interest; now, therefore be it

Resolved by the American Road Builders' Association in Convention assembled at Denver, Colorado, this 23rd day of February, 1966, That the current level of appropriations now in force for Federal-aid for airport construction be continued as the absolute minimum; and be it further

Resolved, That the Association reaffirm its position in support of a more comprehensive and effective Federal-Aid airport program at the earliest possible date, based on State-Federal cooperation; and, specifically, an extension of the Federal Airport Act for five years, providing for Federal-aid at the level of \$157 million per year.

Senator MONRONEY. Mr. Colonna, I quite agree, and I am sure all members of this committee do, that a crisis is presented with rapidly growing aviation in all fields from general aviation clear up through the jet liners to the heavy cargo transports. It is with only a recogni-

tion of the practicality of a tight wartime budget that we introduced the bill that would provide the \$75 million a year, and then we provided for only 3 years of it. We do not wish to tie ourselves down to an escalating figure because, while we recognize the running out of time to get ready for this arrival of new planes and new equipment and so many more airports, we do not feel that the administration would approve or allow to become law an amount in excess of that which we have been receiving for the past several years.

We expect to watch this very closely and hope that we can prevent, as I am sure you wish to prevent, the reduction of the funds already appropriated by \$21 million. You are cognizant of that and I am sure you oppose that reduction or cutback.

Mr. COLONNA. Yes, sir; it has thrown the whole program into chaos.

Senator MONRONEY. You are also supporting, I assume, since you mentioned general aviation, the set-aside of \$7 million, which helped so much.

Mr. COLONNA. Yes, sir. I think, moreover, that general aviation is faced with so many difficulties that it might be very well to increase the Federal contribution to general aviation airports beyond the 50 percent now allowed.

Senator MONRONEY. Are you satisfied with the funds being allocated to your great Friendship Airport?

Mr. COLONNA. We are never satisfied, but we accept them gratefully.

Senator MONRONEY. The city of Baltimore put more than 50-50 matching into Friendship; did it not?

Mr. COLONNA. Yes, sir. As of now, the city has invested \$22 million and the Federal Government \$5 million.

Senator MONRONEY. That is true at many airports. While we have a 50-50 matching formula, the great hub airports are so expensive to build, and the land acquisition is so high and so much required, that very few of the major airports are able to find room in the Federal budget for the 50-50 matching.

Do you agree with the \$2 billion figure for the 4-year period?

Mr. COLONNA. I think it is conservative.

Senator MONRONEY. You think it is conservative?

Mr. COLONNA. Yes, sir.

Senator MONRONEY. We thank you for a very thoughtful statement and appreciate very much your coming here to help inform the committee of the need as you see it, as representative of the municipal and airport division of the American Road Builders' Association.

Mr. COLONNA. We are grateful for the opportunity. Thank you, sir.

Senator MONRONEY. Mr. Charles Ruby, president, Air Line Pilots Association, is not able to arrive until later in the day. We hope to take him this afternoon.

At this time we will call our old friend, Mr. A. B. McMullen, executive vice president of the National Association of State Aviation Officials. Will you come forward, Mr. McMullen.

We are glad to welcome you to the committee and to have you again before us in a crusade that you were in on at the very beginning and as you continue to follow with interest and concern the progress and needs of our national airport program.

STATEMENT OF A. B. McMULLEN, EXECUTIVE VICE PRESIDENT,
NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

Mr. McMULLEN. It has been a very interesting 25 years since the Airport Act was first adopted. The changes have taken place and the growth that has taken place is almost unbelievable.

I appreciate this opportunity to present the association's views and recommendations today with respect to S. 3096. I won't take the time to qualify the association, inasmuch as I or representatives of the association have done so on previous occasions when we have appeared before your committee to urge the continuation of the Federal aid to airports program.

NASAO strongly supports a continuation of the Federal aid airport program and recommends early adoption of legislation to extend the life of the Federal Airport Act. However, we recommend certain amendments to S. 3096 which it is believed would increase the effectiveness of the program, and which we hope will receive your favorable consideration.

Briefly, this statement will express NASAO's views with respect to (a) the need for a continuing long-range airport development program; (b) the estimated amount of funds that will be required to provide the airport facilities necessary to meet the mushrooming requirements of aviation during the next 4 years; (c) who should pay the costs, and who would benefit from the planned development.

First I would like to discuss the question of who benefits.

Every citizen benefits from aviation and air transportation, although they may never own, or even fly in an air vehicle. At one time the thought prevailed that an airport served only those who utilized scheduled air service and the owners of aircraft, and while some may still be of this opinion, there is now ample proof that airports serve the entire community, and are an absolute necessity to the economy of the Nation.

Attached to this statement is an appendix containing excerpts taken from various publications during a 10-day period in April 1966, which illustrates the almost unbelievable growth that is currently taking place in aviation.

Although I live in daily contact with most everything that is taking place in aviation, I was really surprised myself when I reviewed all this tremendous growth that has taken place on one piece of paper. (Appendix 1 follows:)

APPENDIX 1

EXCERPTS FROM AVIATION PUBLICATIONS, APRIL 1966, ILLUSTRATING AVIATION'S
CURRENT PHENOMENAL GROWTH

April 10, 1966

Cessna ups production (civil) 7000 to 8000 units—'66 sales expected to top '65 by 20%—export sales increased 40% during first six months of current year—increasing factory floor space 17%.

Ozark Airlines—January-February passenger traffic up 32.3%.

General Aviation aircraft deliveries up 42% in first quarter to 3855 units.

April 12, 1966

United Airlines claims 40% of all adults have now flown commercially—50% will have by 1970—predicts air travel will increase 57% over 1965.

Jerrie Mock establishes 4550 non-stop solo, single engine record for women—Honolulu to Columbus, Ohio.

North American XB-70 reached speed of Mach 3.05 (approx. 2000 MPH) and altitude of 72,000 feet.

April 14, 1966

TWA sets record for March—sets all-time record for cargo, ton miles up 26.3% over March 1965—passenger miles up 26.3%.

Frontier posts 45% profit increase in 1st quarter 1966—as a result of 43% increase in passenger miles flown. All of 1965 increase was only 15%.

National Airlines cargo up 32% in March. Mail tonnage up 35%, express 23%. Net income up 42%.

April 15, 1966

New student starts totaled 94,635 during 1965—up 56% over previous year.

Mackey Airlines reports best quarter of passenger traffic in its history—March total of 32,479 passengers—a 25.6% increase over March 1965.

San Francisco and Oakland Helicopter Airlines carried 51,000 passengers during first quarter 1966—a 76% increase over same quarter in 1965.

April 20, 1966

Mohawk Airlines passenger totals have been increasing so rapidly that 1966 forecasts have been raised 25%.

Passenger total increases 27% in 1st quarter, *Southern Airways* reports.

Mr. McMULLEN. During recent years the airport has become a most essential element in the expansion of local industry. Often the airport is the industrial heart of the community, particularly in distressed areas seeking to expand their local payrolls and income-producing sources.

U.S. industry has not only accepted the airplane as a business tool that is utilized by executives, sales, and service personnel traveling to every type and size community, but in fact most companies now require that the community be able to provide airport facilities and accommodations for their aircraft before a branch office, factory, or warehouse is located or enlarged in that community.

I have several excerpts from officials of small communities expressing their interest and the manner in which the airports serve their communities economically.

Sullivan, Ind.—Two industries are waiting for our airport completion before they will come to our community. One would start employing approximately 75, and the other 175 men and women. The population of this town has been decreasing for several years.

Yankton, S. Dak.—Dale Electronics Co. located here 6 years ago because the airport was available for rapid transit of their officials and air freight shipment of their products. They employ from 100 to 300. Without airport facilities, Yankton would soon deteriorate to a depressed area situation.

Greenwood, Miss.—Has obtained several industries because of existing airport. One employs over 900 people.

Bridgeport, W. Va.—Lockheed-Georgia, Consolidated Gas Supply Co., and others have large plants here only because of our airport facilities.

Ruidose, N. Mex.—Our basic industry is tourism. Aviation has increased our tourism by 12 percent. Three industries have located here due to airport facilities.

A recent article in the Montana Aeronautics Commission monthly newsletter stated.

Montana airports certainly played a vital role in the survival of Northern Montana during the recent flood and continue to be of the utmost importance in the post-flood supply line. In many areas that were completely isolated, the airport remained high and dry to serve as a transportation center for the evacuation of the flood victims and the center for food, medical supplies, and clothing.

For these reasons, NASAO members are deeply disturbed by recent statements that the continued Federal aid airport program would give priority to airport development which primarily serves interstate air transportation or which provides essential improvements to national air commerce. We interpret this to mean that Federal aid would be limited primarily to certificated air carrier airports and possibly secondary airports in metropolitan areas which relieve traffic congestion at terminal airports. We vigorously oppose this philosophy because all types of airports are required.

For the past 40 years we have witnessed a continuously expanding utilization of air vehicles for transportation to and from small communities, and a wide variety of uses including agriculture, fire fighting, search and rescue, construction, power and pipeline patrol, advertising, et cetera.

The ambulance plane may make it possible to reach a hospital in time for a successful operation, serum or blood may be transported by air in time to save a life. Traveling by air, or the use of airmail may make it possible to close a contract or make a profit that would have been lost without the benefit of air transportation.

Our highway traffic in many places is now being monitored by helicopters, which is contributing to highway safety, and police departments are utilizing small aircraft in tracing escaped convicts.

It is recognized that a considerable amount of costly expansion faces the air carrier airports of the Nation. However, it should be remembered that the truck and regional carriers combined serve only about 525 of the total 9,500 airports in the United States.

To meet increased public demand for the speed and comfort air travel offers, the truck carriers have purchased, and will continue to invest in larger, faster, and heavier aircraft. They are looking forward to adding supersonic transports to their present fleets within the next 5 to 10 years. In one way or another, these new truck aircraft require the expansion, redesign, or improvement of many of the Nation's larger airports.

The regional carriers are now replacing their piston engine fleet with larger, faster, turbo-prop and jet powered aircraft which are unable to operate safely from many of the airports in the communities the carriers are now serving. The communities confronted with this problem are faced with expanding and improving their airports or losing airline service. For example, in Illinois only 6 of 20 airports now receiving scheduled airline service can accommodate the DC-9 aircraft recently purchased by a regional carrier serving that State.

To provide air transportation to several thousand communities—some of which have already lost trunk or regional air carrier service, and to many others which have never received such service—the charter and air taxi operators are increasing the number of their aircraft and schedules.

By cooperative ticketing, scheduling, and reservations, trunk, regional, and air taxi companies are gradually and jointly developing a

nationwide metropolitan-county seat air transportation system; however, a comparable national airport system, with all-weather, lighted airports in small communities will be necessary before this nonsubsidy, commuter type air service can attain its full potential, and passengers can "fly all the way" regardless of the size of the community, time of day, or type of weather.

The Federal Airport Act clearly expresses the intent of Congress that Federal-aid airport funds should be made available for all types and classes of airports. We consider it desirable that this be re-emphasized either within the language of the new act or in the committee's report.

We feel very strongly about a long-range program.

Mr. Chairman, NASAO officials have appeared before this committee many times during the past 20 years to recommend that Congress establish Federal aid to airports as a long-range program, with advance appropriations or contract authorization extending over a period of several years, which would reduce the time-consuming frustrations and the administrative, financing, and construction costs that results from the stop-and-go, slow-and-rush situations State and local partners in the FAAP program have experienced over the years.

Congressional opinion regarding the need for advance funding of the program has been clearly documented in previous House and Senate Commerce Committee reports. In Senate Report No. 654, dated August 1, 1961, the Committee on Commerce stated:

Clearly the inadequacy of the airport program between 1947 and 1955 is ample demonstration that the annual appropriation system is not adequate. During the first seven years under the annual appropriation system when the local communities were confronted with uncertainty from year to year as to whether funds would be made available they were only able to match \$212,628,000 (\$30,375,000 annually). This is in contrast to the first four years under the advance contract authority system when they were able to match Federal funds in the amount of \$204,558,000 (\$51,139,000 annually—a 60% increase).

Because of the extreme fluctuations in the Federal funds made available from year to year, public agencies were understandably reluctant to make the financial, engineering, site selections, and other necessary plans for the development of an airport project. In a number of cases they had issued general obligation bonds for purposes of matching Federal funds, but were unable to secure Federal aid as a result of inadequate appropriations. The appropriations system contributed in substantial degree to the failure to accomplish more than a small portion of the projects contemplated by the original act.

The House Committee on Interstate and Foreign Commerce stated in House Report No. 728, dated July 18, 1961, that:

The Committee feels that a system of advance appropriations, giving sponsors definite assurances as to Federal aid available far enough in advance to permit local planning, will meet the objections sponsors found with the annual appropriation method provided in the original act.

In 1961, Congress extended and also amended the Federal Airport Act by adding section 4 (b) which reads:

It shall be the duty of the Administrator to make public by January 1 of each year the proposed program of airport development intended to be undertaken during the fiscal year next ensuing

This congressional interest in advance funding of the program and early announcement of the program was indeed gratifying and sincerely appreciated. However, the advantages that should have resulted from this congressional action have not fully materialized.

As an example, on August 16, 1965—last year—Congress approved an amount of \$71 million for Federal aid to airports for the fiscal year beginning July 1, 1966. To date, over 4 months beyond January 1, the date Congress established for announcement of the program, sponsors have not even been requested to submit project applications for the coming fiscal year, which must subsequently be screened and individual projects selected by FAA before the program can be released and allocations announced. If project applications were requested today, it would probably be 6 months before the program is announced, or 10 months later than the law requires. As a result, little or no construction to be paid for with funds to be available on July 1, 1966, may be started until some time in 1967.

In the interim, Congress has been required to “deappropriate” \$21 million from the \$71 million previously approved, leaving only \$50 million for fiscal year 1967.

Insofar as State and local sponsors are concerned, actions such as these place the FAAP program in the same costly and confusing position it was in during the years 1947–55 when appropriations ranged from a high of \$45 million in 1947 to zero in 1954, when no funds were requested by the Department of Commerce.

It has also been reported that consideration is being given to future reduction and ultimate termination of the program. In our opinion, it is time all branches of the Government recognize the fact that the airplane is here to stay, and that the aviation industry and air transportation are among the most vigorous and fastest growing elements of the Nation's economy. Instead of thinking and talking about when and how the Federal-aid airport program can be reduced or terminated, the need for long-range airport development plans and programs should be emphasized, in order that the lack of adequate airport facilities will not retard the growth and the ever-increasing benefits we are now receiving from travel and transportation by air.

We firmly believe the Federal aid airport program should be extended now for a minimum of 5 years, and preferably 10 years, rather than 3, as provided in the bill, and that necessary action should be taken to assure that sponsors will have a knowledge of the amounts of Federal airport aid that will be available to them well in advance of the start of the fiscal years concerned.

Previous witnesses have submitted testimony with respect to a national survey that was made by the Airport Operators Council, the American Association of Airport Executives, and the National Association of State Aviation Officials. So I will not take time to repeat what they have already placed in the record.

I would, however, like to point out that the survey returns indicated that Federal, State and local funds expended for public airport development during the 5-year period 1960–64 totaled \$1,251,102,000, of which the Federal Government provided \$301,114,000, or 24 percent. However, included in the \$1.251 billion total expenditure was \$360 million of airport development projects such as administration buildings, passenger and freight terminals, hangars, parking lots, roads, et cetera, which were paid for entirely with State and local funds. Of the remaining cost—eligible FAAP items—the Federal contribution amounted to less than 34 percent, not 50 percent as many persons believe.

Airports are the very foundation of air transportation, and in our opinion, for the dollars spent, the Federal aid airport program has been the greatest industry/transportation/economy stimulation program in which the Federal Government has participated. We recommend the program be accelerated substantially beyond the rate proposed in S. 3096.

My first appearance before a congressional committee interested in airport development occurred 28 years ago this month. This was before the Committee on Public Buildings and Grounds, House of Representatives, 75th Congress, 1938, on H.R. 9016 and 9434, to establish a commercial airport in the vicinity of the National Capital. Since that time, I have been closely associated with, and have witnessed the development of, thousands of airports, many of which now far exceed in size and traffic-handling capacity anything envisioned by other than the most advanced thinking airport planners and engineers of 25 years ago.

However, the airport system of this country, and the facilities at most of our airports, are still trailing the development of the airplane and the art of flying. This situation does not permit the citizens of this Nation to enjoy the maximum benefits air transportation has to offer.

Therefore, in order to assure that the development of airports keeps pace with the ever-expanding requirements of the industry, NASAO recommends early approval of S. 3096, with amendments which would (a) extend the Federal Airport Act for a minimum of 5 years; and (b) increase the annual authorization of funds to \$150 million.

It is further recommended that the committee determine whether all classes and types of airports are being given a reasonable opportunity to participate in the program, and why the annual programs are not released on January 1 of each year, as required by law. This is essentially what I imagine Congressman Clausen was recommending when he recommended that we have an extensive reexamination of the program benefits and its administration.

The opportunity afforded me to present NASAO's current views and recommendations with respect to the Federal-aid airport program and S. 3096 is sincerely appreciated.

Mr. Chairman, while I have the opportunity, I want to take this opportunity to publicly express the sincere appreciation of the members of NASAO for the time and effort you personally have devoted to the development of aviation in the United States during the past two decades. In our opinion, the present world leadership this Nation enjoys is due largely to your wise and aggressive leadership.

Senator MONRONEY. Thank you very much, Mr. McMullen, for that very deeply appreciated compliment. I only hope that we can continue to secure the necessary funds from the Congress to keep our airport requirements up to the needs of the airlines in the rapidly accelerating efficiency of our aircraft.

We haven't changed, as you have mentioned, the date that this allocation of funds was to have been made—on January 1. I think the problem has been presented this year which will delay the allocation until about October 1 because of the \$21 million reduction requested by the administration from the amounts already appropriated by the

Congress. We certainly are going to have to resist this \$21 million cut this year, which would set not only a shortage in the necessary funds for helping with the Federal participation, but would also, I feel, set a precedent which as you mentioned in the past, from 1949 to 1954, and resulted in going down to zero in the Federal appropriations for airport aid.

I feel as you do in your statement that the \$75 million is not a sum that we would choose ourselves if we were free to choose it, but it is likely all that we will be able to get in the next year or two due to the Vietnam war and the requirement for additional funds.

Mr. McMULLEN. It would be our hope that the committee and Congress would authorize a larger appropriation and then the amount actually appropriated could be determined from time to time as conditions justify.

Senator MONRONEY. I would hate to see them falling short of the \$75 million, because when you do, it goes down more rapidly than you realize. That is one reason we are asking for only 3 years extension. We wouldn't want to get a 5-year extension at the \$75-million figure.

Mr. McMULLEN. I agree with you.

Senator MONRONEY. We recognize it is inadequate.

You mention a figure, which I haven't seen before, which is quite impressive, that of eliminating the items not eligible for Federal aid to airports, such as the terminal areas and hangars and matters of that kind; still the Federal Government, with those costs eliminated, is only matching 34 percent against the 66-percent contribution—nearly twice as much—by the local communities.

Mr. McMULLEN. That is right. As a previous witness stated, for each dollar of Federal aid, the State and local sponsors have contributed approximately \$3.

Senator MONRONEY. This occurs, I guess, largely in some of the metropolitan airports, does it not, where the Federal aid funds, if you had them all, would be insufficient to do the kind of work that is required at the John F. Kennedy Airport, or O'Hare, and projects of that kind?

Mr. McMULLEN. Dollarwise, yes. But projectwise I think because of the uncertainty of the programs and the fact that such a low priority has been, in our opinion, placed on general aviation airports, that many of the smaller ones have gone ahead and developed the airports without or with a minimum of Federal aid. So that I won't say that these figures are just a balance of one-fourth Federal against three-fourths sponsors because of the fact that the larger airports do spend much more than 50 percent.

Senator MONRONEY. I know we found funds inadequate to match the large sums which they are spending, and also very difficult to have the funds available of the \$7 million general aviation fund to go around to all the projects that are submitted and desired by the local communities. They spend more on land costs and things of that kind than they receive from the Federal Government.

Mr. McMULLEN. That is probably true.

Senator MONRONEY. You favor the \$7 million set aside for the general aviation airports?

Mr. McMULLEN. Frankly, I am not sure that that \$7 million is being utilized in the manner in which this committee visualized when it was made available. In some ways some people get the impression that that \$7 million is all that is supposed to be devoted to general aviation development. It is relatively easy to explain is it not. It is something we are still confronted with. I believe—and I am not certain about this statement—it is my opinion that the \$7 million has not been utilized by the larger cities in the manner in which it was intended and that is one thing I think that the committee or Congress should probably look into if an investigation of the administration of the program is conducted which I hope will be made in the near future.

Senator MONRONEY. We intend to put that in as an amount that has to be spent on aviation, and whatever the State quota was, they could spend it as they desire in submitting the projects for approval by the Federal Aviation Agency. But at the time we put that in, there were preciously few general aviation airports being funded at all. We now have some pretty good action on the building of some nice general aviation airports. And I would hate to see us lose the \$7 million fund which has to be exclusively used for that purpose.

You made a strong statement for general aviation in the initial part of your statement where you support the increase that is needed in which we acknowledge to the \$150-million-a-year level, but which would not be possible, we feel, under the present administration stringency of funds because of the war.

Your participation over the 28 years has been magnificent in calling our attention to and promoting both the pre-World War II bill and the subsequent bills following. I hope that we can continue to develop it.

Do you feel that we are doing enough as a Federal Government in the problem of noise abatement?

Mr. McMULLEN. I think we are beginning to. I don't think the Government has in the past. I think with the time and money now being devoted to it, we can look forward hopefully to a reasonable solution of the noise problem.

Senator MONRONEY. Would you favor the granting of Federal funds for the acquisition of land for the purpose of insulation of the runways from areas abutting the airport?

Mr. McMULLEN. Certainly if the land has to be acquired, the Federal Government should bear the major share of the cost, particularly as this land normally extends beyond the confines of the airport, and the local community's ability to finance.

I agree with a previous witness that greater attention should be given to design and operation of the airplane, the vehicle that causes the noise, rather than to continue to buy land to alleviate the noise problem or the runway length problem.

Senator MONRONEY. Zoning would help some, to zone the land around the airport for light industry which would not be disturbed as easily as residential areas.

Mr. McMULLEN. That is right.

Senator MONRONEY. Don't you feel—I know you do because you have mentioned it several times in the past—that the relationship as

to the amount and attention and nationwide concern for a strong airport program for all types of aviation that would match at least in its concept, not in size, with the interstate highway planning concept is needed in our aviation program of the future?

Mr. McMULLEN. It has to be. As I pointed out briefly in my paper, you can't expand the present transportation service without a corresponding increase in our airport system. I am particularly concerned with the charter and air taxi service. The recognition that is now taking place on the part of the trunk and local airlines, who feared the air taxi operators as a competitor for many years, are now accepting him as a means of expanding and increasing their business, because of the passengers who want to fly all the way and who found it impossible to do so by the scheduled carriers alone but can do so when you arrange, as I pointed out, for one ticketing system, one insurance policy that will cover the traveler from the county seat right on to the metropolitan terminal, or to an oversea destination.

Those things begin to make it possible to develop a real air transportation system. But you can't have that system unless you have the airports, the ground facilities that make it possible for the small airplanes to land at the smaller airports, night or day, in all types of weather.

Senator MONRONEY. In the magnitude of funding, we are spending nearly \$5 billion a year on our Federal Interstate Highway System to complete that on a 90-10 matching, and we are spending \$75 million a year on our aviation, yet it ranks second, easily second, in our transportation of people both in scheduled services and in general aviation.

Mr. McMULLEN. That is right.

Senator MONRONEY. It figures out that for every man, woman, and child in the United States we spend less than 50 cents a person on airports but more than \$25 per person on highways. For an aviation-minded country it seems like we are doing poorly toward the requirements necessary for an adequate nationwide airport system to be safe and competent to meet the needs that are here for the present-day expansion.

We thank you very much, Mr. McMullen, for your very helpful testimony and interest in this as usual.

I wonder if Mr. Frank Kingston Smith is in the room.

(No response.)

Mr. Warren Martin is not here?

(No response.)

The committee will stand in recess until 3:15. We may not be able to meet exactly at that time because of a conference that was called by both the Democratic and Republican leadership. We will endeavor to hear the remaining witnesses, Mr. Charles Ruby, president of the Air Line Pilots Association; Mr. Frank Kingston Smith, executive director of National Aviation Trades Association; and Mr. Warren Martin, vice president, public affairs, Air Transport Association of America.

We will try to get them early this afternoon at the conclusion of those two conferences.

The committee will stand in recess until that time.

(Whereupon, at 12:29 p.m., the subcommittee was recessed, to reconvene at 3:15 p.m. this same day.)

AFTERNOON SESSION

Senator MONRONEY. The Subcommittee on Aviation will resume its hearings on the Federal aid to airport bill, S. 3096.

We adjourned at noon while awaiting testimony from Mr. Charles H. Ruby, president of the Air Line Pilots Association, of Chicago, Ill.

Will you come forward to the table and bring your staff? I believe you are accompanied by Mr. Linnert and Mr. Ciancetta. You may proceed in your own way. We are delighted to have you here at our committee table. We remember well the very important contribution made by the Air Line Pilots Association to air safety and your support of the Federal Aid to Airport Act.

STATEMENT OF CHARLES H. RUBY, PRESIDENT, AIR LINE PILOTS ASSOCIATION; ACCOMPANIED BY T. G. LINNERT AND NINO CIANCETTA

Mr. RUBY. Thank you, Mr. Chairman.

Mr. Linnert will read our prepared statement and then I would like to embellish on it a little.

Senator MONRONEY. All right. Anything you want to put in the record you may, and summarize it. It will appear as if read.

You may proceed, Mr. Linnert.

Mr. LINNERT. Thank you, Mr. Chairman.

We are here today representing the Air Line Pilots Association International. We are very much appreciative of the opportunity to do so.

We have had the privilege of appearing before this committee several times, the last appearance being June 12, 1961, on the extension of Federal airport aid. ALPA's statement presented at that time is a matter of record for the committee's review. A copy is attached.

We respectfully request the committee review this 1961 statement, since the problem areas mentioned in the statement as needing Federal funds for correction are not only still with us, but in greater proportion.

Our purpose in appearing is to continue our pleas for making adequate funds available to assure the continued development of our Nation's airports. Numerous reports and articles showing costs associated with bringing our airports up to current needs are available to the committee and, therefore, dwelling on costs would be redundant.

One article had as its title "Airport Survey Shows \$2 Billion Buy Adequacy," referring to the 1965 national airport survey conducted by the Airport Operators Council (AOC), the American Association of Airport Executives (AAAE), and the National Association of State Aviation Officials (NASAO).

These highly qualified authorities are in a position to evaluate costs for your committee and have done so commendably. We would like to show that it is in the best public interest to update our Nation's airports to realize efficient operations and thereby automatically increase our safety margins for airline flying.

We wish to be on record as—

(1) Continuing to support the extension of the Federal airport aid program well beyond 3 years, and strongly urge a 5-year minimum duration period would be in the public interest.

(2) Urging increased Federal funds to expedite the attainment of improved airport facilities to keep pace with civil airplane development. Amending the Federal airport aid bill to stipulate at least \$100 million per year is needed to work toward realizing the \$2 billion "adequacy" need.

The industry is in a better position today than ever before to assess today's and future airport needs, since we have now flying, and on order, a type of subsonic transport which will be with us for 20 years and probably more.

These airplanes can be evaluated to determine airport needs for a long time to come. Consequently we have a better vision into the future than we had after World War II. It was in the post-World War II era that transport airplane design advanced so rapidly that our airport needs could not readily be determined to keep pace with advancements in airplane design.

We have now reached some stability in transport airplane design. However, an amazing growth in the number of general and air carrier airplanes has taken place with more to come. Consequently we can better justify as being in the public interest the use of Federal aid funds to keep pace in airport development with the expanding use of the airplane—for efficiently and safely transporting people and goods from airport to airport.

LOCAL SERVICE WITH JET AIRPLANES

The local service carriers have purchased new turbine-powered airplanes. Officials from the local service airlines have let it be known that in order to use their new turbine-powered transports efficiently to minimize subsidy, the Federal airport aid program should continue so that the airport improvement continues. We strongly concur.

We again point out that the turbine transports purchased by the local service airlines represent a long-term equipment purchase, thereby better enabling coping with airport long-range planning needs.

We know that the committee fully recognizes that the local service carriers provide the means for transporting people and goods from our smaller towns to our large metropolitan areas. In fact, about 400 smaller city airports are used by local service carriers to provide air service to about 150 larger metropolitan cities.

The cities served by local service airlines are hard pressed to provide facilities to accommodate turbine-powered airliner needs. They must have Federal airport aid. In fact, more so than the large metropolitan areas whose air service has so grown that they have already been required to demonstrate great development progress by making large plans and meeting 50 percent of the costs. A small city is hard pressed to do this.

In this regard, consideration should be given to provide a greater percentage of Federal aid than 50 percent. In saying this, we realize

this is controversial; however, getting our local service airports up to some of the jet age requirements can cost as much to a small town as a large one.

Further, we must fully realize that the large metropolitan cities depend on local service carriers to bring people and goods into the large cities. For example, Chicago's O'Hare, the world's busiest airport, is served by three local service carriers. It is extremely important that these local service airplanes arrive on time to enable passengers to catch connecting flights. These local service airplanes can arrive on time a larger percentage of the time when improved runways, facilities, and navigation aids are provided, and this means a continued Federal airport aid program.

ON AIRPORT SAFETY

The association has long been active in pressing for increased safety margins for airports. In this regard we are attaching a copy of our June 1961 statement presented to this committee in support of the Federal airport aid statute. It is felt that this document being reviewed by the committee will disclose the need for continuing efforts to increase the airport safety margins.

The 1961 statement covers:

- (1) The need for the extension of Federal airport aid statute;
- (2) Airport adequacy versus economics and safety;
- (3) Recurring accidents on airports;
- (4) Air Line Pilots Association's airport survey;
- (5) Economic justification for terminal area facilities;
- (6) The 1960 cost of canceling flights;
- (7) Cost of 1 year's air traffic control and weather delays;
- (8) Analysis of economic aspects of all-weather landing system;
- (9) Facilities need for economic gains; and
- (10) A summary with a close saying in regard to Federal aid,

"We would prefer to see \$100 million per year for 5 years * * *."

The 1961 statement still represents today's continued and greater need for Federal aid to keep pace with aviation expansion and particularly to cope with future expansion to 1975 as shown on pages 3, 4, 5, and 6 in FAA's 1965 national airport plan.

The association has long pressed for amended regulations for increasing takeoff and landing runway lengths, as well as safety margins surrounding the runway ends and sides. Some success has been achieved, but we have still not accomplished our goals.

Obviously no one is more interested than a pilot in safely taking off from and landing on the runway. We must accept this as fact if we are to make progress toward achieving adequate margins in airport safety. Too often the only cure offered for preventing repetitive-type accidents on or in the vicinity of airports is to indicate human error.

After more than 30 years of the same human error, blame for the same type of accidents occurring on or in the vicinity of airports, is it not about time for corrective action? Do we have to have another 30 years of the same type accidents recurring? The answer is to increase our airport safety margins.

MAJOR AREAS OF HAZARD

Some of the major areas of hazard requiring Federal airport aid to assist obtaining corrective measures are:

1. Clear zones

The need for obstruction-free clear zones near the ends of airport runways has been recognized for a long time. In 1952 the Doolittle Committee in its report entitled "The Airport and its Neighbors," made the following recommendation No. 4:

4. Incorporate cleared runway extension areas into airports

The dormant runways of new airport projects should be protected by cleared extensions at each end at least one-half mile in length and 1,000 feet wide. This area should be completely free from housing or any other form of obstruction. Such extensions should be considered an integral part of the airport.

From the April 1966 issue of the SAE Journal, the following appeared:

Obstacles surrounding the sides and ends of runways were the major contributing factor in take-off and landing accidents of commercial aircraft in which fire was involved. It is estimated that 79 percent of the fire fatalities could have been avoided if the runway and overshoot areas would have been cleared of obstacles.

The increasing need for "clear zones" is further evidenced by the industry's desire to fly lower weather minimums. In this regard it is interesting to note that at NAFEC—FAA's experimental center—the approach end of the runway has an adequate underrun area which is greater than the 10 percent of runway length as recommended by ALPA since 1956, and as shown in the article attached containing a drawing entitled "Proposed Revisions to Technical Standard Order N6b."

Additionally, NAFEC has approach light fixtures which are frangible for the last 1,000 feet so an aircraft striking them is not appreciably damaged. Commendably, NAFEC substantiates these added safety margins because this is the runway used for evaluating new equipment for flying lower weather minimums. These same safety margins must be provided at airports where low weather minimums approaches are flown.

Accident statistics continue to increase due to lack of "clear zones" free of ditches, dikes, correctable irregularities, houses, wires, unnecessarily strong approach light fixtures, et cetera.

We are getting more and more presons to agree that "clear zones" such as dimensioned in our sketch and in 1957 CAA policy are in the public interest. Many newly constructed airports, and those planned, commendably provide "clear zones" without a regulation requiring them. Apparently a regulation is needed for retrofit on existing airports.

2. Underrun

There continue to be accidents of the underrun type. Recently a short touchdown, required due to a short 5,850-foot runway, when a large jet touched down 13 inches prior to reaching the runway caused an accident. The end of the runway was appreciably above the grade-line. The wheels upon striking the curblike end of the runway caused

an excessive load on the landing gear which resulted in its failure and an accident occurred.

Due to lack of properly surfaced underrun area in this case, the following resulted:

A. A \$6 million airplane was damaged to the extent its revenue potential was lost for an appreciable length of time.

B. The runway was closed for a period of time resulting in loss of revenue to other air carrier operations.

C. The passengers received a fright which is not conducive to selling them or their friends tickets.

D. The airline received considerable publicity which adversely affects passenger load factors on all carriers.

As previously mentioned, this accident occurred due to a touchdown 13 inches short of the runway end. Just to make a point, 14-inch properly paved underrun area would have prevented this accident. There will continue to be others until we recognize that underruns can occur, and will be of little consequence if paved underrun areas are provided.

Reference is made to the attached September 1964 article which contains a drawing portraying a 10-percent underrun-overrun area "compacted to withstand the weight of the airplane."

An underrun area which is 10 percent of the runway length will prevent most underrun accidents. This protection is especially needed for increasing the safety margins during low-visibility operations.

It is significant to note that the Atlantic City Airport which is used by FAA's NAFEC in evaluating low-visibility equipment has a very substantial underrun paved area which included 1,000 feet of frangibly mounted approach lights to provide a safety margin.

This would make a touchdown short of the runway merely an incident without appreciable damage to the airplane instead of a potentially fatal accident. This indicates FAA's recognition of the value of underrun paved areas.

Accidents continue to increase due to lack of paved underrun areas. In efforts to obtain adequate paved underrun area we get a lot of agreement in regard to their need, but we don't get many installations. Again, apparently a regulation is needed and in our opinion is long overdue.

3. Noncompacted shoulders

Providing compacted shoulders along the sides of runways provides a margin of safety similar to that of shoulders along the sides of our Nation's highways. The record shows that airports have been closed for extended periods of time due to one or both of the wheels of a large transport bogged down in the mud near the side of a runway.

Here we have a type of accident or incident which is usually free from fatalities, but very costly to the carrier involved and to other carriers, due to closing of the runway, and in some cases the airport, for a considerable period of time.

Additionally, passengers are frightened and also adverse publicity results which is not conducive to encouraging acceptance of air travel.

Most assuredly the pilot is doing his best to keep the airplane on the runway, but a slippery runway surface, plus a crosswind or "un-

wanted" asymmetrical reverse thrust makes it impossible to keep the airplane from sliding off the side of the runway.

Whatever the circumstances may be, an extended runway width in the form of a compacted surface minimizes the possibility of accidents or incidents of this type.

Here again we refer to the drawing in the attached article. We recommend one-third of the runway width be compacted. This is a form of an added safety margin which our superhighways have for many thousands of miles and it can be provided for runways at a minimum cost and interruption of airport use.

4. Overruns

To bring into focus our latest thinking on this category of repetitive accidents, we refer to the attached articles titled "The Need for Longer Runways" and "The Short Runway" in the September 1964 and August 1964 issues respectively of the Air Line Pilot magazine.

In the September 1964 Air Line Pilot issue we illustrate the continuous record of repeated overrun accidents that have plagued the industry from the days of the early transports through the postwar transports, through the present-day transports, and if nothing corrective is done we will have supersonic transports in the ditch just the same as we had smaller transports in the ditch 30 years ago.

The regrettable part of it is that there is no research needed to prevent this type of potentially extremely hazardous accident from recurring. What is needed is the same ruthless procedures which are used in overcoming the continuous construction of our superhighways.

The laws of physics, involving kinetic energy, friction coefficient, time, and distance, cannot be changed by expecting pilots to exhibit extraordinary techniques under adverse operational conditions which were not fully accounted for in the design and testing of the airplane.

NASA and FAA have justifiably seen fit to spend huge sums on research to learn more about realistic requirements for runway lengths to assure an adequate margin of safety for scheduled aircraft operations during slippery runway conditions.

The data has been obtained and the results are clear. The FAA, CAB, and NASA have gone on record stating that our runway lengths are deficient for scheduled air carrier operation. Details in this regard are contained in the unattached articles.

Due to acknowledged obsolete runway certification requirements which are not commensurate with operational experience, and in view of the research and testing which has been conducted, overrun and underrun accidents can be prevented.

AIRPORT CERTIFICATION

Since the latter part of 1948 the Air Line Pilots Association has pressed for airport certification. Our position is quoted as follows:

The Association shall pursue a program to require Federal certification of airports, or equivalent standards, which will specify minimum requirements for runway lengths, runway surfaces, obstruction-free approach and circling patterns, adequate runway markings and lighting, safe, maintained runway overrun areas, adequate and properly maintained fire fighting equipment and trained

fire fighting crews, adequate snow removal equipment and procedures at airports requiring such equipment, positive control of airport vehicular traffic, airport zoning regulations, and any other problems or procedures having to do with the safe operation of an airport.

Our early efforts were met with stiff resistance. The acceptance of air service was then not very extensive and to provide the standards the pilots wanted for safety and schedule reliability were said to be too costly for the advantage provided. Consequently we were encouraged when the 1952 Doolittle Committee's report entitled "The Airport and Its Neighbors" had the following to say on the subject:

It is clear that commercial airports are instrumentalities of interstate and foreign commerce. As such they have a definite public character. Their continued efficient operation vitally affects interstate commerce, national defense, and the postal service. They are, however, at the present time subject to little Federal regulation. The Commission believes that such regulation should be kept to a minimum, but also believes that more authority over such airports is required than is now provided by Federal statutes.

The Civil Aeronautics Act authorizes the Administrator to inspect, classify and rate any air navigation facility (which includes airports) as to its suitability, and to issue certificates for any air navigation facility. But the Act does not require the issuance of a Federal certificate to airports, nor does it make unlawful the operation of an airport without a certificate.

The Civil Aeronautics Act should be amended to require that certificates shall be issued for the operation of airports used in interstate commerce. Such certificates should define minimum standards for safe operation and proper maintenance and should be revoked if such standards are not met. The abandonment of such certificate or the closing of an airport for other reasons, however, should not be permitted except after notice and hearing and due finding that the proposed action is in the public interest.

The same Committee's recommendation No. 9 is quoted as follows:

9. Extend Civil Aeronautics Act to certificate airports. The Civil Aeronautics Act should be amended to require certification of airports necessary for interstate commerce and to specify the terms and conditions under which airports so certified shall be operated. Certificates should be revoked if minimum standards for safety are not maintained. Closing or abandonment of an airport should be ordered or allowed only if clearly in the public interest.

Our airline pilot members are working steadily with airport managers, the Federal agencies and others in an attempt to obtain standards commensurate with modern airport safety. Many such improved standards are in evidence at airports, even though they are not mandatory.

An airport certificate requiring known airport safety standards would assure schedule efficiency as well as safety. With a proper timetable requiring airport certification we believe those responsible for airports would know what is required and thereby be in a position to operate within certification requirements in the same manner as the carriers operate a fleet of airliners or an airplane manufacturer designs an airplane or components.

In closing, we want to place our airport safety views in perspective. Air transportation is a safe means of travel and we have a great confidence in its ability to provide even safer, more comfortable, and more efficient travel in the future.

However, it is a potentially hazardous business in which the highest degree of margin must be maintained in order to keep it safe and efficient. It is an industry of constant technological change and

growth which, therefore, requires continuous planning and re-evaluation.

One of the primary responsibilities of the airline pilot and his organization is to constantly monitor aviation facilities and programs to point out areas of hazard and inefficiency. This has been our role for more than 30 years in mutual efforts with the industry to further air safety. It is in line with this philosophy that we have expressed our opinions here today.

CONCLUSION

In light of the airport safety needs outlined in this presentation and the survey newly completed by the Nation's airport executives who are most capable of analyzing the costs for our Nation's airport needs, we strongly state the following:

(1) The Federal airport aid program is a valuable assist to airports seeking to improve their facilities and safety margins. They can do the job much faster with Federal assistance. Planning time is a major problem. Knowing that Federal funds will be available for 5 years instead of 3 can give a larger impetus to airport planning programs.

(2) No less than \$100 million a year for 5 years to match local funds will come close to accomplishing the job. Therefore, we strongly recommend that the bill, S. 3096, be revised to authorize \$100 million Federal airport aid program funds for 5 years.

In further support for Federal airport aid we call attention to the fact that the aviation industry is one of the industrial giants of our Nation and a prime industry for national defense.

The aviation industry is one of the top industries in employment of our citizens who contribute to the tax dollar for programs such as Federal airport aid. The aviation industry has matured to the point that all citizens benefit from air service for transportation, shipment of goods, and airmail. Improved air service and public safety will result from continued Federal airport aid.

Thank you very much for this opportunity of appearing before this committee.

Senator MONRONEY. Thank you, Mr. Linnert.

Do you wish to include Mr. Sayen's testimony of 1961 which you referred to, in full in the record?

Mr. LINNERT. Yes, sir.

Senator MONRONEY. It was very good and I remember it gave us great inspiration to move forward to get the work done that was done under the Federal Aid to Airport Act. I wonder if you want all the statistical work. This is the 1961 statistical base.

Mr. RUBY. Yes, it is.

Senator MONRONEY. I believe we can put the appendix in the committee records, and use the statement and appendix to the statement you have just given. That way we will have the most important part of the testimony which was so valuable at that time.

Mr. LINNERT. That will be fine.

Senator MONRONEY. The whole thing will be available in the 1961 hearing, some of which are in the files of the committee.

(Statement of Mr. Sayen, June 1961, follows:)

STATEMENT OF CLARENCE N. SAYEN, PRESIDENT, AIR LINE PILOTS ASSOCIATION, INTERNATIONAL, BEFORE THE SENATE INTERSTATE & FOREIGN COMMERCE COMMITTEE IN SUPPORT OF S. 1703 RELATING TO EXTENSION OF THE FEDERAL AIRPORT AID STATUTE, WASHINGTON, D.C.—JUNE 12-14, 1961

We are here today representing the Air Line Pilots Association, International. To give the Committee members some idea of the background from which our opinions emanate, we have attached to this statement a brief description of my qualifications and of the Air Line Pilots Association's organization for safety.

No one has a keener interest in safety matters than do the individuals who operate our air transport aircraft. Further, we recognize the fact that the aviation industry is unique in that it is almost completely dependent upon the federal and municipal governments to provide facilities for the operation of these aircraft. Consequently, we feel that substantial contributions to aviation safety can result from Congressional interest and we, of course, feel that we have a definite responsibility to bring such matters to the attention of the government in order that we may perform our job with the degree of safety expected of us.

Basically our problem is to move aircraft safely and efficiently from the ramp of a departure airport to the ramp of the destination airport. Most of the facilities necessary to such movement are the responsibility of the federal government, either directly or by regulation. We have previously stressed air traffic control and navigational problems to you. There is not much logic, however, in building an efficient air traffic system between two airports and leaving a bottleneck at both ends. Consequently, along with the urgent airways problem, we will emphasize today the great need for assistance in providing adequate airport and terminal area facilities.

BACKGROUND OF THE FEDERAL AIRPORT AID PROGRAM

The National Airport Plan in its amended forms has been in operation continuously since 1947, when Congress passed Public Law 377 at the 79th Congress which provided for the Federal Airport Aid Program.

The purpose of the National Airport Plan has been to assist in providing a system of airports to adequately serve commercial and private aviation needs of the country and to provide for an immediate increase in the military air facilities in an emergency. Through Federal Airport Aid airport improvement projects have been expedited which otherwise would have been impossible, and these improvements have enabled the aviation industry to grow and develop and to better serve the public interest.

An example of the extensive effect of Federal Airport Aid is evident from a press release of the FAA on March 4, 1960 stating that in the fiscal year 1961, 187 commercial airports and 127 general aviation airports are scheduled to receive almost \$59 million in matching funds. This requires the local communities to provide at least 6.1 million for land, 24.1 million for runways, 21.2 million for taxiways and aprons, 3 million for lighting, 2 million for control towers, 1.5 million for clearance and obstruction removal and .8 million for marking, fencing, roads, etc.

Further indication of the usefulness of this program is shown by FAA and industry airport planning as revealed in the FAA National Airport Plan for the fiscal years 1962-1966. Many additional millions of dollars are required and will be available through the local financing for non-safety airport construction items such as terminal buildings. The Federal Airport Aid Program also encourages the expenditure of local funds on safety priority items where matching funds are permitted. It is interesting to note that in 1950 the National Airport Plan estimated funds just short of a billion dollars would be needed in a three-year period. In the 1959 program just over a billion dollars is estimated to be needed for airport construction projects for a similar three-year period. Yet, in the last 10 years there have been only 285 million dollars (28.5 million a year average) spent on airport aid.

THE NEED FOR THE EXTENSION OF A FEDERAL AIRPORT AID STATUTE

The airways system of the United States is a Federal responsibility. An adequate airport system is indispensable as part of the airways system. One cannot function without the other.

Throughout the development of the air line industry, pilots have felt that airport construction and airports' facilities have always been one lap behind aircraft development. Each new fleet of large transport aircraft has required longer runways, better lighting, additional safety factors and improved service facilities, including Air Traffic Control (ATC), to fully take advantage of the performance built into the aircraft. This requires additional planning, time and money to obtain. The problem is not as simple as merely requiring one standard universally applied throughout the country. Far from it. Even the same aircraft require different facilities and runway length dependent on the stage length of trips, prevailing weather conditions, airport altitude, traffic density, and numerous other factors. However, there are basic common needs for all aircraft operation to provide the best possible service at the highest possible level of safety.

Only two years were required for jet aircraft to become the accepted method of medium and long distance travel. More than 200 large jet transports have been placed in service in scheduled air carrier operations since the inauguration of service late in 1958. Based on forecast deliveries, more than 300 turbo-jet airliners will be in domestic service by the end of 1961. More are in design and on order. Airport facilities which even previously has not kept pace with the rapid growth of commercial aviation, were rendered further obsolescent by the advent of the jet transports.

Larger transport aircraft are being placed in service by our local service carriers and corporate and private aircraft operators. This development places strain on our airport and terminal area facilities.

AIRPORT ADEQUACY VS. ECONOMICS AND SAFETY

The value of an airport to a community is dependent on many factors. One of the most important concerns runways. Below are three areas in which runway adequacy has an economic and safety effect on airport value:

- I. Lack of runway length restricts the amount of payload and fuel that can be carried due to compliance with regulations necessary for an acceptable level of safety, thereby reducing airport revenue potential;
- II. Lack of more than one adequate runway for continued operations can and has caused an airport to be closed for an extended period of time, and
- III. Lack of airport safety standards has resulted in fatal and nonfatal accidents on or near the runway causing expenses not only to the carrier involved but to other carriers.

Let's enlarge on the foregoing through the following examples:

To comply with the performance regulations at maximum gross weight a large twin engine piston transport requires a minimum runway length of 4700 feet at sea level, zero runway gradient, zero wind and standard temperature (59°F.).

When the runway is 500 feet shorter than needed for a full load, a weight penalty of 2400 lbs. occurs, since each foot of runway length is equal to approximately 5 lbs. of useful load.

A large 4 engine (piston) transport, to comply with the performance regulations at maximum gross weight, requires a minimum runway length of 6700 feet at sea level, zero runway gradient, zero wind, and standard temperature (59°F.).

When the runway is 500 feet shorter than needed for a full load, a weight penalty of 4000 lbs. occurs, since each foot of runway length is equal to approximately 8 lbs. of useful load.

A large 4 engine turbine transport, to comply with the performance regulations at maximum gross weight, requires a minimum runway length of 10,200 feet at sea level, zero runway gradient, zero wind and standard temperature (59°F.).

When the runway is 500 feet shorter than needed for a full load, a weight penalty of 5,000 lbs. occurs, since each foot of runway length is equal to approximately 10 lbs.

In addition to the preceding penalties, which relate only to inadequate runway length, as you know, load limitations are imposed by temperature accountability when the runway is not long enough to meet safety requirements.

In addition to economic benefits, however, longer runways would also increase the safety and efficiency of operations. Computations of runway length re-

quirements do not include all operational variables. Pilots, therefore, would prefer margins over the "maximum gross take-off or landing" when any of these variables are likely to be present. However, with larger aircraft requiring progressively longer runways, more of our take-offs and landings will be of this type. (This may help explain why pilots have been so adamantly opposed to allowing credit for reverse thrust as part of landing or take-off distance requirements.)

Another problem which sometimes plagues the efficiency and economy of aircraft operations is the lack of more than one adequate runway on an airport. Closing an airport not only adversely affects the economy and efficiency of the air carriers, but also reduces the income of the airport and causes inconvenience to the air traveler.

As you know, the lack of more than one adequate runway can cause closing the airport for at least the following reasons:

- (1) Runway repairs.
- (2) Snow removal or treating an icy surface.
- (3) Runway marking.

There is no avoiding the above items. They have to be done. When there is only one runway, obviously it has to be closed if any one of the above needs attention. High density traffic airports are, of course, hardest hit at these times.

When highways are closed, detours are provided. To provide continued air service into an airport, more than one adequate runway must be provided. In addition, of course, multiple runways increase the number of aircraft movements the airport can handle. This is vital in our rapidly growing industry and critical to the successful operation of our airways system. There is not much purpose in increasing the capacity of the airways system and leaving a bottleneck at both ends due to inadequate airport facilities.

Recurring accidents on airports

Accidents occur year after year due to soft shoulders on the sides of runways and inadequate underruns or overruns. Accidents of this type are:

- (1) Underrun type accidents where the airplane has contacted the surface prior to reaching the paved approach end of the runway.
- (2) Overrun type accidents where the airplane rolls beyond the prepared runway surface, and
- (3) Loss of directional control where it is not possible for the pilot to maintain a straight course down the centerline of the runway.

Examples of the above types of accidents are as follows:

On June 14, 1960, a DC-8, while experiencing unsymmetrical reverse thrust, veered off the runway, received nose wheel damage, and by protruding over the runway, caused the instrument runway to be closed for 17 hours. Closing the runway for this time period occurred during instrument weather conditions and, therefore, affected air traffic and air carrier operations *in the entire metropolitan area*. Thousands of passengers were affected, the air carriers lost thousands of dollars, a six million dollar airplane was damaged and out of service for several weeks. A *compacted surface* along the runways as shown in our attached drawings might have made the difference.

On February 7, 1961 a similar accident occurred. This time the airport was closed 52 hours to jet operations. This type accident will continue to occur unless the sides of our runways are compacted similar to the shoulders of our highways.

Another "*underrun type*" accident occurred on February 25, 1961 when a large jet airliner landed 18 feet short of the paved runway surface and received severe damage from a sharp one foot rise at the approach end of the runway. This accident closed the runway for an extended period of time, and another six million dollar airliner was out of service for several weeks.

An "*underrun type*" accident occurred on March 26, 1961. Another large jet airliner landed just short of a runway on an access road. Damage to the aircraft was caused because drainage ditches to the side of the roadway were not graded to allow smooth runup to the runway.

On January 19, 1961 an "*overrun type*" accident occurred which resulted in total destruction of the six million dollar airliner and loss of four lives. The aircraft came to rest 680 feet beyond the end of the runway.

Within less than 3 months in 1961 we already have had four major accidents in the airport vicinity.

AIR LINE PILOTS ASSOCIATION'S AIRPORT SURVEY

My Association reached the conclusion several years ago that the airport problem, along with the airways problem, was probably the most critical facing aviation. The system was simply not keeping up with the demands on it. We also concluded that the solution lie in an accelerated joint federal-local community effort.

In an effort to establish our requirements in concrete terms, for all operations, the Air Line Pilots Association inaugurated a program in 1959 to survey the 569 airports in the United States into which air line service had been certificated by the Civil Aeronautics Board. It was felt that proper determination of the areas of greatest deficiency would enable us to be more helpful in seeking improvements. The objectives of the survey were to:

- (1) Determine where airport inadequacies exist;
- (2) Determine what can be done to correct these inadequacies;
- (3) Assist local airport management to incorporate desirable features into the airport improvement schedule.

Generally speaking, our data was collected by ALPA safety representatives in the field. This was made possible through the fine cooperation of airport management. Initial surveys have been followed by efforts to maintain liaison with airport operators and assist in expediting installation of improved airport facilities. We have thus been able to improve communication to the point where we receive constant requests for information from airport executives for the pilot's views on terminal facility requirements. *Our conclusion has been that financing is the major stumbling block to improvement.*

Although our airport survey is not yet complete, the information currently available provides an important yardstick of the deficiency of airport development on a nation-wide basis, and the extent of remedial action required to improve our terminal facilities to the desired standard.

We have attached for general information, as Appendix C, a copy of the statistics currently available. These statistics are based on reports from 257 airport survey forms, tabulated and analyzed as of January 1, 1961. It is interesting to note the similarity between our findings and a report recently issued by the Airport Operators Council and the National Association of State Aviation Officials. This report indicates almost one-half of our publicly owned airports *need immediate improvement* or expansion. Cost estimate was 1.1 billion for the next four years. Under the matching funds formula, it would be necessary that one-half this amount be appropriated by the federal government. The FAA in their 1961 National Airport Plan estimates 1.1 billion dollars will be needed in the next 5 years.

The Association's study, which did not include needed new airport development, indicates that an amount of money approximating one-hundred million dollars must be appropriated by the federal government each year for the next five-year period in order to provide adequate airport facilities for our present aircraft.

We are pleased to see that the Senate Bill S. 1703 proposed at least 75 million dollars Federal Aid per year for five years for all United States airports.

A review of Federal Aid to airport appropriations and expenditures for the last ten years shows that the average federal aid to airports over the past ten years has been at a rate of 28½ million per year. This is approximately 10% of the total projected cost of Dulles Airport. Contrast this with \$3.223 billions¹ spent last year in the federal aid to highways program and the firm assurance given for billions of dollars (\$26.6 billion spread over the fiscal years 1957-69)¹ to build future federal highways.

We can complete "3,589 Miles of Four-Lane Highway and 184 Miles of Six Lanes or More"¹ (the equivalent of 71,336 miles of single lane construction) per year but it requires practically a national emergency to secure another 1,000 feet of concrete for an airport runway. When we can have a 4 billion dollar road building program, 90% federally financed, a 75 million dollar or more airport aid bill is certainly not unreasonable.

¹ U.S. Department of Commerce, "Highway Progress, 1959."

In addition to the foregoing specific financial requirements with respect to improving airports themselves, we have the additional matter of providing navigation, communication and terminal area landing aids, the need for which was so graphically described by the 1960 accident record.

Some people have a tendency to be complacent about this very serious problem; probably because appropriations in recent years have been substantially in excess of those for years past. We believe this is a very dangerous view. While appropriations in recent years have been of substantial improvement, we ask that you examine the record for the past ten years and it will not be difficult to understand why we have fallen so far behind. A review of the appropriations and expenditures for the establishment of air navigation facilities for the years 1950 through 1959 shows that the average expenditure for the establishment of air navigation facilities over the past ten years has been 27 million dollars per year. In our view, this demonstrates shocking neglect when you consider that the federal government has assumed the entire responsibility in this area and that 75% (from March 1959 *Le Monde Economique*) of the total revenue passenger miles flown in the entire world are flown by U.S. air carriers.

The current Administrator recognized that aviation has been neglected. When being sworn in for his job, he supplied the Congress with the following:

"We as a nation neglected the national aviation system until very recently.

"We did not give it the tax money that was needed, and we are just about now reaping the detriment of neglect."

Mr. Halaby is cognizant that we must catch up.

Mr. Halaby further stated that if we had spent more money for aviation needs ten years ago we would not have to spend so much now. Obviously, this also holds true for the next ten years as far as costs are concerned. In our view, expediting installation of airport facilities and terminal area facilities is an investment in the future that will save money as well as improve safety and efficiency.

ECONOMIC JUSTIFICATION FOR TERMINAL AREA FACILITIES

Fifteen years ago, in the days of the DC-3, a cancelled, delayed or diverted flight affected at most only 21 passengers. The cost of operating this aircraft was about \$100/hr., and the financial risk of a diverted or recalled flight was not too great. This held true to a lesser degree for larger four engine aircraft with 50 to 80 passengers. However, the operating charges of \$200 to \$400/hr. of these larger aircraft were making it very unattractive to accept these financial odds. The air lines were becoming more selective in their dispatch risks.

With the jet, the industry cannot continue to countenance the expense of operating an aircraft at around \$1,000/hr. to a doubtful destination and then pay ground transportation, meal and perhaps hotel costs for 100 or more passengers. On the other hand, a carrier cannot afford to turn passengers over to other air lines. The answer to this quandary is the provision of terminal area airport aids so that a greater percentage of flights are completed.

A summation of the cancelled, delayed and diverted over-all operational costs on individual air lines is not presently available; however, further along in this statement we have made some estimates based on what we consider are reasonable assumptions.

The present weather minimums at most hub airports require a 200 foot ceiling and $\frac{1}{2}$ mile visibility for reciprocating aircraft; some terminals like Chicago/Midway, the world's busiest airport, still have $300\frac{3}{4}$ minimums. The present jet aircraft (ILS) Instrument Landing System minimums everywhere are $300\frac{3}{4}$. The minimums are 400-1 or higher at many low density airports used by local service carriers.

At Newark, reciprocating engine aircraft are now using "Runway Visual Range" (RVR) minimums of 2,000 feet. At the 16 other locations where RVR is installed, the minimums are 2,600 feet. RVR facilities can and do reduce weather cancellations. These fine facilities are only now beginning to be more widely installed.

In attempting to fairly assess the costs of various delays we have noted a table published in the May, 1960 issue of AIRLIFT on page 96. This table assesses the causes of delays in their order of importance by 10 large carriers as follows:

How trunks look at delays

[Weather and congested ramp operations were the biggest factors in delayed flights for the major trunk airlines during 1959. Three carriers named weather their No. 1 cause and another trio labeled it No. 2. How 10 carriers classified their top 5 causes of delay is shown below]

Airline	1	2	3	4	5
Braniff	Mechanical	Connections	Equipment	Weather	Multiple operations.
Continental	Passengers	Cargo	Connections	Mechanical	Weather.
Eastern	A.T.C./airport congestion	Weather	Mechanical	Mechanical	Line maintenance.
Northeast	Weather	A.T.C. holds	Airport congestion	Ground services	Airport congestion and A.T.C. Crew.
Do.	do.	A.T.C.	Accommodation load and connections	Mechanical	A.T.C.
Pan Am	Mechanical	Weather	Ground operations	Late passengers	Cargo loading.
Riddle	Equipment	do.	A.T.C.	Mechanical	
Slick	Weather	Mechanical	Cargo handling	Passengers	
TWA	Loading	do.	Weather	Mechanical	
United	Station service	Operations plan	Equipment		

Weather is listed by *seven* of the ten carriers as their first or second choice for the most predominant cause of delays. Airport and air traffic control (ATC) congestion are listed as first or second choice by five carriers. These are all delays associated with weather. All could be improved by the use of modern terminal area facilities. We, therefore, feel justified in estimating at least 50% of the delays or cancellations are due to adverse weather conditions.

THE 1960 COST OF CANCELLING FLIGHTS

The total mileage flown (domestic and international) in 1960 was 995,900,000 miles. Of this total mileage 31,518,000 miles or 3.2% were cancelled due to various reasons. Based on our analysis of the table previously mentioned and on the following data and computations we have estimated that 1.6% or 15,759,000 miles were cancelled due to weather.

Mileage	Domestic operations	International operations	Total
Scheduled	834,602,000	161,298,000	995,900,000
Scheduled completed	807,496,000	156,886,000	
Cancelled mileage	27,106,000	4,412,000	31,518,000

Cancelled mileage divided by total mileage $\frac{31,518,000}{995,900,000} = 3.2\%$ of the total mileage flown

Assumed that 50% of mileage cancelled is due to weather, this is equal to 1.6% which represents 15,759,000 cancelled miles.

(The above based on CAB statistics for 1960)

Our staff has estimated that the average direct operating cost for all U.S. air carrier aircraft in use was 134 cents a mile. At 134 cents per airplane mile, the 15,759,000 airplane miles of operation calculated to be lost due to weather would cost the carriers \$21,117,060 in total direct operating expenses. This is, we believe, a very conservative estimated loss considering fixed costs of operations and other increased costs due to lower aircraft utilization, misplaced aircraft requiring ferry flights, reduced payloads after cancellations, increased passenger handling costs, etc.

COST OF ONE YEAR'S AIR TRAFFIC CONTROL AND WEATHER DELAYS

Flights delayed or diverted are not included in the cancellation statistics. These also present a severe monetary penalty to the carriers. One measure of this factor is the "On-time" (within 15 minutes) experience of the domestic air carriers.

Airlift, May 1960 on page 81 shows delay figures for 8 months, May-December of 1959 which we believe is representative for 1960. These figures show an "On-time" figure of about 69%. Thirty-one percent of the trips were delayed more than 15 minutes. Sixteen percent were delayed over 30 minutes. This is an additional important economic factor.

We would estimate that approximately half of these delayed arrivals or 15% of the flights are affected by weather or ATC delays. Fifteen percent of the total number of trips (3,834,541 domestic and international) is approximately 575,181 delayed trips per year, due to ATC and weather. Assuming the average delay is $\frac{1}{2}$ hour at \$340/hr. (DC-6 cost), the cost due to this delay factor would be \$97,780,770 per year. Figuring the average delay at $\frac{1}{4}$ hour the cost of the delay factor would amount to \$48,890,385 per year.

The total cost effect of lack of facilities

(1) Estimated Losses due to Cancelled Mileage	\$21,117,060
(2) Estimated Losses due to Delayed Flights (15 min.)	48,890,385
(3) Estimated Reduction in Accident Losses with Improved Airport & Approach Facilities	¹ 3,791,000
	73,798,445

¹ Estimated savings from improved safety facilities as figured for 1957 from the United Research Report further explained later in this paper.

ANALYSIS OF ECONOMIC ASPECTS OF ALL-WEATHER LANDING SYSTEMS

The FAA recently accepted a report prepared by United Research, Inc., covering 1957 operations which uses a more sophisticated and detailed method for determining the economic value of an all-weather landing system. The objectives of this United Research Report are as follows:

(1) Analyze economic benefits of ATC and airport facility improvements to civil users of the airways, and measure the effect of these improvements in dollar terms on the demand for and cost of air line passenger transportation.

(2) Measure the effect of improvements on the cost of general aviation transport including value of passenger time.

(3) Measure the annual cost of the accidents (loss of property and life) preventable by the improvement.

The analysis of the United Research survey resulted in the following values being placed on an all-weather landing system:

"(1) Additional demand leading to increased revenues to air carriers.....	\$11, 500, 000
"(2) Cost savings to air carriers.....	9, 379, 000
"(3) Cost savings to general aviation.....	292, 000
"(4) Value of accidents prevented.....	3, 791, 000
	24, 962, 000"

During the winter months of each year, the unreliability of air travel is typical greater than the unreliability in the summer months. For purposes of analysis, the percentage of scheduled miles not completed is used as the measure of schedule unreliability. Characteristically, during periods when air services experience greatest unreliability, the percent of first class travelers (users of air and first class rail services) who travel by air declines.

There are three principal types of economic benefits associated with ATC and airport approach facility improvements. They are:

(1) Improvement in capacity of the system result in an increased demand for its use, thereby creating greater revenue to compensate for the cost of improvement.

(2) Improvements in efficiency and reliability results in lower per unit cost to the users which will result in the ability to pay for the improvements.

(3) Benefits from improvements in the margin of safety reduce accidents thereby reducing the premature and costly loss or damage to life and property.

All the above compound each other and tend to increase the over-all benefits by further increasing the level of safety and efficiency of traffic facilities.

They point to the need for greater schedule reliability as the key to increased demand for air travel.

To show how conservatively the United Research Report 25 million dollar cost was computed, we cite the following cost allowances used in their report:

1 hour delay is calculated as \$170 (average operating cost of airplane in 1957; for 1961 this figure, we believe, would be closer to \$340).

Cancellation estimated as \$24 short haul; \$86 short haul trunk; \$326 long haul trunk (these are all lower than the cost of operating a large 4 engine aircraft for 1 hour).

A diversion is assumed by a four engine aircraft to cost \$691 made up of one hour delay (@ \$210), ½ hour ferry trip, result in one long haul cancellation and trip expense equal to twice a cancellation.

The above figures for 1957 are all lower than today's figures based on increased costs and increased size of aircraft with higher operating costs.

FACILITIES NEEDED FOR SAFETY AND ECONOMIC GAINS

Much can be done *TODAY* to reduce weather and traffic delays referred to in the previous pages. *We do not need to wait for new equipment to be developed.*

Of the 569 airports serviced by domestic airlines, 95% of the passengers arrive or depart from 165. These 165 also produce 98% of the cargo and 97% of the mail. These 165 airports handle 80% of the airline takeoffs and landings.

Of these 165 airports, 100% are equipped with tower and ILS, 76% equipped with centerline approach light systems of which 52% have sequenced flashing lights, and 51% are equipped with airport surveillance radar (ASR) or radar approach control (Rapcons). This is a good start but does not provide some presently available facilities at more than 50% of the higher density airports. Attachment D shows the estimated cost of additional facilities required to modernize the facilities at 165 hub-type airports; and also to provide non-hub-type airports with minimum approach facilities.

There are additional facilities which can profitably be installed at higher traffic density locations to further reduce weather delays. They are:

(1) *Runway Visual Range Equipment*

Present RVR installations are at 17 locations and 31 more are planned by the end of 1961. Average cost of RVR equipment is \$15,000. Runway visual range equipped airports provide the lowest minimums with today's standard facilities. Improvements in on-time arrivals will become increasingly apparent when this RVR equipment is more universally installed.

RVR visibility measuring equipment installed on the runway with remote reading in the tower provides visibility minimums of 2600 ft. (with 200 ft. runway light spacing) and 2000 ft. (with 100 ft. runway light spacing) with the following equipment installed.

- (a) ILS (191 presently installed—250 programmed through 1961)
 - (b) 2 compass locators
 - (c) High intensity runway lights
 - (d) TSO N10 (a) Runway Marking (at about 20% of 569 airports)
 - (e) TSO N24 Approach Lighting with condenser discharge lighting (86 presently installed, 174 programmed through 1961)
- (2) *Narrow Gauge (flush) Runway Lighting* gives direction and roll guidance and flare control with restricted visibility.

This type of equipment is in the final stages of development. Idlewild Airport did not wait for criteria and now has narrow gauge runway lighting in its new instrument runway. It is expected that such lighting will be part of the requirements prior to considering reducing minimums below present RVR standards. Such equipment will not only increase the efficient use of a runway, but will also increase the level of safety. Flush lighting has been designed that can be installed in existing runways. With the combination of available criteria and a practical way to install flush lighting in existing runways, the way is open to modernize runways at a relatively moderate cost to take advantage of the economic benefits of this latest development at high density airports.

(3) *Centerline flush runway lighting*

This is a vitally needed part of "all-weather" runway lighting for landing roll as well as takeoff. The criteria for this development is now in its final phases of completion. It is anticipated that this equipment will be normally a companion installation with narrow gauge flush runway lighting and is expected to be a vital part of all-weather runway equipment and yield economic benefits.

(4) *Flush approach lighting extending into the paved underrun area*

In the past a number of TSO N24 centerline approach light systems have not been fully installed because of a lack of standards for a flush approach lighting fixture. Now these standards are available and should be added to the existing systems in the underrun area within 1000 ft. of the runway threshold or any time approach lighting is in the useable overrun or underrun area of a runway. Such installations will add materially to the safety of operations by reducing the possibility of an accident due to touchdown prior to contacting the runway. In some cases, flush approach lighting on paved surfaces will add to the takeoff runway length and thereby increase the allowable useful load.

(5) *Lower activity airports must be included in the installation of improved approach facilities to assure a balance of over-all system capacity*

Presently, many low activity airports have nothing but a radio beacon for instrument approaches. ALPA's Airport Survey indicates that this is the extent of the instrument approach facilities now installed at 1/3 of our airline

airports. We believe that minimum equipment for low density airports should consist of a TVOR (\$100,000), TSO N10(a) Runway Marking (\$1-5000), Run-Control Tower (\$60,000).

way End Identifier Lights (\$2-3000), Visual Glide Slope Lights (\$1500) and There are presently 725 VOR stations in operation in the United States. Approximately 1/2 of these are enroute aids only and not associated with an approach to an airport.

There are a very limited number of runway identifier lights installed. ALPA's survey indicates only about 2% of the airports have them. Very few are being programmed. Most of these are at airports where ILS and approach lights are on another runway.

The visual glide slope lights, (that give a visual angle of approach indication to the pilot), have just been approved for use and the first two are scheduled to be installed at LaGuardia. The FAA has budgeted only 40 for fiscal year 1962, and most of these will probably go on "noise sensitive" runways at high density airports. Until this standard can be financed and installed by the FAA, we recommend consideration of a "poor man's" glide installation called POMOLA. This can be installed for daylight use for a very few dollars. Financing should not be a problem (under \$100.)

The growth of aviation in the last 15 years has shown that low density airports have rapidly increased in traffic *as increased facilities and services became available*. It, therefore, seems imperative to us that these recommended lower cost approach aids be installed at all local service terminals at the earliest possible time to improve schedule reliability and the flow of traffic to and from these smaller airports.

SUMMARY

The economic losses due to weather and ATC delays, cancellation of flights and diverted aircraft in one year is a sizable figure—United Research says \$24,962,000 for 1957. We calculate at least \$73,798,445 for 1960.

We feel that a major portion of this money can be saved by installing proven landing aids and airport safety standards—*now*. These aids and standards are referred to in Attachment D and cost as follows:

For 165 High Density Locations.....	\$41, 050, 000
For 404 Low Density Locations.....	42, 862, 000
	83, 912, 000

The above costs do not include many additional parts of the over-all air traffic control system which requires additional capital, such as Traffic Control Centers and their equipment, Research & Development, etc. to handle the ever-increasing amount of air traffic.

To complete the picture at least \$1.1 billion in airport facilities like runway extensions, taxiways, terminals, etc. will be needed in the next five years.

Obtaining funds for the above planned and proposed improvements is one of aviation's major problems today but, in our opinion, we must keep the problem in its over-all perspective from the national interest standpoint.

Commercial air transportation has become the leading means of intercity travel today. It is also the dominant means of international travel. Business, government, and our citizenry generally are rapidly gearing their lives to this rapid means of transportation. This trend is accelerating. Seventy-five percent of the total air transportation of the world is flown in the aircraft of U.S. carriers and by U.S. citizens. Deficiencies, delays and marginal safety standards in air transportation today affect our entire economy. It is imperative to the total national interest that we accelerate our efforts to keep our airways and airport system abreast of technological development of the aircraft and its use in our total national picture.

The federal government must be an active participant in the development of our airports and their related terminal area and airway facilities. Unlike the situation in other means of transportation, the federal government has assumed the primary responsibility for the development and operation of the airways system, the control of the airspace and related facilities. There is no alternative to viewing the airport and its related facilities as an integral part of the airways system. It is only reasonable, therefore, that the federal government should be

an active partner with the local communities in the development of the airport system. We feel the federal government has been too reluctant a partner in recent years and that we must work together to bring an awakening of the public and government officials to this shirking of the responsibility and its impact on the development of our country.

We are not certain that the amount proposed in S. 1703 is sufficient. We would prefer to see \$100,000,000 per year for five years but strongly endorse the proposed legislation as a minimum.

We appreciate the opportunity to make our views known.

PERSONAL BACKGROUND OF CLARENCE N. SAYEN

By way of personal background, I hold Bachelor of Arts and Master of Arts degrees in geography and economics and an honorary Doctor of Science. I have been a teacher and an air line pilot. Some current activities have included membership on the Committee on Aircraft Operating Problems of the National Aeronautics and Space Administration; Executive Committee of the National Air Transport Coordinating Committee; War Air Service Pattern Committee of the Defense Air Transportation Administration; Executive Committee of the Radio Technical Commission for Aeronautics; the Chicago Aero Commission; Industry Advisory Committee of the Inter-Departmental Aviation Manpower Committee; and National Defense Executive Reserve.

DESCRIPTION OF AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

The Air Line Pilots Association, International is an association of the professional air line pilots of the scheduled United States air carriers. At present, it has a membership of over 18,000 active and inactive members employed by 49 certificated air lines. The Association represents air line pilots in all aspects of their professional life. It is their bargaining agent under the Railway Labor Act, maintains an extensive air safety organization in 149 Councils scattered throughout the United States and a number of foreign countries, and is spokesman for the air line pilot in his relationship with municipal, state, federal and international organizations.

ALPA'S ORGANIZATION FOR SAFETY

ALPA's organization for safety is composed of representatives of 149 Councils located throughout the United States, its territories, and a number of foreign countries. Each Council has an Air Safety Committee composed of active air line pilots who are selected for their competence and interest in the air safety problems being encountered by their pilots. The Chairmen of all of the Council Air Safety Committees are organized into a Central Air Safety Committee which coordinates the safety activities of all of the pilots of the particular air line, subject to the authority of the Master Executive Council which is their highest governing body and which is subject only to the Board of Directors which makes national policy for all pilot groups within the Association. In addition, Regional Safety Chairmen are appointed within five main geographic regions and with sub-regions. These pilots coordinate the safety activities which are primarily regional in character. Each pilot group designates Accident Investigation Representatives who, along with Regional Accident Representatives, participate in the investigation of all major air carrier accidents and report their findings to the President of the Association. The activities of all of these safety representatives are coordinated by the international officers of the Association and by a professional staff.

When specific problems require sustained study and representation, committees are created of pilots specializing in the particular subject and assisted by professional staff. For example, such committees in recent years have reported on such problems as New Aircraft Evaluation, Training Standards, Collision Avoidance, Dangerous Cargo, Air Traffic Control, Physical Standards, and others.

APPENDIX C

ALPA's airport survey results, 257 airports as of January 1961

Runway condition:	<i>Percent</i>	Runway length available:	<i>Percent</i>
Good.....	56	Adequate.....	21
Fair.....	33	Marginal.....	75
Deficient.....	11	Deficient.....	4
Taxway condition:		Taxiway lighting and marking:	
Good.....	53	Good.....	13
Marginal.....	35	Marginal.....	36
Deficient.....	12	Deficient.....	51
Leading ramp condition:		Ramp lighting and marking available:	
Good.....	64	Good.....	20
Fair.....	30	Marginal.....	57
Deficient.....	6	Deficient.....	23
Approach lighting installed:		Obstruction lighting and marking available:	
Configuration "A" and others.....	30	Good.....	24
Strobe beacons.....	11	Fair.....	66
Runway identifier lights installed.....	2	Deficient.....	10
Runway lights installed:		Runway overrun available:	
High intensity.....	38	Good.....	16
Medium intensity.....	44	Fair.....	24
Low intensity.....	18	None.....	60
Runway marking installed:			
Good.....	20		
Marginal.....	38		
None.....	42		
Available fire and rescue facilities:			<i>Percent</i>
Good protection.....			8
Some protection.....			35
No protection.....			57
Snow removal available:			
Good plus not applicable.....			10
Marginal.....			35
Deficient.....			15
Vehicular procedures in use:			
Good.....			20
Fair.....			69
Deficient.....			11
Instrument landing facilities available:			
ILS.....			33
VOR.....			53
Beacons only.....			33
Tower facilities available commissioned.....			42
Communications procedures available:			
Good.....			42
Fair.....			42
Deficient.....			16
Weather facilities available:			
Good.....			34
Marginal.....			51
Deficient.....			15
Surveillance radar available:			
Now.....			14
Planned.....			3
None.....			86
High speed turnoffs available:			
Now.....			3
Planned.....			6
None.....			97

	<i>Percent</i>
Runway distance markers available:	
Now.....	13
Planned.....	1
None.....	87
Runway visual range available:	
Now.....	4
Planned.....	8
None.....	96
Navigation facilities installed at terminal areas:	
"H" beacons (only).....	33
VOR facilities.....	53
ILS facilities.....	33
Surveillance radar.....	14
Terminal facilities lacking:	
No towers.....	58
No weather facilities.....	15
Marginal snow removal procedures.....	50
Marginal fire and rescue facilities.....	92
Marginal vehicular procedures.....	80
No runway visual range procedures.....	96
Insufficient obstruction lighting and marking.....	76
Marginal communication procedures.....	58
Airports having taxiways which—	
Are too narrow or need repair.....	47
Are not properly lighted or marked.....	51
Airports having runways which—	
Should be lengthened.....	79
Are deficient (need repair, etc.).....	11
Have very inadequate overrun areas.....	60
Do not have "hi" intensity lighting.....	62
Do not have marking.....	42
Do not have approach lighting.....	70
Do not have runway identifier lights.....	98
Do not have runway distance marking.....	87
Do not have high speed turnoffs.....	97
Airports having loading ramps which—	
Are too small or need repair.....	36
Are inadequately lighted or marked.....	23

ATTACHMENT D

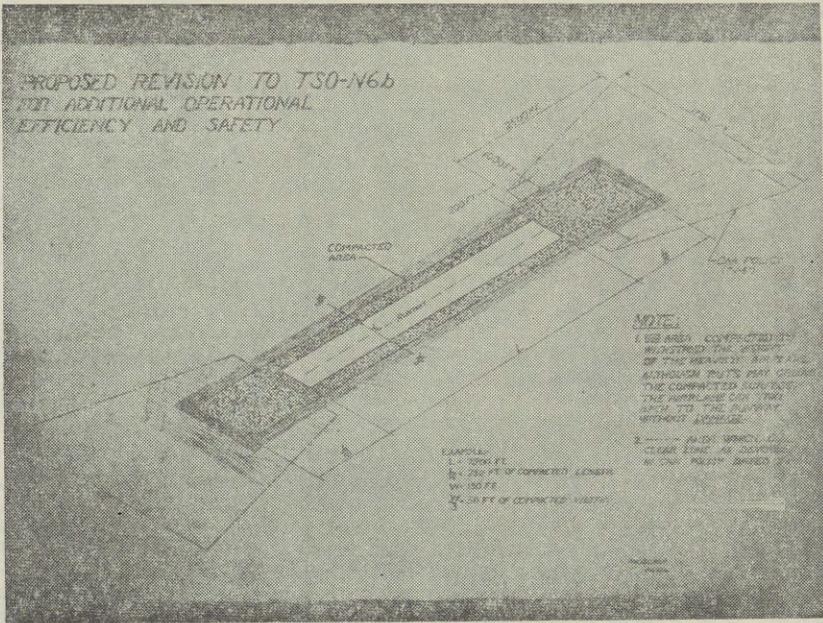
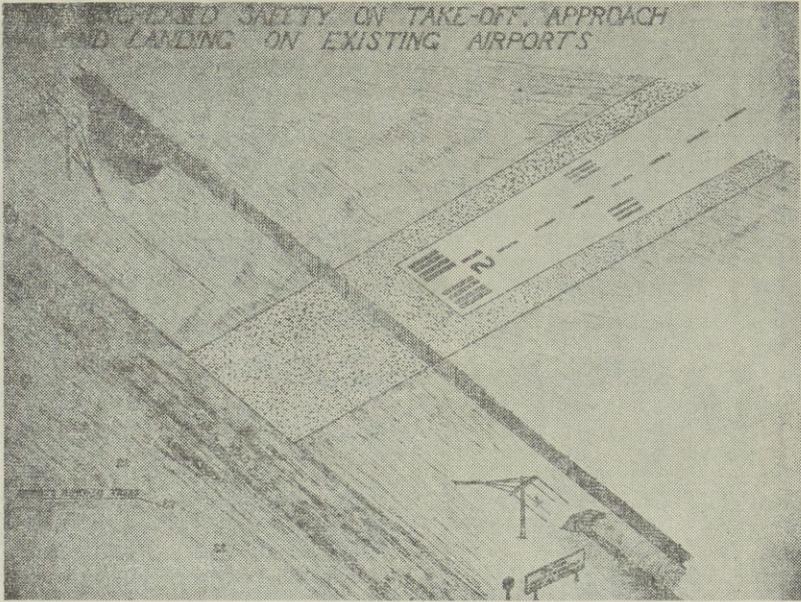
Conservative cost estimates to establish 100 percent major electronic aids available today at 165 hub type airports

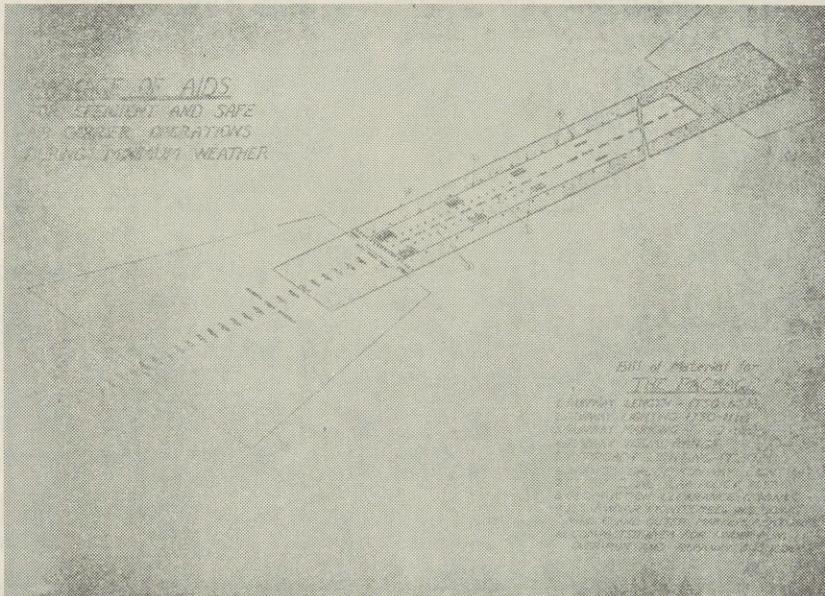
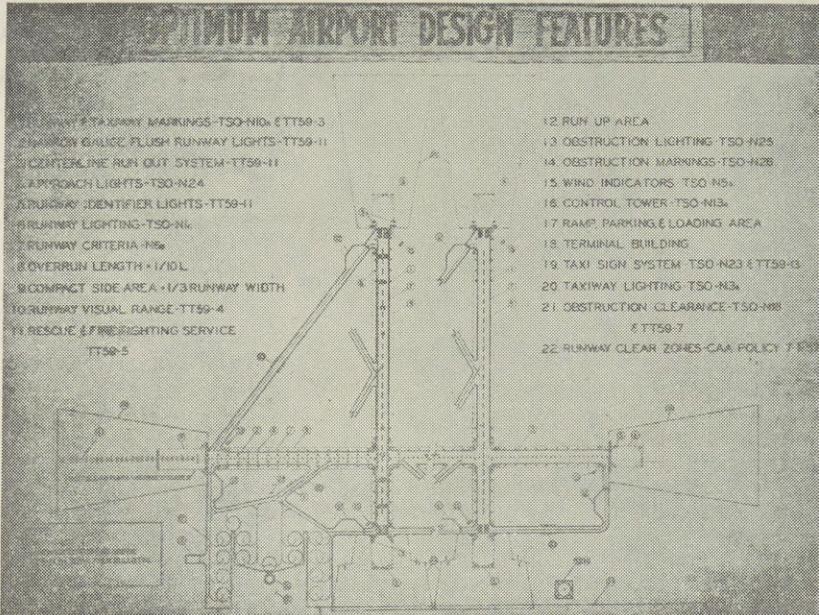
Towers, 100 percent complete.....	
ILS, 100 percent complete.....	
Runway visual range, 150 at \$15,000.....	\$2, 250, 000
Approach light system, 40 at \$100,000.....	4, 000, 000
Sequenced flashing lights, 85 at \$40,000.....	3, 200, 000
Airport surveillance radar, 84 at \$400,000.....	31, 600, 000
Total required for above new aids.....	41, 050, 000

Conservative cost estimates to establish lesser electronic aids at 404 less dense non-hub type airports¹

Towers, 344 at \$60,000.....	\$20, 640, 000
VOR or TVOR, 200 at \$100,000.....	20, 000, 000
TSO, N10(a) marking, 404 at \$1,000.....	404, 000
Runway identifier lights, 404 at \$3,000.....	1, 212, 000
Visual glide slope indicators, 404 at \$1,500.....	606, 000
Total facility cost for above new aids.....	42, 862, 000

¹ Some of these airports will be classified as hub airports as traffic increases.





[From the Air Line Pilot]

These two articles technically and statistically illustrate three longstanding airport needs: (1) An increase in the safety margins of runway length; (2) the provision of compacted areas adjacent to runway ends and sides; and (3) the provision of clear zones, free of obstructions, in the approach areas.

THE NEED FOR LONGER RUNWAYS!

The laws of physics, involving kinetic energy, friction coefficient, time and distance, cannot be changed by expecting pilots to exhibit extraordinary techniques under operational conditions which were not accounted for in the design and testing of the airplane. When pilots land ultra-modern airplanes on extremely slippery runways, it can be expected that sooner or later one of them is going to slide off the end unless the industry realizes and acts.

"When overrun accidents occur during landing or accelerate-stop, aborted take-offs, the blame should be placed on shoulders other than the pilot's."

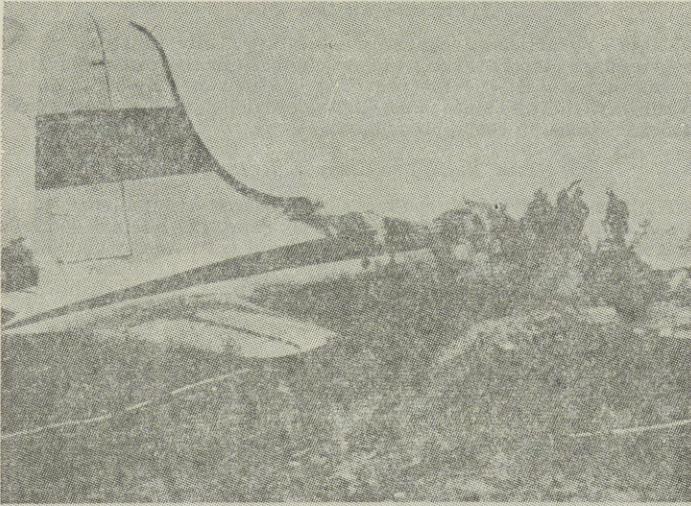
This is the opinion ALPA expressed to the Administrator of the Federal Aviation Agency in a letter written following a recent public hearing on Notice of Proposed Rule Making 63-28 on amendments to Special Regulations relating to accelerate-stop and landing distances for turbojet category airplanes. The letter was prompted by testimony submitted by some major segments of the industry in opposition to increasing the required runway lengths for wet or slippery conditions.

"NASA and the FAA have justifiably seem fit to spend huge sums on research to learn more about realistic requirements for runway lengths to assure an adequate margin of safety for scheduled aircraft operations during slippery runway conditions," ALPA said in its letter. "The data has been obtained and the results are clear. The FAA, CAB and NASA have gone on record stating that our runway lengths are deficient for scheduled air carrier operations."

The letter continued to say that the Association representatives spearheading these studies for ALPA have often pointed out the inadequacies of runway lengths of landing and take-off during slippery conditions.



Early Transports... OVERRUNS!



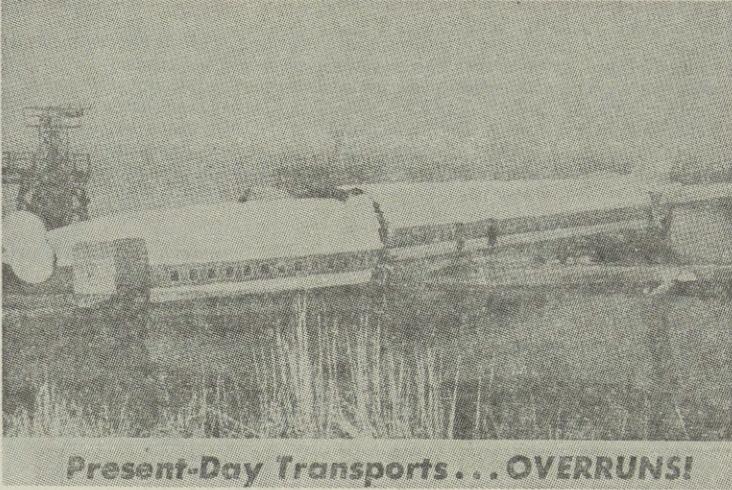
Post-War Transports . . . OVERRUNS!

"These inadequacies are due to obsolete certification requirements which are not commensurate with operational experience," ALPA stressed, adding that in view of the research and testing which has been conducted, overrun and under-run accidents can no longer be tolerated.

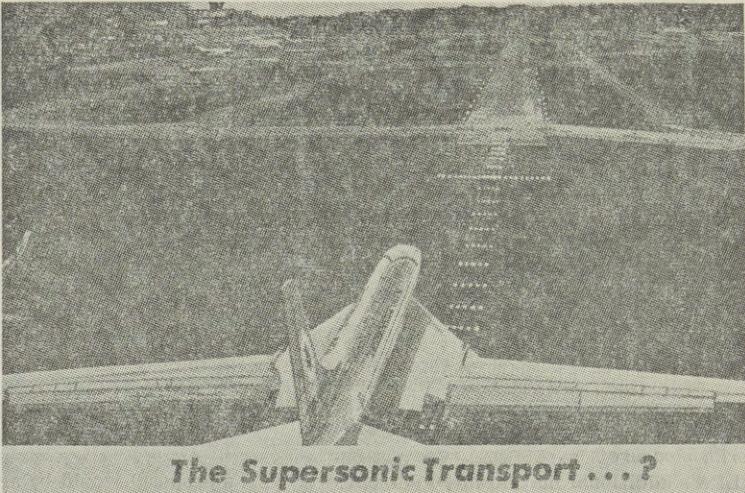
"In the design of the airplane," the letter continued, "we provide margins for structure and redundancy in systems to prevent accidents, yet we fail to provide comparable margins of runway length. By the record this dereliction has resulted in a terrible loss of life, injury and damage to property. It has detracted from the profitable operation of the carriers and continues to adversely affect the safety and economical growth of air carrier operations. Surely, aviation has reached a stature, particularly in air carrier operations in which the lack of adequate airport safety margins should not be a continued cause for the same type of accidents to occur year after year."

Concluding, ALPA told the FAA Administrator, "Knowing of your familiarity with the subject matter, it seems pointless to go on further, other than to restate and belabor the point that penalizing the pilot for an overrun accident, if he survives, is not the answer nor is it in the best interest of the public. We, therefore, respectfully request that you exert the power of your office, in consonance with the intent of the Federal Aviation Act of 1958, to remedy this condition by providing adequate runway length margins for the maximum of safety during operation of air line aircraft. It is realized our airports cannot be updated to meet new runway length requirements overnight. However, a realistic time schedule, similar to the vigorous and ruthless highway program, should be established to obtain a level of safety the air traveling public is entitled to have."

The Association emphasizes that no one more than the pilot is striving to accomplish as safe a landing as is humanly possible and the safety record is good in this regard except when the slippery runway conditions exist. Then, longer runways are needed at certain airports. It is not the Association's objective to recommend offloading or any economic restriction in the load carrying ability of the airplane as a method of solving the runway length problem.



Present-Day Transports . . . OVERRUNS!



The Supersonic Transport . . . ?

Causes of overruns

The history of operating air line aircraft clearly shows that overrun accidents and incidents are caused by one or more combinations of the following factors:

Approach.—(a) Higher than normal reference-plus speeds due to turbulence or low weather. (b) Higher than normal ground speed due to overriding tailwinds created by low level wind shear. (The Air Line Pilot, January 1962. "Wind Shear Effects on Airspeed" by J. A. Brown, Met. Dept., TWA.) (c) Threshold altitude higher than normal due to being above glide slope.

Slippery runway conditions.—(a) Wet, hydroplaning tires. (b) Slush or ice, (c) Jet soot and rubber deposits (wet).

Tire condition—(a) Smooth tread. (b) Difference in worn tread and tire diameters. (c) Type of tread.

Crosswind—(a) Ineffective braking and reversing. (Full reversing and braking cannot be applied on a wet runway with strong crosswinds.)

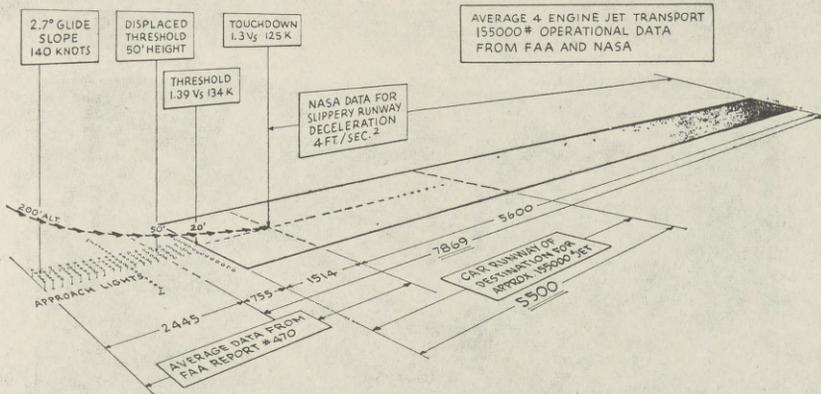
Unrealistic Certification distances make landings legal, but *not* safe.

What has been offered? The FAA's Notice of Proposed Rule Making 63-28 would increase wet runway distances for turbojet airplanes by 20 percent and would be applied to all wet runways regardless of weather minimums. The 20 percent factor affects only airports of destination and not alternate airports. Alternate airport runways would be increased to the equivalent of the present "airport of destination" requirements and would apply regardless of wet or dry conditions.

ALPA has taken the stand of being in qualified support of the FAA proposed rule. The Association, representing the men who must daily use the runways, would like to see the distance increased by 40 percent instead of 20 percent, but would not turn down any increase since 20 percent is an interim step in the right direction.

APPROACH AND LANDING EXPERIENCE

REVISED 3-11-64



NOTE: $7869 - 5500 = 2369$ THE DIFFERENCE BETWEEN ALPA (SLIPPERY) AND CAR RUNWAY OF DESTINATION FOR 155000 *AVERAGE JET TRANSPORT $2369 / 5500 = 43$ PERCENTAGE INCREASE ON WHICH ALPA CONSERVATIVELY BASED THE NEED FOR A $1.4 \times$ RUNWAY OF DESTINATION SLIPPERY FACTOR.

Interim measure

ALPA's additional margin of 20 percent over FAA's proposal would be acceptable as an interim requirement in the form of compacted overrun-underrun areas as illustrated in the chart appearing on Page 15. The 40 percent margin proposed by the Association is an increase in runway length that would seldom be used, but would protect the public when the previously mentioned compounding of adverse factors occur. Accordingly, the provision of an overrun compacted area will practically assure a safe landing roll out.

"On many occasions," ALPA testified at the hearing on Notice of Proposed Rule Making 63-28, "the Association has made its position crystal-clear relative to the inadequacies of the landing distance and accelerate-stop distance. This position is based upon the 'user' experience of thousands of professional air line pilots who have been involved in millions of landings, in fact, 4 million per year. There is no association, agency or other group which is as eminently qualified to assess this subject as the air line pilot who experiences variable operating conditions from day-to-day, every day."

Landing study

In the fall of 1962, shortly after FAA released its Report No. 470 "Statistical Presentation of Operational Landing Parameters for Transport Jet Airplanes."

ALPA prepared a Landing Distance Study which was based on the results of that FAA Report plus relevant data from the FAA/NASA "Joint Technical Conference on Slush Drag and Braking Problems."

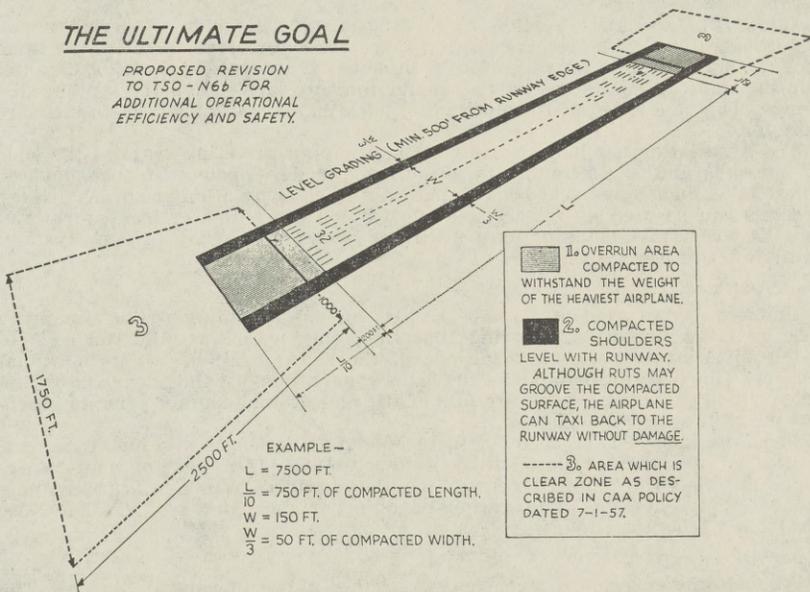
Runway chart

Basically, the findings of the Association's study are summed up on the runway chart appearing on page 14 for the average 155,000 lb. 4 engine jet airplane landing weight. Starting at the left of the chart and moving across, a review of the information it portrays is as follows:

Approach angle data.—The glide slope average of 2.7 degrees is representative of line flying and would remain essentially unchanged as an average for instrument weather regardless of minima.

Threshold data.—The 50-foot height labeled "Displaced Threshold" is representative of line flying. Perhaps it is a little on the low side to assure a margin, but a higher average height at this point would result in an increase in the touchdown distance and thereby over-all landing distance. Hence, the data as used is conservative and, if anything, the height of the airplane at this point would be greater for low weather operations.

Threshold height.—The 20-foot height over the threshold is quite low. The 20-foot height is the average of all the data which disclosed a maximum height of 65 feet and minimum of 3½ feet. Discussion of this item with experienced jet pilots indicated concern that 20 feet is really on the low side, especially for landings in adverse weather conditions. It was agreed that if the data were taken during instrument flight conditions, it would show that this threshold height would increase and thereby increase the landing distance.



Threshold speed.—The average threshold speed of 1.39 Vs' or 134 knots is representative of pilot experience. If anything, these average speeds would increase when landings were made during instrument weather conditions or in gusty air. Such increases would lengthen the touchdown distance and therefore the over-all runway length.

Touchdown distance.—The ALPA chart derived from the FAA report shows an average touchdown distance of 1,514 feet. The touchdown distance data shows an extreme of 4,170 feet and many touchdowns at 2,500 and 3,000 feet. To prevent an undershoot in good weather it is considered marginal to touchdown less than 1,000 feet from the threshold. In fact, a common denominator of ac-

ceptable technique for reciprocating engine airplanes was to touchdown within the first third of the runway. During instrument weather and gusty air, a distance less than 1,500 feet would be considered marginal and certainly since the threshold speed is higher during adverse weather conditions a greater touchdown distance will result. The 1,514 feet average touchdown distance is "realistic" for adverse weather landings and if anything, is conservative.

Touchdown speed.—From pilot experience this average of 125 knots touchdown speed is confirmed as realistic for VFR or IFR. If anything, this speed would increase slightly during adverse weather operating conditions and could result in a longer landing roll.

"It is important to note," ALPA's testimony explained, "as the chart states 'brakes only' were used to stop the airplane during its wet landing roll. This is the only point in the ALPA study where a safety margin exists. Since the data is 'average' and since due to crosswind effects neither full braking nor full reverse thrust can always be used, it is 'considered realistic to use brakes only.'"

ALPA's testimony said that Association documentation and analysis of "user" experience dictates the need for larger margins than have been proposed by the FAA Notice.

"However, we consider the FAA proposal to be an increase in the safety margins, which should be adopted with the complete understanding that it is an interim step toward providing runway lengths which will lead to virtually assuring that the 'underrun-overrun' type accident will not occur on landing or in an aborted take-off," ALPA testified.

Compounding Hazards

While ALPA's study related to landing distances under slippery runway conditions, it should be recognized that there are many airports where the same runway must be used for take-off. In these cases, the potential of hot day and slippery runway aborts becomes a greater limiting factor than the landing distance. This is a process of compounding hazards and can only lead to ultimate disaster.

The Association has long recognized the merits of arresting gears at the ends of runways and is continuing to encourage the development of such devices. There is common agreement between ALPA and other aviation groups that these barriers can be used as "emergency" devices on presently certificated runway lengths where man-made or natural causes prevent extension of runways and availability of clear zones.

Underrun accident

Underrun type accidents can be caused by not providing realistic runway length, ALPA contends, stressing that they may be induced by the need to touch down close to the approach end of the runway because of its marginal length. This procedure amplifies the hazard potentials of wind shear and turbulence which can cause premature loss of lift and ground contact prior to reaching the runway threshold.

The FAA has seen the need for increasing runway length and has, therefore, issued its Notice of Proposed Rule Making 63-28. ALPA has for many years contended that the required runway lengths obtained from certification flying are not representative for operational landing or aborted take-offs. The FAA apparently feels the same way.

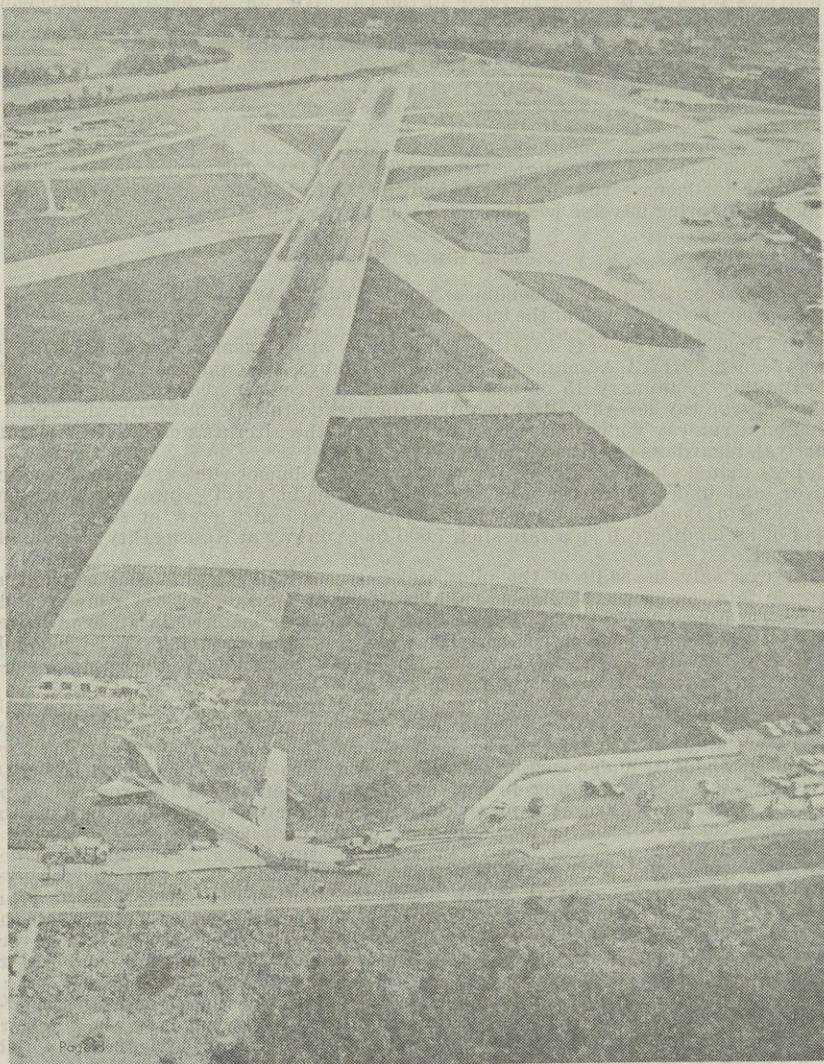
What others say

What do the government agencies say on the subject of runway length? The following quotations from the FAA, CAB and NASA validate the need for longer runways:

FAA, preamble to Notice 63-28—"The currently required landing runway lengths for turbojet airplanes are considered adequate for dry runway operations but not for wet or slippery runway conditions. A recent regional survey indicated that most of the major airlines operating turbojet equipment apply some correction factor for landing on slippery or wet runways. By this action, the airlines indicate that the presently required landing runway lengths for turbojet operations on adverse runways are inadequate and as such tend to bring about a lowered level of safety. There is a need, therefore, to increase the required minimum runway lengths for turbojet airplanes for landings to account for operations on adverse runways."

FAA, at the hearing on Notice 63-28—"A safety problem exists because the currently effective type certification requirements and the operating rules do not consider in sufficient detail critical operating conditions and particular airplane characteristics and do not fully account for current operating practices."

CAB, from Bureau of Safety Pamphlet titled "The Phenomenon of Aircraft Aquaplaning" —"Present Civil Air Regulations" criteria for establishing minimum runway length is applicable only to dry runways. Since water is incompressible and unable to develop shearing forces, varying coefficients of friction are developed between the tire and runway during adverse weather, depending on the depth of water and the forward speed of the aircraft. NASA test result for wet runways show that the coefficient of friction varies from 0.3 at slow speeds to 0.00 at high speeds in the realm of aquaplaning, as compared to 0.8 for a dry runway. This should be ample proof that additional runway length will be required when landing during adverse weather conditions."



Data from FAA/NASA report on Slush Drag and Braking Problems shows that stopping distances for 160,000 lb. jet transport airplanes using brakes only on slippery runways can vary from 4300 feet with effective tire tread to 6600 feet with smooth tires. In this report an FAA pilot summarized his experience by saying, "High speed braking is almost non-existent in slush and can increase accelerate-stop and landing distances to impractical values."

FAA, in one of the conclusions to Report #470—"There is little correlation between the typical air line operation and the operation used to demonstrate landing distances during type certification."

(NOTE.—All information referred to in this article is in the FAA Docket Section, Washington, D.C., and is public information available to any interested person.—the Editors.)

The preceding article comprehensively sets down ALPA's position on what is needed in the way of longer runways. The article which follows, published 13 months later, reports on a new Federal Aviation Regulations amendment which provides for a 15 per cent increase in the effective runway length requirement for turbojet aircraft landing on a wet surface.

The second article also substantiates the need for longer runways by reporting on another entry to an already-too-long list of overrun accidents. This type of accident has continued to plague the industry virtually since scheduled air carrier operations began, more than 30 years ago.

The accident discussed in the article occurred at Kansas City Municipal Airport. As the article points out, however, MKC ". . . is just one of many airports which has been the subject of concern to ALPA" during the years, because of their inadequate runway length margins and other factors needed for safe operation during adverse weather conditions.

THE SHORT RUNWAY

A recently-adopted amendment to the Federal Aviation Regulations may help to wipe out the menace.

On June 29, a Federal Aviation Regulations amendment designated as 121-9 was signed by FAA Administrator Najeeb Halaby. The amendment states that beginning on January 15 of next year, a 15 per cent increase in the effective landing runway length will be required for airline turbojet aircraft when landing on a runway which is forecast to be wet at the aircraft's estimated time of arrival, regardless of ceiling and visibility.

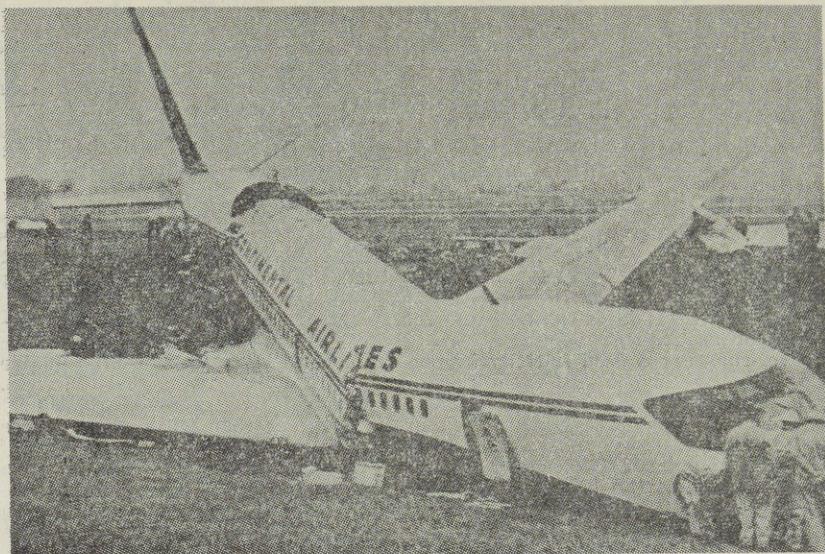
Less than 48 hours later, on July 1, the need for longer runways and adequate over- and under-run areas was once again brought vividly into focus by the crash of a Boeing 707 loaded with 59 passengers and a crew of seven at the end of its landing roll on a rain-slick 7,000-foot runway at Kansas City Municipal Airport.

It was only the skill of the pilot and extreme good fortune that averted a tragic fatal crash as the airplane skidded past the end of the wet runway and struck a dike. Hitting the dike head-on would have resulted in an even more severe break-up of the airplane. Knowing this, and realizing that he could not stop the aircraft before reaching the end of the runway, the captain succeeded in swerving the plane, thus hitting the dike sideways.

Current certification rules require landing aircraft to be able to come to a full stop from a 50-foot threshold height on a dry runway within 60 per cent of the runway's total length. In the case of a 7,000-foot runway, for example, the required distance under current rules for coming to a full stop would be 4,200 feet or less. The remaining 40 per cent or 2,800 feet, would be provided as a safety margin for adverse runway conditions or for unavoidable variations in landing situations involving touchdown speeds and distances.

These current rules will remain in effect for turbojet aircraft operation on *dry runways only*. Under the new rules for wet runway operations for example, and 8,050-foot runway length would be required instead of 7,000 feet in order to avoid a reduction in landing weight. Where sufficient runway length is not available, a reduction in landing weight will be necessary. At lower weights, an airplane can land and stop in a shorter distance, thus enabling it to meet the new requirement.

Most discouraging to see, from ALPA's standpoint, was a portion of the amendment which stipulated that as an alternate to the 15 per cent increase, a lesser increase may in certain cases be approved by the FAA for a particular type and



The wreck of a Continental Airlines 707 which crashed upon landing in heavy rain at Kansas City Municipal Airport on July 1 is shown in these two photographs. The plane came to rest past the end of the airport's 7,000-foot runway, which has been declared by ALPA as being too short for safe adverse-weather operation of jets. Despite the severe damage to the aircraft, no one was killed and only four persons were injured of the 66 aboard the airliner. (AP Wirephotos)

model aircraft if it is demonstrated that the airplane can land and stop on a wet runway in a shorter distance, using operational landing technique, with worn tires and partial reverse thrust. In all cases, however, current requirements will be maintained as an absolute minimum. The Association and its safety representatives will strongly oppose any application of this part of the amended rule.

Although the new regulations are directed primarily at wet runway landing operations at destination airports, the runway length requirement at alternate airports, which has been based on capability to land and stop within 70 per cent of the effective runway length, is now changed to 60 per cent for all runway conditions. This represents an increase in the length of the safety margin from $\frac{3}{4}$ the certified stopping distance to $\frac{2}{3}$ of that distance.

Kansas City Municipal Airport is just one of many airports which has been the subject of concern to ALPA during recent years as having inadequate runway length margins for adverse weather operation of jet transports. MKC (the designation for Kansas City Municipal Airport) was "lucky" in this July 1 crack-up, as it has been in numerous others, in that no fatalities resulted. Only four of the 66 persons aboard the airliner were injured—none seriously.

ALPA feels it is quite probable that had a fire followed the crack-up, resulting in fatalities, a Congressional investigation would have been launched into the causes of the crash. The fact that there was no fire is generally considered to be somewhat miraculous in that a large quantity of jet fuel was spilled in the area where the aircraft came to rest. The only thing apparently lacking for a fatal fire was the necessary ignition source, and it seems incongruous that the holding of a Congressional investigation should hinge on this point.

Such an investigation might serve two very constructive purposes: (1) It would bring to the forefront of public and official attention the very great need for a general revision of runway standards in the interests of safe operation of jet transports; and (2) It would possibly bring to light the reasons why im-

provements at MKC (and other airports), which have been suggested by ALPA and might very well have prevented the July 1 crash, have not been implemented. Examples of these suggested improvements include extension of the north-south runway and usage of coefficient-of-friction measuring equipment (with prompt, accurate reports systematically provided to pilots.)

ALPA and its membership are not the only persons aware of and concerned about the inadequacy of MKC (and other marginal airports) for regular jet traffic. During a drive for passage of a \$30 million bond issue in Kansas City last February, of which a proposition for construction of a new airport facility (Mid-Continent Airport) represented 20 per cent, a brochure published by a group called the Kansas Citizens for a Greater Kansas City said, in part, "Our outmoded, one-runway airport is totally unsuited for the Jet Age. It is surrounded by rivers, high buildings and railways and has the least desirable safe landing limits of any city in the United States. These conditions cannot be improved, due to the elevation of the field and the height of the buildings and other obstructions around it."

Over-runs are caused initially by one or more of a number of unavoidable (and usually compounded) conditions—slippery runways, worn, smooth tires, crosswinds and high or fast approaches due to adverse weather—but the causal factor underlying all over-run crack-ups is the fact that most runways are *too short* for operations under those conditions!

An over-run landing is not the only situation in which tragedy lurks on a short runway. A great danger of over-run exists in the case of an aborted take-off, especially during hot weather or on icy or slushy runway surfaces (both are frequent conditions at MKC). It is extremely doubtful whether a jetliner pilot could stop his aircraft before the end of a 7,000-foot runway if he were to experience a power failure at or near V_1 , the speed at which he must decide whether to continue the take-off or abort (stop).

Adding to this problem is the fact that natural and/or man-made obstructions surrounding many airports might make it impossible for him to follow through with the take-off with reduced power capability. It is this area of danger—the aborted take-off—that the new FAR amendment fails to recognize, in that it allows only for landing on wet runways and disregards the need for adequate safety margins for take-offs.

Another danger connected with landing on a short runway is the fact that the pilot knows that he must touch down fairly close to the threshold end of the strip, especially in bad weather, therefore increasing the possibility of an under-shoot. (For a detailed report on the over-all short runway situation and other ALPA investigations and recommendations on the matter, see *The Need For Longer Runways* in the September, 1964 issue of *The Air Line Pilot*.)

Although pleased with the new FAR amendment as an interim step in the right direction, ALPA feels that, as has been true with most other items regulating safe operations, facilities and equipment, too much time has elapsed in obtaining the rule. The Association intends to continue its actions, which were almost wholly instrumental in achieving adoption of the amendment, because it feels that the rule is still not up to realistic operational needs.

In a statement presented by ALPA in January 1960 before the Aviation Subcommittee of the Senate Interstate and Foreign Commerce Committee, the Association gave the reasons for all of its actions surrounding the improvement of airport safety since its founding in 1932:

"In our opinion, no single category of preventable accidents has caused so much loss of life, injury, delay and substandard air service, destroyed and damaged aircraft, and adversely affected the growth of the aviation industry as has the continued lack of known and obtainable landing aids and airport safety standards."

ALPA'S motivation for airport safety was further stressed in a July 1964 letter to the Administrator of the FAA, in which the Association summarized its feeling about airport runway accidents and their relationship to pilot responsibility when it stated, in part, "... penalizing the pilot for an over-run accident, if he survives, is not the answer nor is it in the best interests of the public. We therefore respectfully request that you exert the power of your office, in consonance with the intent of the Federal Aviation Act of 1958, to remedy this condition by providing adequate runway length margins for the maximum safety, during operation, of airline aircraft."

ALPA strongly feels that airport safety margins have nowhere nearly kept pace with those incorporated in the design of aircraft, and the Association has set as one of its goals the achievement of this parallel.

ALPA'S STRUGGLE FOR AIR SAFETY

Like all air safety regulations, the new FAA amendment to increase landing distances requirements is a result of safety studies and accident analysis, much of which is conducted by ALPA. Association activities which brought about the adoption of the new amendment, FAR 121-9, are briefly summarized below:

1. Participation in annual airworthiness reviews;
2. Participation in the 1952 President's Airport Commission (which became known as the Doolittle Committee, after its chairman, James H. Doolittle) and its set of recommendations concerning airports;
3. Appearance before Congress in 1960, when statements and recommendations concerning safe, efficient airport operations and facilities were presented by the Association;
4. Continual urging for runway length increases, based on accident records and pilot experience;
5. Urging the conducting of tests to determine runway lengths needed by use of the phototheodolite technique;
6. Continual study of wet runway data and subsequent presentations of ALPA's interpretations to authorities;
7. The securing of a proposed rule from the FAA, based primarily upon the foregoing activities;
8. Requesting, receiving and participating in a subsequent hearing on the proposed rule, when opposition from various sources appeared. ALPA's conclusions were presented at the hearing, and the Association stated that its studies indicated that a 40 percent increase in the FAR-required runway lengths was needed. ALPA added that, as an interim safety measure, a 20 percent increase would be adequate, providing that 10 percent over- and under-run compacted areas were provided at both ends of the runway.

ALPA's conclusion on the new amendment is that the 15 percent increase is a step in the right direction, but without the recommended 10 percent over- and under-run areas, the amended rule still does not provide the public with the safety margin it deserves when using air service.

Senator MONRONEY. I well remember the great effort that was made by the Air Line Pilots Association to bring our airports up to standard and to get a regular program that would move the construction along and with the safety features. I note with interest that you recommend a 5-year minimum time. One of the reasons we are asking for the 3-year minimum time is because we hope we will not permanently be in a war situation where the funds would be so limited that we could not adequately finance it. We don't want to tie ourselves to a 5-year program on funds which we don't believe will be adequate for that period of time.

I am impressed with your suggestion that \$100 million a year minimum would be helpful to the program. This would include, I guess in your estimate, the Federal funds and then you would have \$100 million for matching funds from the local airports.

Mr. RUBY. That is correct.

Senator MONRONEY. Do you still wish to leave in the program at least \$7 million for general aviation that we have, which cannot be spent on any other type airport?

Mr. RUBY. Yes, sir; this is right. Actually the purpose in putting the 1961 dissertation in here is to try to show that this is a continuing project and requirement. Actually the only reason for the existence of certificated air carriers is to render a public service. The advent of the expenditure of billions of dollars now for new jet equipment

is broadening the demand over what it once was, simply because we are beginning to go into communities with lower population with jet equipment which formerly were served only with propeller equipment.

The other aspect of the situation is a review that shows many passenger trains are being discontinued and there is also indication that the long-haul bus traveler no longer exists in great volume. So the majority of the bus and rail travel is beginning to evolve around high-density population centers, more or less in the form of commuter movements.

It now appears, at least in the immediately foreseeable future, that the mass mover of persons at least is going to be the private automobile and flying. We then must have airports capable of solving this problem, particularly with the new equipment. This takes in the B-111, DC-9 and subsequently the 749. If we are to serve the public as we are supposed to this—this requires a regularly scheduled service, not one that serves on occasion then the airport happens to be under good surface and good weather conditions. By good surface conditions I am referring primarily to hard, dry runways.

Visualize, if you will, getting on say a 6,000-foot runway with your automobile, starting at the end of the runway, accelerating to 110 miles per hour, and then stopping on this 6,000 foot runway. This could be done on a dry runway. Just try it sometime on a wet runway or one that has slush or ice on it.

The automobile, essentially, will run 3,000 to 4,000 pounds in total weight. Bear in mind these small jets will run 77,000 pounds up to 100,000 pounds. This is quite a trick to stop this airplane on this kind of a runway surface condition. Cross winds merely aggravate it. The other aspect of the situation is that we are in a bit of a hot conflict right now.

Essentially the military does not maintain transport aircraft in great volume. It is economically not really sound to do so. If we really get into an accelerated condition, where do we get the airplanes? In all probability the big four-engine jet is going to see service in this kind of transportation. What do you fall back on then? The small twin-engine or three-engine jet because those types are not suitable for long-haul operation. They will have to pick up the burden of what amounts to internal domestic transportation in the flying realm.

So we must encourage the purchase of this type of airplane by as many of the local service carriers as possible in order to provide a secondary backup to replace the long-haul jet when and if it is utilized for other purposes.

This all gets down to a system of airports and navigational facilities that will justify and warrant the service by this type of airplane.

We simply cannot operate the small jet in small airports on a consistent scheduled base.

If we can follow the traffic trends that are existing today and appear to be as near as forecastable going to continue in the future, if we can provide regular scheduled service we will attract more public passengers and therefore reduce the subsidy.

If we invest in airports and navigational aids and lighting that will encourage a regular scheduled service, we then are going to attract enough public patronage to hopefully minimize or completely reduce

subsidy to the local service system. So therefore we think that the investment in public airports really leads to a total reduction in subsidy in the years to come.

There is a multifold purpose. The pilot is only one link in this chain. He knows how much airport he needs. We have not been successful up to this time to get enough to do the job.

Senator MONRONEY. Thank you for your very helpful comments. Does your other witness have any comments?

Mr. IANSETTA. Yes, sir; I have a short statement which is somewhat repetitious of our previous statement, but it highlights the concern of the local service pilots, better than 4,000 in our association.

The association, our association, has long urged the development of the smaller community airports at a pace to cope with the advancement of air transportation and to assure that at least the same consideration for safety be given to these passengers as for those that patronize the larger metropolitan terminals.

By this we do not mean that the large terminals all serve as shining examples, but only that the smaller community airports trail a long way behind with respect to adequate development.

It appears that many local airline airports have been treated as second-class citizens. Here are some of the examples that predominate at many small community airports:

A large number of local service airports have only one usable runway. This single runway barely meets the operational requirements insofar as length, width, and lighting of runways are concerned.

Navigational and approach of facilities are barely adequate at best. Direction finding approaches are still the only approaches at many of these airports. This type of an instrument approach was the least accurate and most undesirable approach of the three types that we used better than 20 years ago. Difficult to manage, it still is the primary approach at numerous local service airports.

These outdated and inaccurate approaches require circling of the airport underneath the adverse weather in order to be able to line up and land on the legal or only available runway.

Ditches and knolls adjacent to runways are very common. It is indeed serious enough to overshoot a minimum runway, but to climax this incident with a ditch or knoll would be without doubt catastrophic. We can't even assume that the crash was a survivable one, that is one in which the impact force was fatal to the passengers.

Does this airport have adequate firefighting and rescue equipment?

The airport surveys performed by the Airline Pilots' Association indicates that firefighting and rescue equipment at many of these airports are either nonexistent or inadequate. In some cases crash equipments are located a great distance from the airport and operated by volunteer firemen sitting at home.

Mr. Chairman, we fully recognize the need for the development and improvement of the large community terminals, including the metropolitan terminals, but we feel that similar programs are necessary for the airports that serve communities of less than 100,000. They are alarmingly lagging behind development both in airport and facilities.

The jet age is here now for some of these communities. If we are to insure an adequate margin of safety and reliability of service, we

must not only improve the present state of local service airports, we must also consider development to cope with the jet aircraft.

Longer and more runways are needed.

High-intensity runway lights.

Electronic instrument landing systems must be installed on all instrument runways.

Approach light systems for the main instrument runway, ends of runway, and identifying lights for all the remaining runways.

Elimination of all ditches, knolls adjacent to runways, and ends of runways.

Adequate airport firefighting and rescue equipment.

As a typical regional airline pilot views the situation, the smaller community airports have been grossly neglected in regard to adequate margins for safe operation. This is an injustice not only to the 5 or 10 passengers purchasing a ticket at that airport on a scheduled U.S. carrier, but also to the 30 to 60 passengers already aboard, en route to a large metropolitan airport.

Thank you.

Senator MONRONEY. Thank you very much for your very helpful testimony, Mr. Iansetta.

I was very much impressed by the things that you outline in your statement, President Ruby, that could be done at very minimum expense to add great safety to the runways and to the shoulders of runways and the thresholds in takeoff areas. These things could be done without Federal aid by a modern-minded airport operator, could they not?

Mr. RUBY. This is right. However, in our judgment where there is no real established criteria and/or certification required, the airport management is really not in that good position to go to their local authorities that handle the finances in order to try to gain this additional benefit.

If there were legislation set up that set our minimum requirements or in fact the Federal Aviation Agency which is endowed with this responsibility, we think then that there would be a substantial number of airports that could make these gains without fantastic sums of money being invested.

As an example, there are some airports that a very short distance off the paved runway you are either in hills or hollows. If the airplane gets off the runway, it is a complete washout, and in many cases a fire.

We think the fire department ought to be on the airport, but you can certainly reduce the need for a fire department if you have enough spread in terms of safety on either side and at the end of the runway. And it must be long enough.

I have flown airline equipment from the early days of the single-engine Ryan right on through the DC-8. And when the certification is made to determine the runway length in which a specific airplane will operate, it is based on dry, hard surfaced runways. You know in driving an automobile there is a vast difference in the way you can handle the automobile on a wet surface versus a dry surface. So we must, if we are going to operate on a scheduled basis, have enough runway and enough margin that we can still operate safely under these adverse conditions. And this is really all we are asking for.

The means to get it we are sure exist now, and the knowledge exists. We have got to develop the will someplace to do just this.

Senator MONRONEY. These shortfalls that don't have the runway shoulders or the overruns or the underruns, with a light coating of blacktop—are they found in the larger airports as well as in the small city airports?

Mr. RUBY. There are many large airports that have not underrun or overrun at all, or in fact any shoulders. There are few that do have.

A good many military airports have this. But there again is a difference between the military's ability to deal with the whole system versus just a single piece of it.

If we are talking about commercial operation, the way it stands now the airport is kind of off to one side and the airport manager does the best he can with the facilities and the funds he has to work with. Conversely, as the military sets up an operation, they know what kind of an airplane they have to contend with and then they try to protect that investment because they are responsible for the whole system—the airplane, the maintenance, the armament, everything that goes with it.

Somehow we have to get a complete system concept insofar as civil aviation is concerned. This is really the thrust of what we are saying.

Senator MONRONEY. Do you think that the Federal funds should be made applicable to surfacing the underrun and the overrun and the shoulders? Or should we leave that for local expenditure?

Mr. RUBY. I really don't feel qualified to state how the funding should be balanced between local funding versus Federal funding. I do know that it is possible, with certain ground conditions, to do this with certain types of crushed rock without necessarily binding it. In other kinds of soil it is necessary to bind it, as you say, with a light coat of blacktop.

Cost obviously is going to vary based on what the ground conditions are at which the runway is laid. In my judgment if we set up a minimum criteria for a runway and its surroundings, then the judgment on how this should be funded or in what balance undoubtedly would have to come from people who are better qualified to justify how these expenditures are made.

What we are saying is this is the only way we know to provide the best safety. But we don't expect to picture ourselves as experts in terms of how financial balancing should occur. I wish we had this expertise, but we do not have it.

Senator MONRONEY. This is a job that needs to be done.

Mr. RUBY. Right.

Senator MONRONEY. You don't care where it comes from, so long as they don't leave these big thresholds with half a foot lower at the end of the runway?

Mr. RUBY. This is correct. The incident cited of a ledge, I am quite sure the reference was made to the Houston Airport. I myself flew in and out of that airport for quite a while. If this is correct, I can assure you that this ledge did exist. It was nothing but erosion. And this happens at many airports for years.

Senator MONRONEY. And this is why you would like to see the airports certified on certain types and classes of certification regarding their fulfilling of the requirements.

Mr. RUBY. Yes. To start with, we would be even willing to accept certification on just the instrument runway and/or the runway that was available for jet operation at the smaller airport. But we do think that this should involve more than a single runway operation because of the controllability of jet airplanes in gusty crosswinds on wet runways is substantially less than is the case with propeller airplanes. And also the effectivity of reverse thrust is much less with the jet engine than it is with the propeller. So we think this can start in and build up to where it really did the job.

Senator MONRONEY. Do you think it would be a good idea for the regulations of the FAA to be changed to include the condition of these runways?

Mr. RUBY. We think this would be the proper place to vest the responsibility, yes.

Senator MONRONEY. We will see that this is called to the attention of the FAA. It seems to me that for a minor cost you would buy a great deal of safety.

Mr. RUBY. Yes, you can.

Senator MONRONEY. You advocate a 5-year minimum term for the act, and \$100 million in amount?

Mr. RUBY. Yes. I must state that the reason for the minimum is a recognition of the time element that goes into the planning process before you ever turn the first shovelfull of dirt or bring in the first load of macadam or rock.

Senator MONRONEY. We are supposed to put these grants or allocations out on January 1. So that it is 6 months before they become eligible for the grant. It hardly gives them time. In larger airports they usually make their plans ahead and come in and ask for the funding, rather than the other way around.

Mr. RUBY. Yes. The smaller one has difficulty doing this.

Senator MONRONEY. That is right. They don't hire engineers, architects, and designers.

We appreciate your comments. Until we get up to a figure that we think will sustain the work that needs to be done, we don't want to be tied to a 5-year program. We would rather have the 3 years, if we have a wartime contingency placed upon it.

Mr. RUBY. We recognize the difficulty, and are certainly in sympathy with the problem.

Senator MONRONEY. Do you have any further comments to make?

Mr. LINNERT. Mr. Chairman, the copy we supplied you, does that have the reprints of the airline pilots showing the technical studies on runway lengths and hazards?

Senator MONRONEY. Yes.

Mr. LINNERT. Will that be part of the permanent record?

Senator MONRONEY. We will put this in the permanent record. I think we can get it illustrated. We would like to have that in there. This we can use.

Are there any further questions?

We appreciate your coming in. We are glad to have your testimony and, as always, your support for helping to make our airports and our airways ever and ever safer. Thank you very much.

Mr. RUBY. Thank you very much. We do appreciate it.

Senator MONRONEY. Our next witness is Frank Kingston Smith, executive director of the National Aviation Trades Association.

**STATEMENT OF FRANK KINGSTON SMITH, EXECUTIVE DIRECTOR
OF THE NATIONAL AVIATION TRADES ASSOCIATION**

Mr. SMITH. It is a pleasure for me to be here today. I am going to, as I so often do in these matters, offer to submit my statement to you, and I would then like to extemporaneously speak for a moment, which I suppose can be treated as an extension and revision of my remarks.

Senator MONRONEY. Yes.

Mr. SMITH. I don't know whether it is by fate or by planning that I come here between Mr. Ruby, of the Air Line Pilots Association and Mr. Martin of the Air Transport Association. I am convinced we don't all speak the same language because I represent the aviation businessman in general aviation.

When I left the house this morning my wife said to me, "Don't get excited." But I am excited. In a moment you will be able to see how I can get to a soapbox pretty quickly while sitting down.

Mr. Ruby talked about commercial airports with your program for the Federal aid to airports program. He talked about interstate commerce, as if the only airplanes involved in interstate commerce are airline jets. He talked about this being the jet age.

I submit to you, sir, that this is a lot of nonsense.

We have in this country only 658 air carrier airports out of some 9,940 airports that we have on the FAA records. Of those airports we have only 256 with civil aviation control towers.

When you hear about the Federal aid to airport funds you keep hearing about lengthening runways, you hear about extending facilities for the airlines. I wonder when, or if, the airplane people will ever think about building airports, building airplanes to fit the airports instead of building bigger and bigger airports to fit bigger and bigger airplanes.

I represent the general aviation businessman. These are the people who are not air carrier people. We don't operate great big airplanes. We operate airplanes mostly weighing less than 40,000 pounds.

My particular phase of the business operates planes under six and a quarter tons. We can go into every one of these 9,000 airports of this country. We submit that we are covering a great deal more of the transportation picture in the United States than the airlines are.

It is true they carry more people. They have more seat availability. In my statement I state that of the 200 metropolitan hub airports in the United States, there are only 211 that have more than 50,000 population. Of these, only 14 are not now certified for air carrier service. But most of them are 30 miles away from airports used by scheduled airlines. Indeed, only 10 metropolitan areas generate almost half the total passengers carried by the airlines. Only 60 of these airports we have in this country have jet service.

When you talk about the jet age, the total airlines in this country have less than 2,000 fixed-wing airplanes—1,870 is the current figure supplied by Air Transport Association—and of these, only 712 are jets, and over 870 are piston airplanes, with 288 turboprops.

At the same time general aviation has almost 89,000 airplanes active.

These airplanes can vary in size from small airplanes used personally for small short hops to the big business airplanes which are used by the national business aircraft users which are airline-type equipment and flown by airline-rated people. They, too, can use most of the airports in this country, and do.

I think, sir, that when we consider transportation as a total picture, when we think of the complete system concept that Mr. Ruby talked about a few moments ago, it is about time that we thought of the contribution of general aviation to the complete air transportation picture of the United States. This seems to be something that most people ignore, and it is a shame.

I have had bouts with the Bureau of the Budget, and Government officials who believe that air transportation is airlines only, and that general aviation makes no substantial contribution to our transportation picture. I disagree with this. I think we have the figures.

In my statement I have numerous footnotes of studies that have been made to show the importance of general aviation to transportation.

For this purpose the Federal aid to airport program has a great value to small communities to put in instrument landing systems or instrument approaches. With the new equipment we have, with omnium equipment and distance measuring equipment coupled together, with the instrument landing systems and distance measuring equipment put together, we have facilities where our aviation, our general aviation aircraft and trained pilots can go in almost the same kind of weather to all communities, and the airlines can go to only a few.

Just yesterday I went up to Danbury, Conn. I tried to get there originally by airline. I found that the closest I could get was La Guardia Field. I found that New Haven was closed down because they were extending their runway up there. But I could get from La Guardia Field to Danbury by air taxi.

La Guardia Field, of course, is a scheduled airline field and is one of the big ones. But I submit that the small communities like Danbury and Hartford and many other little communities all over this country can be served by general aviation. And here is where the need is for Federal aid to airport programs.

We think that general aviation is a major part of our transportation picture. We believe that the best way to preserve and extend our aviation transportation system is to continue the Federal aid to airport program, and it is time that everyone should recognize that the funds so spent are indeed for the public good and benefiting the economy of the entire Nation.

We therefore sincerely request that the term of time for making grants under the Federal aid to airport program be extended and that S. 3096 be enacted into law.

Senator MONRONEY. Thank you very much for your statement and for your support for this bill. We feel certain that you want to continue the set-aside that we have in there at \$7 million for general aviation. We feel that we have been able to spotlight construction at general aviation airports where they didn't exist before because it was a sort of "use it or lose it" proposition. For many years we had practically no general aviation airports scheduled. I think the last

few years have seen a sort of rebirth of this, and to take care of the rapidly increasing general aviation fleet.

Mr. SMITH. I don't think anybody in general aviation wants a handout. I do think that the whole transportation picture involves instrument approaches and the ability to make aviation, general aviation, a good part of the transportation picture under all conditions.

I do want to salute at this time the FAA and Mr. Morrow of the Airport Services for what they are doing, and for his great farsightedness in his program.

Senator MONRONEY. We feel that the FAA has done a very good job. We wish we had more instrumentation. We hope sometime someone will develop a cheaper price on some of the electronics that could be placed on these smaller airports with lighter traffic.

Mr. SMITH. Yes, sir.

I would like to put in a word at this time for free enterprise. I think they can do it a lot cheaper than some of the highly technical requirements that some of the agencies put on some of this equipment.

Senator MONRONEY. I think if we have a few more omni and things like that, we would have better luck and even lower cost on some of our runway lighting. This is a great aid, I think, to the private fliers who come in at night and find a very poorly lighted field to get down on.

Mr. SMITH. Yes, sir. I have been through that many times myself.

Senator MONRONEY. I am sure you have. We thank you very much for your statement and for your appearance before our committee, Mr. Smith.

Mr. SMITH. Thank you.

(The prepared text of the National Aviation Trades Association follows:)

STATEMENT OF NATIONAL AVIATION TRADES ASSOCIATION, WASHINGTON, D.C.,
BEFORE U.S. SENATE COMMERCE COMMITTEE, AVIATION SUBCOMMITTEE, WASHINGTON, D.C., MAY 3, 1966

S. 3096, to amend the Federal Airport Act to extend the time for making grants thereunder, and for other purposes

It is a pleasure to appear before your distinguished group. I am Frank Kingston Smith, executive director of the National Aviation Trades Association, national representative of general aviation businesses—sales, service, and supporting organizations.

One of the greatest frustrations of our huge general aviation industry is the almost total ignorance of the general public and of most authorities of its importance in the nation's economy. The catch-all term general aviation embraces all civilian users of the airspace who are not scheduled air lines or scheduled air carriers. Its contribution to the general transportation complex is seldom recognized or understood by anyone not actively engaged in it.

The issue is whether Federal Aid to Airports funding should be continued, the direction it should take, and the value to the national community. The Federal Aid to Airports program permits inclusion of communities in the airways transportation system even though they are not served by scheduled air carriers.

The latest Federal Aviation Agency figures show 9,940 airports in the U.S. on record with FAA at the end of 1965.¹ Of these, 709 were used by scheduled air carriers and 8,781 by general aviation.² From 1947 to 1965, FAAP funds were allocated to a grand total of 2,020 airports as follows:

Air carrier airports 658 (92% of those existing)

¹ FAA *Statistical Handbook of Aviation*, 1965 edition, p. 7.

² *Ibid.*, p. 11.

General aviation airports 1,362 (15% of those existing)³

At the end of 1965, there were 284 control towers in the U.S., of which 28 were located at military establishments.⁴

In his budget message, the President remarked that FAAP funds should be restricted to air carrier airports. With all due respect to his position, we feel that the President has made a mistake in his appraisal of the impact of non-air carrier airports on communities served only by general aviation. FAA's Eastern Region recognizes the importance of general aviation and its relationship to industry and to the community, and has cited many instances of industries having located and communities having prospered because of general aviation facilities.⁵

A similar report by Cessna Aircraft Co. has cited specific instances in which communities have revived their sagging economy by recognizing the importance of non-air carrier transportation,⁶ and constructing facilities linking them into the great aviation system of the U.S.

Everyone has recognized the great change in air transportation over the last 25 years as aircraft of various categories have evolved. The old-time trunk carriers such as American Airlines, Trans World Airlines, United, Eastern, and Delta have moved from 175 mph DC-3 equipment to 550 mph jets. It is no longer economical for these operators to have short route segments; more and more they are traveling more than 500 miles and their turbine equipment operates most often from coast to coast.

As these major trunk carriers dropped intermediate stops, the transportation void 20 years ago was filled by smaller air line operations using hand-me-down equipment—feeder lines who would supply passengers from outlying airports to the trunk terminals. Because of the necessity for such operations, the federal government defined them as local service airlines, and brought them under the jurisdiction of the Civil Aeronautics Board with its route protection and tariff regulations. These feeder lines were also aided by federal subsidies. Now these subsidized airlines are evolving into regional trunk carriers and have invested heavily in new equipment, and they, too, are dropping uneconomic way station stops. Congressmen from the New England states, the greater Northwest, indeed all parts of the country, are aware that many of the communities they represent are losing their connections with the air transportation system.

In the U.S., 211 metropolitan areas contain 50,000 or more people. Of these, 14 are not now certified for air carrier service, and most of them are more than 30 miles from an airport used by scheduled air lines. Only 10 metropolitan areas generate 45% of all airline traffic. Jet aircraft serve 75% of all air line miles, yet only 60 airports receive jet service. At only 90 hub areas, 90% of all air carrier passengers emplane, with 10% boarding at the remaining airports. And 95 airports average fewer than two flights a day.⁷

Although most people believe that the skies are black with jet aircraft, the fact is that fewer than 2,000 air carrier aircraft are licensed in the U.S. The figures are: Air carrier fixed wing, 1,870;⁸ general aviation, 88,742;⁹ military, 19,455.

Statistics as to the relative importance of air carrier and non air carrier transportation can be misleading unless scrutinized closely, but in 1963 the air lines flew 4,170,000 hours as opposed to general aviation's 13,900,000 hours.¹⁰

In the last 10 years, the character of the general aviation fleet has changed as dramatically. The modern light plane used for business and pleasure with the same flexibility as an automobile carries four to six people at speeds of 150 to 200 mph. Super charged single engine and light twin engine aircraft fly high and far—they operate best at 30,000 feet, and many of them have ranges of 1,000 miles and more. Their equipment is better than that of the scheduled airliners of the 1950's, and their pilots are better trained so that they can cope

³ *Ibid.*, p. 11.

⁴ *FAA Air Traffic Activities Report*, Aug., 1965, p. 19.

⁵ *General Aviation and Its Relationship to Industry and to the Community*, FAA, Eastern Region, Airport Div., rev. ed., Apr., 1964.

⁶ *Airport Study*, Dr. L. L. Thomason, Cessna Aircraft Co., Jan. 10, 1964. (See also *The Best Investment We Ever Made*, FAA film, 1965.)

⁷ *Utility Airplane Council Conference Briefing on General Aviation Report*, pp. 34-36.

⁸ *Air Transport Assn. "1966 Facts & Figures"* (Jet, 712; turboprop, 288; piston, 870).

⁹ *FAA Handbook*, op. cit., 77, Table 5.1.

¹⁰ *Utility Airplane Council*, op. cit., pp. 4-5.

with all weather conditions. Contrary to the distorted ideas that general aviation aircraft are flimsy toys, the fact is that they are expensive, sophisticated, utilitarian tools—the best form of transportation available to cover the vastness of this country.

The impact of air taxi operations in the commerce transportation picture has been enormous, showing a growth rate far above any other segment of the industry, both demand and scheduled operations. They use light aircraft (less than 6¼ tons), are not subsidized, and do not have route protection by CAB. As of Nov., 1965, air taxi activities as modern feeder lines are operating more than 6,000 airplanes—three times as many as the total air carrier fleet, and 78 scheduled air taxi lines are operating.¹¹

Everyone in the air transportation business acknowledges that the trend is for national and regional trunk carriers to drop additional locations which are not longer economical. The brunt of filling this void of getting more aircraft as normal transportation into our skies rests on creating facilities from which they can operate regularly and during all weather conditions. This necessity must be recognized if a long range financing plan is to be achieved. The only way to preserve and to extend our aviation transportation system and to establish a long term program is to continue the FAAP program, and to recognize that the funds so spent are, indeed, for the public good, benefiting the economy of the entire nation.

We sincerely request that the time for making grants under the FAAP Act be extended and that S. 3096 be enacted into law.

Thank you again for the opportunity to present our position.

Senator MONROEY. Mr. Warren Martin, vice president for public affairs, Air Transport Association of America. We appreciate your appearance before the committee. We welcome the opportunity to hear your testimony.

STATEMENT OF WARREN N. MARTIN, VICE PRESIDENT, AIR TRANSPORT ASSOCIATION OF AMERICA

Mr. MARTIN. It is a pleasure to appear before the committee. I sat in the audience on numerous occasions. This is my first experience to testify before the committee.

As you stated, I am vice president of public affairs, of the Air Transport Association, an association which is well known to this committee, having appeared through representation on any number of occasions on behalf of our membership, which includes substantially all the certificated, scheduled airlines of the United States. Our member carriers include the domestic trunklines, international airlines, local service airlines, all-cargo lines, helicopter carriers, and airlines that operate within the States of Alaska and Hawaii, as well as in Puerto Rico and the Virgin Islands.

We are delighted, Mr. Chairman, with this opportunity to speak again on behalf of our airline membership in support of extending the Federal Airport Act as proposed by S. 3096.

This month marks the 20th anniversary of the signing into law of the Federal Airport Act. President Truman fixed his signature to Public Law 377 of the 79th Congress on May 13, 1946, and thus began this program of successful participation in the development of a truly national system of public airports designed to meet the expanding air commerce needs of this Nation. The Federal airport assistance program has been an outstanding example of Federal-local cooperation as it has encouraged and enabled communities

¹¹ Scheduled Air Taxi Operations, Nov., 1965, FAA.

to provide themselves with the airport facilities necessary to fit themselves into the Nation's ever-widening air traffic patterns.

It has sparked airport facilities far beyond those otherwise acquired. The seed money provokes matching. It presents to a community some competition in taking advantage of the Federal funds available, and thus we have certainly many, many airport improvements available today that we would not have otherwise acquired.

The extraordinary growth of the aviation industry over the 20-year life of the Federal Airport Act proves the wisdom of those members of the 79th and succeeding Congresses who have thus achieved an orderly development of a national airport system.

On past occasions when extension of the airport aid program was before Congress and before this committee, substantive changes were considered and enacted into law. Thus the Federal Airport Act has been modified and modernized on the basis of experience and changing requirements within the assistance program.

For example, the extension enacted in 1961 included a \$7 million set-aside for general aviation facilities and it more closely directed the program to safety-related items. This we supported, and we continue to support the set-aside.

The currently effective extension, enacted in 1964, further sharpened the basic law to facilitate sponsor advance planning and encourage compatible use of land in the vicinity of airports. The fact that S. 3096 suggests no change in the basic provisions of the Federal Airport Act would support a conclusion that the law, as now written, is working successfully in accomplishing its purpose. In that conclusion, we heartily join.

The issues presented by S. 3096 are the length of years for which extension should be granted and the level of appropriation to be authorized. Mr. Chairman, we would earnestly recommend that the bill be amended in both particulars.

We respectfully suggest that the act be extended for 5 additional years instead of the 3 years specified in the bill. Three years is not long enough in the true timespan of airport development; in fact, even 5 years is a relatively short time for major airport facility construction. Airport development is a tedious and lengthy process. Much time is necessary to plan, to finance, and finally, to construct. No one is more painfully aware of this than the airline industry.

Effective airport planning demands assurance of the continuity of the Federal airport program. An extension to a 5-year period would lend needed stability to the total system effort and thus guarantee a more effective contribution to the needs of national commerce.

The point has been made earlier this afternoon that justification for a 3-year extension rather than a 5-year extension that at the end of 3 years we may be out of the wartime atmosphere and a more expansive or larger program may be possible. And also that there may be other modifications in the basic law needed.

The fact, Mr. Chairman, that no change in the basis provision of the program is proposed in S. 3096 would indicate that we have

refined the legislation to the point where we should anticipate no immediate future need for modification, certainly for a 5-year period. For that matter, even if modification is found to be necessary, the act can be amended at any time during the life of the extension.

It would seem far better to extend the act for a longer period, during which changes in detail could be made, than to extend the act for a shorter period in order to assure an earlier review of the program on the off chance that modification might be found desirable.

Similarly, Mr. Chairman, we respectfully urge that the level of annual appropriation authority be established at \$100 million a year. Even this amount falls far short of the demonstrated need for Federal participation in airport development over the next 3- to 5-years.

Let me speak briefly of the circumstances which warrant an extension of the program and an extension for 5 years, at least, with an annual authorization of \$100 million.

Here it would be appropriate to place into the record a comparison of an investment figure of \$100 million a year, or \$500 million for the 5-year period, against the investment being made by the airlines in new flight equipment to serve these very airports. As of the end of last year, the U.S. airlines had on order equipment valued at more than \$3 billion. That is as of December 31, last year. Since then, in the 4 months just passed, new orders have pushed that figure nearer the \$4 billion mark.

Looking ahead 10 years, and the airlines must always look ahead, the ATA estimates that the airlines will be investing more than \$12.5 billion in new flight and ground equipment.

The ever-changing and improving character of future airline service, brought about by this new equipment, must be paced by development and expansion of the Nation's civil airport system. With the April 24, 1966, airline schedule change, when daylight saving time came about, a total of 116 U.S. cities—with a combined population of more than 50 million—are receiving regular service by jet aircraft. Service by these modern, high-performance jet aircraft of increased capacity will be extended to more and more cities as these aircraft are delivered to the carriers and the airports are made ready to receive them. With this rapidly accelerating acquisition of jets by the regional and local service carriers it is very likely that every one of the some 600 airline-served airports will be a candidate for jet service before the expiration of this extension of the Federal Airport Act now being considered.

As of December 31, 1965, an ATA survey disclosed that the U.S. carriers had 704 jet aircraft in service with 538 new jets on order for delivery through 1969. Of the jets on order, 396 are of the 2- or 3-engine variety especially suited for operations at those smaller city airports not yet receiving jet service. The airlines have placed additional orders in 1966. During the first 4 months of this year, airlines ordered an additional 102 aircraft, again with most of these being the smaller short-haul jets.

The introduction of jet service by these several hundred new two- or three-engine aircraft into the airports of smaller communities will

require runway extensions and other facility improvements at many locations if the full potential of the jet age is to be realized across the Nation. This, in turn, underlines the need for continuance of the Federal assistance program at a level more consistent with realistically forecast requirements.

That a \$100 million level of annual appropriation is realistic and necessary is supported by the fact that eligible project requests in fiscal year 1965 totaled \$139 million, and in fiscal 1966 exceeded \$161 million; an amount almost twice the Federal assistance available.

In further support of a \$100 million level of authorization, we would respectfully call attention to the AOC/AAAE/NASAO national airport survey which indicates a requirement for airport improvements in FAAP eligible items of \$1.2 billion for 4 years through 1969 at the airports surveyed.

Many airports were not included in the survey. This is an increase of 40 percent over the amount expanded at those same airports during the preceding 4 years, which gives some accurate indication of the accelerating need for extension and enlargement of the Federal airport assistance program.

Let me state in outline some of the airline industry's financial commitments to the great expansion in air service. I mentioned earlier the several hundreds of aircraft on order for delivery through 1969; the cost of these approaches \$4 billion. In addition to the \$1.2 billion or more which airports propose to spend on FAAP-eligible items during the next 4 years, the airlines expect to invest at least \$350 million in capital construction items on those same airports in the same time period. This includes such things as passengers lounges, gate-hold rooms, loading devices, and so on. These are capital items installed at the airport, and at the end of the rental period become the property of the airport management since they are affixed to the realty.

Too, it must be understood that much of the local investment in airport improvements will be underwritten by the airline users through landing fee and other user agreements. These are some of the measures of airline involvement and commitments dependent upon an expectation that airports will be made ready to accept the most modern aircraft available to the Nation's traveling public.

Mr. Chairman, we respectfully urge committee approval of S. 3096 as amended to a term of 5 years and \$100 million annual authorization. In these terms, the Federal airport assistance program will continue to foster and guide the development of a national system of airports sufficient to meet this country's total aviation requirements.

In addition, Mr. Chairman, I might state that our position with respect to extension of the legislation for the 5-year term and at the \$100 million program is joined in by the National Business Aircraft Association, which in the interest of saving time will not appear.

Senator MONRONEY. Thank you very much, Mr. Martin, for your splendid statement.

In other words, the requests that are eligible for Federal aid—from our airports—in 1965 total \$139 million and, as you state in your remarks on page 5, \$161 million in 1966.

Mr. MARTIN. Yes, sir.

Senator MONRONEY. In other words, we have just half enough to fund their requests if it were averaged over the 2 years.

Mr. MARTIN. Those are not just requests; they are eligible requests. There are a number of requests made which were winnowed out because of lack of eligibility. These are requests that could have been granted if funds had been available.

Senator MONRONEY. Or their quota for their State might have had something to do with it.

Mr. MARTIN. There are other problems.

Senator MONRONEY. You are in favor of maintaining the \$7 million set-aside for general aviation?

Mr. MARTIN. Yes, sir. And under the \$100 million increase in authorization, the set-aside should be certainly increased proportionately.

Senator MONRONEY. Proportionately to the increase there. With \$100 million level of authorization, you would also propose a 5-year extension?

Mr. MARTIN. That would be an increase of 25 percent in the \$7 million figure, to \$9 million.

Senator MONRONEY. How much has the cost of airport construction gone up? We are not buying \$75 million worth of airport construction with the present value of the dollar, are we?

Mr. MARTIN. It is not what it was a few years ago.

Senator MONRONEY. When the act was first passed, we were getting more airport per dollar than we are today.

Mr. MARTIN. We know what the increase, for example, in home values has been over that period of time, in construction.

Senator MONRONEY. You don't have a figure on the increase?

Mr. MARTIN. No, sir. I would say the normal increase, or decrease, in the value of the dollar can be related to construction items. I might say with respect to general aviation facilities, in many instances the quickest and the least expensive way to gain airport facility elbowroom on an airport is to build a general aviation airport facility of some nature, perhaps an additional runway, or improve a nearby airport which would take the general aviation traffic off the runways which are needed by the larger airport. This the general aviation people prefer, by and large.

Senator MONRONEY. They would rather go to their own airport if it were black topped, so they wouldn't ruin their radio equipment and other electronics, and operate off there rather than crowd into the overcrowded metropolitan airport; is that correct?

Mr. MARTIN. That is true. In many airports that would be the best, quickest, and most economical way to get additional capacity.

Senator MONRONEY. And these can be quite large or small, depending on the traffic needs?

Mr. MARTIN. Yes, sir.

Senator MONRONEY. The 5-year program which you advocate would be all right if we had a level of expenditures that would be sufficient to meet the needs. If we are going to be held to the \$75 million, I would rather have it short term and then graduate up to the larger amounts over the longer term when funding could be more commensurate with what the requests had been.

Mr. MARTIN. The \$100 million authorization doesn't necessarily mean that there will be \$100 million appropriation, as we have seen with respect to the \$75 million authorization which was within that

authorization, unless the appropriation is made. I think with the elbowroom given by the \$100 million authorization over a 5-year period, it would permit possibly when circumstances warranted, a more realistic appropriation.

Senator MONRONEY. Of course commercial aviation is expanding in great steps. We appreciate that, with the purchase of new equipment and the number of passengers expanding so rapidly. Of course airline profits are going up. They are now at an alltime record. The Federal Government has, since the infancy of aviation, spent vast sums to assist in this growth.

I wonder if you feel, now that the airlines have reached maturity and they are in a position that qualifies them as one of the leading industries of the country, that there is any way that they could assume a greater responsibility in financing airport improvements.

Mr. MARTIN. I think an investigation would show, Mr. Chairman—and I do not have the figures at hand—that the airline payments in terms of landing fees, rentals, and other costs at airports, have gone up far more rapidly, for example, than total costs in other areas.

The airlines are assuming a greater and greater proportion of the total airport cost to the extent that a good many of the major airports are now self-sufficient, in terms of local investment and local costs. Those airports of course do not have a large amount of traffic. This is by far the largest number of airports, although smaller airports will need some kind of local assistance for a good many years to come.

This is coming more and more as our industry matures and expands. The fact is that the airports individually have become more and more self-sufficient.

Senator MONRONEY. This is the large metropolitan hub airport—

Mr. MARTIN. Yes, sir.

Senator MONRONEY (continuing). Which generates the major part of your traffic. You are willing to pay New York, Chicago, almost any fee that they demand to get in, because it is an absolute necessity. But the smaller communities that need the airports the most are the ones that don't generate this traffic.

I wonder if there is an chance that in some way these fees for smaller places that need improvement could be increased. This money goes to the airport for matching fund purposes. Do you think there is any chance that the smaller communities could raise some more money toward their improvement?

Mr. MARTIN. These user fee contracts are of course negotiated and they are negotiated within the framework, financial framework that surrounds the airport in a particular negotiation. Again, not having the facts here, I believe an examination would disclose that our costs are going up—airline costs are going up substantially at airports of all character. The landing fee rate, for example, is ever on the increase at all levels of airports. Rental rates are on the increase. And other costs are on the increase.

Actually these rates reflect to a great extent the service offered and in terms of cents per thousand pounds or dollars per square foot, or

whatever measure is used, doesn't necessarily differ too much from the low-level-operation airport to the high-level-operation airport. There are extremes on both ends.

Senator MONRONEY. Do you think many of the hub airports are now on a self-sufficient basis? I know many of them do not use the full amount of—do not apply for full amounts of Federal aid because they know there is not enough there to do the improvement, and go ahead and float their own bonds and pay much of that off with the income derived from landing fees.

Mr. MARTIN. That is correct, sir.

Senator MONRONEY. So they are not as dependent on Federal funds as are the smaller airports.

Mr. MARTIN. I would say it is of more necessity at smaller airports. There is no question about that.

Senator MONRONEY. We thank you very much, Mr. Martin, for your splendid testimony and your great help.

I see our old friend Bill Lawton, the director of the National Business Aircraft Association here, who had a great deal to do with all the Federal aid to airport legislation. I believe Mr. Martin has testified for you in order to save time. Do you have a statement that you would like to make?

Mr. LAWTON. Mr. Chairman, I do not have a statement. I appreciate your courtesy in allowing our views to be expressed through Mr. Martin. We recognize the value of your time. We hope to expedite the hearing in this manner.

Senator MONRONEY. We recognize that the National Business Aircraft Association is vitally interested in airports, and particularly because they use high-performance aircraft they must depend on the longer runways and improvements of our jet airports since the fleet is becoming more and more modernized to jets. Is that not a fact?

Mr. LAWTON. That is very well stated, Mr. Chairman.

Senator MONRONEY. And to get the maximum services, they are going to also have great need for these improved runways.

Are there any other witnesses who wish to appear?

(No response.)

Senator MONRONEY. The Chair wants to thank the members who have testified, including President Ruby, the Air Line Pilots Association, the ATA, other groups, Mr. Smith, of the National Aviation Trades Association.

The record will remain open for 5 days for additional information.

We will now close the hearings on the bill S. 3096.

The committee will stand in adjournment.

(Whereupon, at 4:42 p.m., the Subcommittee on Aviation was adjourned.)

(The following statements and letters were submitted for the record.)

STATEMENT OF HONORABLE WILLIAM A. EGAN, GOVERNOR OF ALASKA, IN SUPPORT OF THE PASSAGE OF S. 3096, A BILL TO AMEND THE FEDERAL AIRPORT ACT TO EXTEND THE TIME FOR MAKING GRANTS THEREUNDER, AND FOR OTHER PURPOSES.

The State of Alaska supports the passage of S. 3096 which extend the Federal Airport program for three additional years, or through June 30, 1970.

The airplane has been and will continue to be an essential and vital factor in the development of Alaska. The land area of the State of Alaska is 586,000 square miles, with only about 7,000 miles of highways, roads and streets of all

types. Many of our communities depend entirely on air transportation for all communications and movement of goods. The use of air transportation is an essential mode of communications for most communities in Alaska because of the great distances involved.

The State operates 52 seaplane facilities and 240 airports, ranging in size from bush strips to the large international airports at Anchorage and Fairbanks. An additional 6 airports are operated by local governments. There are in operation in Alaska 22,000 aircraft under 12,500 pounds gross take off weight, and 350 aircraft over this weight. There are 4,500 civil pilots of which 1,700 are commercial pilots, 200 pilots owners and 1100 in commercial operations in the State.

There are five scheduled air carriers operating in the inter-Alaska service. Four of these operate between Alaska and the other states and one operates between Alaska and Canada. There are eleven scheduled air carriers operating within Alaska. In addition, there are 169 air taxis and contract carriers certified for operations in Alaska. There are seven international carriers operating in Alaska.

The foregoing statistics reveal how vital air transportation is to Alaska and to the interstate and international commerce which depends on this mode of transportation. This vital industry could not survive without an adequate system of airports.

The need for new airports and improvement of existing airports constantly changes as air carriers acquire different types of aircraft and particularly with the expansion of jet service into more communities. Improved aircraft bring not only faster but more economical service for the traveling public. Before such improved service can be provided the airports must be improved to accommodate the aircraft to be used.

In recent months five air carriers operating in the Alaska service have announced plans to acquire during the 1966-68 period, Boeing 727 QC, 737-200 C, and either DC-9 or Boeing 737 aircraft. The routes of these carriers include 24 individual airports. The requirement to improve these airports comes on top of the improvements needed at other airports. The State has not had an opportunity to fully evaluate the improvements required by these new aircraft. However, preliminary cost estimates indicates a cost in excess of \$53 million. During the next three years improvements needed at other airports were planned at an estimated cost of \$13 million. Studies of operations at the Anchorage International Airport indicates a new runway may be required in the immediate future. This would increase the capital improvement needs by many millions of dollars. In addition, the State is confronted with the costs of terminals and other airport facilities which are ineligible for participation of federal funds.

The State of Alaska has authorized (subject to ratification of the voters in November, 1966) the issuance of \$13.3 million worth of general obligation bonds to fund its share of the FAAP program. This bond authorization contemplated the extension of the Federal Airport Act.

I cannot over-emphasize the vital importance of the passage of this legislation. Alaska, and I am sure many other states and cities, does not have the financial resources to meet the cost of essential capital airport improvements without the federal assistance this legislation would authorize. Even with the federal assistance, current State appropriations and bond funds authorized, all of the needs cannot be met on a timely basis. Therefore, I urge this committee to approve this important legislation.

WRITTEN STATEMENT OF RICHARD D. FORD, EXECUTIVE SECRETARY WASHINGTON PUBLIC PORTS ASSOCIATION PRESENTED TO SENATE SUBCOMMITTEE ON AVIATION, COMMITTEE ON COMMERCE, MAY 3, 1966

HON. A. S. MIKE MONRONEY,
Chairman, Subcommittee on Aviation, Committee on Commerce, Senate Office Building, Washington, D.C.

DEAR CHAIRMAN MONRONEY: I am Richard D. Ford, Executive Secretary of the Washington Public Ports Association. The Washington Public Ports Association is a state chartered organization representing the public port districts of Washington State. Washington port districts are local agencies managed by a board of commissioners elected by the voters and taxpayers of the districts.

The responsibilities of these local ports include marine terminals, airports, industrial sites, commercial and recreational small boating facilities, and navigation improvements. I am here today to testify in support of S. 3096 which will extend the provisions of the Federal Aid Airport Act of 1970. Many port districts in Washington State are airport operators and have utilized federal airport funds to carry out necessary airport improvement. This is why we are vitally interested in this legislation.

Within the State of Washington, seventeen airports are under the management of ports districts. Others are operated by cities, counties, or joint city-county districts. Most of the airports of our state are small, serving the local needs of general aviation. General aviation provides essential transportation services in remote areas of the state. Agriculture, forest products and construction are some of the industries making regular use of our smaller airports. In some areas, like the San Juan Islands, we have "flying doctors" providing essential care to residents.

In a typical year the demand for federal funds for airports in Washington State will not be great, but the importance of the improvements aided by federal participation can't always be measured in dollars. I have not attempted to summarize the FAA grants received in recent years by member port districts. I think it is more meaningful to report two specific examples of federal aid projects currently underway within Washington State. I refer to the improvements being carried out at Pasco and at Wenatchee. Both airports are under the management of a port district. Both airports are served by West Coast Airlines which provides local service in the West.

The Wenatchee project has a total price tag of close to \$600,000. Of this amount, federal participation will amount to about \$265,000. Major improvements so far as the federally participated share is concerned is a 900 foot runway, extension and improved lighting. This extension will bring the main runway length up to 5500 feet. This extension is the difference between scheduled service and no scheduled air service for North Central Washington. West Coast is in the process of phasing out its DC-3 aircraft which currently serve the area. To accommodate F-27 aircraft, which the company plans to use on this service in the future, the runway extension was essential. In addition, the centrally located Wenatchee Airport serves as the Forest Service headquarters for fire control aircraft. Longer runways were essential for the operation of "Borate Program." You may have noted in the news that the Forest Service literally "bombs" forest fires with chemicals from airplanes. Planes loaded with these chemicals required longer runways for safe operation.

The Pasco program has about \$250,000 of federal participation. The total dollars being spent at Pasco in the current program will probably reach one million dollars. However, about half of this is for a new terminal which is not federally assisted. Major improvements in the federally assisted portion is 870 feet of new runway (to give a total runway length of 5800) and improved lighting. Once again, these improvements are essential if the Pasco Airport is to be adequate to handle the new DC-9 jet aircraft West Coast Airlines plan to place into service on these routes in the near future. I am advised that even with these extensions, Pasco will not be unrestricted so far as DC-9 equipment is concerned. That is, on the warmest days the aircraft can serve Pasco only if their loadings are light.

These examples demonstrate that an investment of about \$500,000 by the federal government has: (1) Developed another \$1 million of spending for airport improvement by the local agencies; (2) aided two communities in their battle to keep pace with the rapid changes of air transportation (and in so doing, permitted them to retain scheduled air service); and (3) assured adequate facilities for the essential fire control program of the Forest Service. (The National Forests in Washington State are a major asset of federal government. In 1965, timber sales returned more than \$17 million in revenue to the U.S. Treasury.)

The examples of Pasco and Wenatchee are, I suspect, repeated in countless communities across the country. We live in an era of change—and perhaps no industry is changing faster than air transportation. The construction, improvement and adaptation of airports is an essential link and an important and growing part of the nation's commerce. Those of us representing local government have faith in the long-term importance of air transportation. We are investing substantial local tax dollars in airport improvement, maintenance and opera-

tion. It is our opinion that air transportation is important to our communities, and we are, therefore, prepared to support essential airport services.

We believe, however, that air commerce has national significance and the federal aid demonstrates this national concern. For example, federal participation recognizes the need for basic standards of safety at airports. The partnership between federal, local and private interests in airport development is, we believe, a realistic and sensible way to achieve essential results for the American public. We at the local level are prepared to carry our share of this program. We urge the early enactment of S 3096 as evidence of endorsement of this program by the Congress.

I wish to thank the members of the committee for permitting me to appear today to present this statement on behalf of our organization.

Respectfully submitted,

RICHARD D. FORD, *Executive Secretary.*

STATEMENT BY AIRCRAFT OWNERS AND PILOTS ASSOCIATION ON S. 3096 TO EXTEND
THE FEDERAL AIRPORT ACT

The Aircraft Owners and Pilots Association is a service association composed of over 127,000 members who own or fly aircraft for their own personal, business or pleasure purposes. A summary of the nature of our organization is contained in Annex A to this statement.

Our type of flying encompasses all civil flying other than that done by the airlines and is known as "general aviation." It is the fastest growing segment of our aviation community. The active fleet of general aviation aircraft now numbers approximately 100,000 planes and our airplane manufacturers are turning out new planes at a rate of more than 12,000 a year. These aircraft are flown by more than 400,000 pilots for personal transportation and a large variety of business reasons. By comparison, the total fleet of airplanes operated by the scheduled airlines numbers slightly more than 2,000 aircraft. General aviation is playing an increasingly important role in our national economy through the flexibility and utility that it offers in a vast number of industrial, agricultural and other business applications. It is a modern day tool that serves farmers, ranchers, salesmen, engineers, executives, scientists, doctors and a host of other occupations in addition to its smaller use for personal transportation for pleasure and recreation.

All flights normally start at an airport and end at an airport. Thus, an adequate system of airports is an ingredient necessary to the continued growth and health of civil aviation, which, in turn, forms an important part of our economy and our national transportation capability. In time of national emergency, these airports also serve military and other vital government operations.

The most desirable airport sites are those located in close proximity to the community that they serve. Unfortunately, such land also is very desirable for real estate development, shopping centers and the like, making it very susceptible to conversion to these uses unless it is publicly owned. The sad fact is that of the 9,566 civil airports that serve the 50 states, 5,996 of them are privately owned and only 3,570 are owned by cities, counties, states or other government bodies. It has been recognized by the FAA that many privately owned airports are providing required facilities for a community in the absence of a publicly owned airport.

Under the terms of the Federal Airport Act, recipients of Federal aid execute a Sponsor's Assurance Agreement which provides for continuation of the airport for 20 years. This assurance is entirely lacking with respect to private airports and they may be converted to other use at any time, thus leaving the community without air transportation.

Since inception of Federal aid to airports in 1947, approximately 2,000 airports have received Federal assistance. The current National Airport Plan lists 3,855 airports, of which 801 are categorized as air carrier and 3,054 as general aviation. In addition, 119 air carrier and 38 general aviation heliports are listed, plus 11 general aviation seaplane facilities and 83 such facilities for air carrier use in Alaska. A question logically may be asked as to why the large number of general aviation airports in relation to those in the air carrier category. This, of course, is due to the economics of air carrier operation whereby they directly

serve only a small portion of the more than 18,000 incorporated communities that make up the United States. General aviation serves any and all locations and often provides the missing link between the airline airport and the smaller community some distance away. Thus, we find that in many communities, the only air link to our national transportation system is that provided by general aviation.

There is a great need to preserve and bring into the publicly owned airport system many of the airports now privately owned. Suitable airport sites are becoming increasingly hard to obtain and land values are making acquisition of new sites economically impracticable.

The level of Federal aid to airports has remained somewhat constant over the years, despite recommendations from the users and public officials that it be increased. We also recognize that the Administration has made a determined effort to reduce the funds available for Federal aid to airports. We feel that the latter move was based on inadequate information with regard to the importance of this program to the nation's economy.

It is quite obvious that \$75,000,000 today will not buy what it would last year or five years ago. The cost of materials, labor and engineering services have all increased materially since the starting of this program. Further, the expansion of urban areas has increased land values many times over the costs encountered some years ago. Thus, we conclude that the \$75,000,000 annual level should not be decreased, as recommended by the Administration, but should be increased to compensate for increased costs and to meet the demands of our rapidly expanding aviation industry. In particular, greater attention and more money needs to be focused on the needs of general aviation, which is expanding so much faster than any other form of transportation. We recommend that the total annual amount contemplated in S. 3096 be increased to \$100,000,000. The increase should be used primarily for development of general aviation airports.

In connection with our recommended increase of funds for general aviation airports, we feel that a statement of policy is needed whereby the Committee clearly indicates to the Administrator of the FAA that in the exercise of his administration of the Act, he should not emphasize the development of air carrier airports in preference to general aviation airports. We think that this is clear in the Act, but we have had some difficulty with FAA with respect to allocation of these funds wherein preference has been given to airports serving "air commerce," which has been interpreted by the Administrator to mean air carrier airports.

The history of the administration of the Federal airport program points up the disparity in the treatment of air carrier airports and general aviation airports. The most recent FAA report of operations under the Federal Airport Act discloses that more than 86 percent of the funds have been granted to air carrier airports and less than 14 percent to general aviation airports. Further, the Agency's announcement concerning the annual program for 1966 shows that \$105.7 million, or 65.4 percent of the funds available, were requested for air carrier airports, and \$56 million or 34.6 percent of the funds available, were requested for general aviation airports. In constructing the program, it seems that 59 percent of the funds requested for air carrier airports was granted, whereas only 40 percent of the requested funds for general aviation airports was granted.

We feel that the FAA again needs to be reminded, as was done in Report 654, 87th Congress, First Session, with regard to the feelings of the Congress with respect to the Administrator giving due consideration to the needs of general aviation when allocating all funds made available under this bill.

We regret that we were unable to appear before your Committee in the hearings on S. 3096 due to the overlap with other hearings being conducted by other House and Senate Committees. We sincerely appreciate the Committee's consideration of the views expressed above.

J. B. HARTRANFT, Jr., *President.*

MAY 6, 1966.

ANNEX A

AIRCRAFT OWNERS AND PILOTS ASSOCIATION

The Aircraft Owners and Pilots Association is an organization which provides services to more than 127,000 members located in every state in the Union. It is a non-profit association incorporated under the laws of New Jersey.

Purpose.—It was formed 27 years ago to promote, protect and represent the interest of its members in aeronautics and the pursuit of flying; to promote economy, safety, popularity and use of aircraft by members. To accomplish these purposes, we seek several specific objectives: maximum freedom of the airspace for all users consistent with safety, improved aviation safety, an adequate airport system, an adequate system of air navigation aids, production of improved aircraft, reduction of frustrations in aircraft ownership and use, facilitation of international travel by private aircraft and wider public support of general aviation requirements.

Membership.—Half of the active general aviation aircraft in the United States are owned and operated by our members. Our 127,000 members comprise about 30 percent of all the active civil pilots in the entire country. 63 percent of our members hold private certificates, 24 percent hold commercial certificates, 2 percent hold airline transport ratings, 8 percent hold student certificates and the balance are pilots in military service. AOPA is not a profession or trade association in the commonly accepted sense of those terms. The majority of our members are non-professional pilots and therefore do not join for the usual professional or commercial reasons characteristic of unions or business trade associations. AOPA is a service organization more analogous to the American Automobile Association or the National Rifle Association.

AOPA staff.—To serve our members, who fly for business, personal and recreational purposes, we have assembled a full-time staff of 100 people. Our professional staff is composed of specialists who are acknowledged experts in their respective fields. We cover virtually every field of significant interest to the owner or pilot of non-commercial aircraft. Many of these fields are also of interest to commercial operators. Our headquarters is located in Bethesda, Maryland.

Method of policy formulation.—You will recognize the inherent problem in policy formulation in an organization with so large a membership. It is not unlike your own problems in representing your constituents on specific issues. Like you, we pay very close attention to the substance and volume of mail from our members, as well as our personal contacts with members throughout the country. AOPA policy is formulated, in the light of extensive member comment, by the professional staff members, who combine their knowledge, background and understanding of aviation problems. Our rapid growth in 27 years from zero to 127,000 members, is practical testimony to the success of this method and the accuracy with which our staff reflects member desires—for our support depends upon voluntary membership.

STATEMENT OF THE NATIONAL PILOTS ASSOCIATION BEFORE THE SENATE COMMITTEE ON COMMERCE REGARDING SENATE BILL S. 3096—A BILL TO AMEND THE FEDERAL AIRPORT ACT

The National Pilots Association supports S. 3096, a Bill to Amend the Federal Airport Act.

Continued expansion of the Nation's airports are essential if the needs of the travelling public and civil aviation are to be met during the coming years. The introduction of medium range jets by the scheduled airlines and the very large increase in general aviation flying require the modernization of present airports and the building of many new ones. There is a need for satellite airports around major cities to relieve some of the pressure of general aviation aircraft movements from the large airline terminals. General aviation can use the smaller fields and will do so if these airports are convenient to ultimate destination. For this last reason we question whether \$7 million a year for general aviation airports is adequate. It is conceivable that money spent on airports for general aviation can ease traffic problems and indirectly improve safety at nearby major airports and therefore prove more effective than an equivalent sum spent directly on the major terminal itself.

S. 3096 provides grants in aid for a period of three years. For more efficient planning purposes we would recommend a five year period.

A recent survey of future needs for public airport development showed that approximately \$2 billion could be efficiently used for airport development during the period of 1966 to 1969. Most of these funds (about two-thirds) could come from local sponsors. This figure also includes the financing of passenger terminal buildings and other features which are not eligible for Federal Airport Aid. Even so, the remaining \$625 million over a four year period for airport improvement and development indicates that the sum of \$75 million per year is only

about half the total of what could actually be spent on this program. The National Pilots Association feels therefore that the total of \$225 million over a three year period of a minimum figure.

May we express our sincere appreciation for this opportunity to express our views on this important legislation. We recommend that S. 3096 receive support from this distinguished committee.

STATEMENT TO THE AVIATION SUBCOMMITTEE OF THE SENATE COMMITTEE ON COMMERCE ON THE NEED FOR EMERGENCY ARRESTING GEAR OVERSHOOT PROTECTION

Protection against overshooting the end of the runway is a continuing need of commercial aviation. The need is expressed in many ways by various persons. Airline pilots have constantly and forcefully clamored for extra runway length, while professional investigators record the detail conditions under which overshoot accidents occur. An excellent article on this subject is "The Need For Larger Runway!", Airline Pilot Magazine, September 1964. Airline Pilots and accident investigators, however, are not the only persons keenly aware of the need for overshoot protection. A recent survey by The Airways Club of 5,172 of their experienced traveling members showed 35.8 percent consider runway arresting gear to be the most needed important airport improvement. This same survey showed 87.8 percent willing to pay 25¢ per ticket extra to have arresting gear installed (at airport where ticket is purchased).

Emergency overshoot arresting gear for commercial airliners (including large jet airliners) has been tested and found feasible by the Federal Aviation Agency (FAA). As a result of these tests, the FAA has developed the necessary equipment specifications. Equipment to meet these specifications is well within current design and manufacturing capabilities.

During 1965, the FAA conducted a survey of the aircraft industry to establish facts regarding various facets of installing and using emergency arresting gear at commercial airports. At this writing, no announcement regarding the findings of the survey have been made, and it appears that the necessary regulatory material has not yet been developed.

Overshoot accidents are more common than people realize. Most frequently they are not fatal, but occasionally they are disastrous. For example, the Kansas City overshoot accident (1 July 1965) demolished the Continental Airline Jetliner and fortunately there were no fatalities. The passengers aboard the Air France Jetliner, mostly citizens of Atlanta, Georgia, were not so fortunate. One-hundred-twenty persons died in that overshoot accident (3 June 1962). Less spectacular, but very expensive, are the many minor overshoot incidents which require various repairs and delays.

The FAA is presently in the process of permitting jet airliners to operate from smaller airports during less favorable weather. Whereas both of these factors may greatly benefit the aviation industry, it can also be seen that there is more exposure to overshoot hazard, a hazard which could be greatly reduced.

I firmly recommend to the Committee that this important matter of aviation safety be investigated, and that a practical solution to government regulations and financial support be found for the use of emergency arresting gear overshoot barriers.

CHARLES W. WENDT,
President, All American Engineering Co.

(The following letter addressed to Senators Mansfield and Metcalf was submitted for the record:)

STATE OF MONTANA,
AERONAUTICS COMMISSION,
Helena, Mont., April 26, 1966.

Re Federal Aid to Airports Program, Senate Bill 3096.

Dear Senators:

The Montana Aeronautics Commission has recommended a \$3,193,981 airport construction program for the Fiscal Year of 1967. A copy of this program is attached. It is most apparent that local and state funds are not sufficient to accomplish the necessary airport improvement projects. The Federal Aid to

Airports Program, through the Federal Aviation Agency, must be continued and even increased in order to preserve our state and national system of airports. For this reason we respectfully request your support for passage of Senate Bill 3096 and House Resolution 13665.

Our projected airport projects for Fiscal Year 1967 indicate that local funds are available in the amount of \$553,131. It is expected that the Montana Aeronautics Commission will be asked for airport improvement loans totalling \$1,007,450. The State Aeronautics Commission does not have sufficient budget to cover this amount in loans in one single year. Therefore, it is obvious that the minimum amount needed from the Federal Aid to Airport Program for our State for Fiscal Year 1967 is \$1,633,400, in order to accomplish the necessary airport work which would cost the total of \$3,193,981.

We do not expect that airport improvement projects in Montana and the nation will decrease in the foreseeable future, in fact, we have forecast that in Montana alone, airport construction and improvements will cost over \$10 million in the next four years. The Fiscal Year 1967 program in Montana incorporates only 50 of our 111 public owned airports. Some of these 50, and all of the other 61 airports will have improvement projects during the years of 1966 to 1969. These airport improvement projects are absolutely necessary but will be impossible without the Federal Aid to Airports Program.

Our state system of airports is as vital to our local economy as is the national airport system to both Civil Defense and national economy. The loss or reduction in airport construction would adversely affect the economic growth of Montana as well as seriously hinder the most important mode of transportation.

The faster, heavier type of aircraft now being used by the airlines in Montana requires stronger, longer, more sophisticated runways. We cannot afford to lose our airline service because of inadequate airports.

We are aware of, and concerned about the Presidential Budget message to Congress in which was suggested the reduction in the Federal Aid to Airports Program. The message suggested that the presently appropriated \$71 million be reduced by \$21 million. If less money is available the priority would go to the air carrier airports. This might preclude the development of many projects on airports serving our smaller communities. 87 percent of Montana airports are for general aviation and not air carrier airports. We too, are vitally concerned with the air carrier airports, however, we do not want to see the program diminished to only include air carrier airports.

We are extremely pleased to see the introduction of Senate Bill 3096 and House Resolution 13665. This legislation will provide Federal Aid to Airports at the existing \$75 million annually to June 30, 1970. Our numerous examples in this letter indicate why passage of the bill is so vital to Montana.

We sincerely appreciate your continued interests in our programs and please advise if we can furnish you with any additional information.

Sincerely,

CHARLES A. LYNCH, *Director*

Local-State-Federal airport improvement program for Montana for fiscal year 1967 (prepared by: Montana Aeronautics Commission)

Location	Description of work	Total estimated cost of project	Federal funds required	State funds required (loan to community)	Local funds available
Anaconda.....	Buildings and miscellaneous.....	\$15,000	\$8,000	-----	\$7,000
Big Sandy.....	General improvements.....	10,000	-----	\$10,000	-----
Big Timber.....	Pave runway—taxiway lighting.....	53,000	28,000	25,000	-----
Billings.....	Land, develop landing area, lighting, improvements.....	264,000	132,000	-----	132,000
Bozeman.....	Develop landing area.....	42,410	21,000	12,000	9,410
Bridger.....	do.....	26,000	13,000	7,000	6,000
Broadus.....	Lighting.....	3,000	-----	2,000	1,000
Butte.....	Land, develop landing area.....	31,800	15,900	-----	15,900
Chester.....	New service buildings.....	20,000	6,000	-----	14,000
Choteau.....	Building improvements.....	10,000	5,000	5,000	-----
Columbus.....	Develop landing area.....	25,000	13,000	12,000	-----
Conrad.....	do.....	20,000	10,000	10,000	-----
Cut Bank.....	do.....	30,000	15,000	-----	15,000

Local-State-Federal airport improvement program for Montana for fiscal year 1967 (prepared by: Montana Aeronautics Commission)—Continued

Location	Description of work	Total estimated cost of project	Federal funds required	State funds required (loan to community)	Local funds available
Deer Lodge	Fences	\$6,000	\$3,000	\$2,000	\$1,000
Ennis	Land	40,000	20,000	20,000	
Eureka	General improvements	5,000		5,000	
Fairfield	Pave runway and taxiway	46,000	23,000	23,000	
Forsyth	Runway and taxiway lighting	5,000	2,500	2,500	
Fort Benton	General improvements	3,000			3,000
Gardiner	Land, develop landing area, service buildings	169,000	165,000		4,000
Geraldine	Runway, taxiway, and lighting	16,000	8,000	8,000	
Glasgow	Runway and taxiway lighting, improvements	48,000	23,000		25,000
Great Falls	Land, develop landing areas	90,000	48,000		42,000
Hamilton	Building improvements	10,000	5,000	5,000	
Hardin (fairgrounds)	Landing area, improvements	35,000		35,000	
Harlem (Riggin)	Runway and taxiway lighting	1,500			1,500
Havre	Land, develop landing area, runway and taxiway lighting	65,000	35,000	30,000	
Helena	Land, develop landing area, general improvements	109,471	50,000		59,471
Glendive	New air carrier airport	480,000	240,000	230,000	10,000
Hot Springs	General improvements	1,000			1,000
Kalispell (County)	New runway and taxiway lighting	15,000			15,000
Laurel	Pave runway, taxiway	47,800	22,000	22,000	3,800
Lewistown	Landing area, improvements	70,000	20,000	25,000	25,000
Livingston	Lighting improvements	10,000	5,000		5,000
Miles City	General improvements	40,000	20,000	20,000	
Missoula	Develop landing area, runway and taxiway lighting, improvements	365,000	230,000	10,000	125,000
Libby	New airport	206,000	106,000	100,000	
Polson	Building improvements	18,000			18,000
Ryegate	Runway and taxiway lighting	1,500		1,200	300
Seeley Lake	do	5,000		4,000	1,000
Sidney	New runway	425,000	215,000	200,000	10,000
Stanford	Runway and taxiway lighting	5,000	2,500	2,000	500
Starr Browning	Develop landing area	500		500	
Ross International	Pave runway	35,000		35,000	
Three Forks	Land acquisition	7,000	3,500	2,750	750
Twin Bridges	General improvements	1,000			1,000
Valier	Pave runway taxiway	60,000	30,000	30,000	
West Yellowstone	General improvements	15,000		15,000	
White Sulphur Springs	Runway and taxiway lighting and general improvements	7,000		6,500	500
Wolf Point	Pave runway, taxiway	180,000	90,000	90,000	
Total		3,193,981	1,633,400	1,007,450	553,131

U. S. SENATE,
COMMITTEE ON FINANCE,
May 5, 1966.

HON. MIKE MONRONEY,
Chairman, Senate Aviation Subcommittee,
New Senate Office Building,
Washington, D.C.

DEAR SENATOR MONRONEY: I would appreciate incorporation of the enclosed 2 May letter to me from Robert S. Michael, executive secretary of the Montana Airport Management Association, and 15 April resolution of the Montana Airport Management Association, as part of my statement, furnished you earlier this week, in support of S. 3096.

I call particular attention to Mr. Michael's statement that his convened state membership "to a man, recognized that the continuation (and even the expansion) of the Federal Aid to Airports Program is a 'must' if Montana is to sustain its reputation for air mindedness."

Very truly yours,

LEE METCALF.

Enclosures.

MONTANA AIRPORT MANAGEMENT ASSOCIATION,
 BILLINGS LOGAN FIELD,
 Billings, Mont., May 2, 1966.

Senators LEE METCALF, MIKE MANSFIELD,
 Representatives ARNOLD OLSON and JAMES BATTIN.

GENTLEMEN: On April 15, 1966 the Montana Airport Management Association conducted its Annual Meeting in Billings and, as a part of the Business Meeting, introduced, discussed and adopted a number of resolutions. One such resolution is enclosed for your information, and hopefully it is worded strongly enough to impress you with our collective feelings.

While it is true that Montana has but fifteen aircarrier airports and that the vast majority are publicly owned nonaircarrier airports, the convened membership to a man, recognized that the continuation (and even the expansion) of the Federal Aid to Airports Program is a "must" if Montana is to sustain its reputation for air mindedness. Aside from the usual requirements of the Air Transportation Industry, the boom in air travel and recreation will bring hundreds upon hundreds of travelers and vacationers into our State, and many of them will or would like to arrive by air. The continued growth and improvement of all our airports (not just those served by the carriers) through a joint program of self help, Montana Aeronautics Commissions' no-interest loans and Federal Grants will serve to notify the Nation's traveling and vacationing public that Montana has not only the hospitality but the facilities to serve their aviation needs.

The membership of the Montana Airport Management Association urges you—our Congressional Delegation—to lend your voices and votes to the extension of the current Federal Aid to Airports Program.

Very truly yours,

ROBERT S. MICHAEL,

Executive Secretary, Montana Airport Management Association.

A RESOLUTION

Whereas the continuous operation and development of public airports at all cities and communities across the nation, and certainly including those in Montana, is of vital interest to all citizens, and

Whereas the costs of providing airport facilities and such improvements as are required to keep pace with the changing demands of aviation technology are expensive and sometimes a serious drain on the taxpayers ability, and

Whereas the Federal Government through the Federal Aviation Agency in realization of this fact has authorized Grants-in-Aid to various communities for the further development of their airports, and

Whereas in a combined effort, the American Association of Airport Executives, the Airport Operators Council, and the National Association of State Aviation Officials have compiled and made public a report indicating the intentions of many communities across the nation to make, over the next four years, substantial capital investments in their airports and their announced shortage of a significant percentage of the funds needed to provide these improvements; Now, therefore, be it

Resolved by the MAMA at its Annual Meeting of April 15, 1966. That each member of Montana's Congressional Delegation be advised of the Nation's airports' needs, and those of Montana in particular, and that these individuals be requested to give wholehearted support to the passage of S. 3096 and H.R. 13665 for extending the Federal Aid to Airport Program for an additional three years, beginning with fiscal year 1968, at a minimum annual level of 75 million dollars; be it further

Resolved. That these same members are requested to take whatever steps there are available to impress the current Administration with the severe consequences and gravity of withholding 21 million dollars for Grants-in-Aid to airports previously appropriated for fiscal 1967 by the proper legislative process.

(Introduced by Mr. Hugh Kelleher, April 15, 1966.)

STATE OF OKLAHOMA,
OFFICE OF THE GOVERNOR,
Oklahoma City, April 29, 1966.

Hon. A. S. "MIKE" MONRONEY,
U.S. Senate,
Washington, D.C.

DEAR SENATOR MONRONEY: Very few of our Oklahoma communities are able to finance new municipal airport construction without both state and federal assistance.

The Oklahoma Aeronautics Commission has allocated funds for fifty-one airport projects, including fifteen new municipal airports. Most of these airports have received matching funds through the Federal Aid to Airports Program (FAAP). The Federal Bureau of the Budget has proposed rescinding \$21 million of \$71 million funds already appropriated and to financially aid only the large airports served by interstate air transportation.

It is my belief that we urgently need to continue assistance to the smaller communities in airport development to achieve an adequate air transportation system in Oklahoma, as well as throughout the nation.

Oklahoma must develop airports in the smaller towns to meet the requirements of many new industries moving into the state, and to continue to improve and develop new airports at the many beautiful state parks. This is necessary to accommodate industrial technicians and managers, as well as people from out of state who are visiting and enjoying the varied recreational facilities offered in Oklahoma.

Since aviation is the state's third largest industry, it is imperative the FAAP appropriation be allowed to continue as originally planned by Congress. Your serious consideration of this matter is respectfully requested.

Sincerely,

HENRY BELLMON, *Governor.*

MOHAWK AIRLINES, INC.,
Utica, N.Y., May 3, 1966.

Senator MIKE MONRONEY,
Chairman, Aviation Subcommittee of Senate Committee on Commerce,
U.S. Senate, Washington, D.C.

DEAR SIR: Mohawk Airlines wishes to offer the attached study and correspondence in connection with the hearings being conducted by the Senate aviation subcommittee on S. 3096, the Federal Aid to Airport Program.

Mohawk and British Aircraft Corporation jointly made the attached study, adoption of the principles of which would, we believe, reduce the otherwise very heavy expenditures for runway extension which are going to be required under the current Federal Aviation Agency rules.

This study proposes use of a rational system to determine on a pragmatic basis the runway lengths required. It was based on a study of thousands of actual landings; it takes into account the effectiveness of reverse thrust, used in all modern aircraft to reduce landing distance; it takes into account the coefficient of friction to reduce minimum stop distances.

The Federal Aviation Agency has declined to adopt the results of this study for what we do not believe are adequate reasons.

Because millions of dollars could be saved, we wish to take this opportunity to call to the attention of the aviation subcommittee the thoroughness of the study. Safety would not be compromised, according to studies of aircraft accidents which show that runway length is not a problem.

We earnestly request the consideration of the study by the aviation subcommittee in its deliberations.

Very truly yours,

C. A. BENSCOTER, *Executive Vice President.*

(The study referred to is placed in committee files.)

MOHAWK AIRLINES, INC.,
Utica, N.Y., January 11, 1966.

The ADMINISTRATOR,
Federal Aviation Agency,
Washington, D.C.

DEAR SIR: Attached is Mohawk Airlines, Inc., document entitled "Operational Landing Distances," which proposes the adoption of the British Civil Air Requirements Reference Landing method for determining landing distances for the BAC One-Eleven 200 Series aircraft.

This petition for approval of a method other than that set forth in applicable Federal Air Regulations has been brought about by the issuance on June 29, 1965 of FAR 121.195(d) which requires 15% more runway be available at a destination airport when that runway may be wet or slippery. The rule prevents the take off of turbo-jet aircraft unless the 15% is available at destination when the runway is wet or slippery.

Advisory Circular 121.195(d)-1, issued November 19, 1965, established "an acceptable means, but not the only means, by which the alternate provision of Section 121.195(d) may be met. Any other method the applicant elects to present will be given due consideration."

The purpose of the attached document is to set forth the proposal that Mohawk Airlines be approved to operate BAC One-Eleven aircraft to landing distances determined by the British Civil Air Requirements Reference Landing method. The document contains other information, including the effect of the 15% rule on Mohawk Airlines' cities and supporting technical data requested by FAA personnel at the December 14, 1965 meeting.

The effective date of January 15, 1966 means that very little time is available to fairly and properly consider the differences between the British rational system of landing distance determination and the present FAA method. We trust that a thorough consideration will be given, and that, if necessary, the January 15, 1966 deadline will be extended to give this proposal due consideration.

In 1956 the local carriers began re-equipping with Convair, Martin and Fairchild F-27 type aircraft. As a general rule, these airplanes require 5,000 ft. runways to enable them to carry maximum payload. Many communities extended runways to permit these aircraft to operate economically. This 5,000 ft. "round" of airport improvements is virtually complete.

When Mohawk began its jet plans in 1961, we endeavored to schedule the jets at airports where existing runways would accommodate the aircraft or into communities where runway improvements were already planned. We wanted to keep to a minimum the communities where additional runway would become a prerequisite to jet service. It now appears that to qualify for jet service, practically all communities served will have to extend their runways 15% to provide for the wet or slippery condition. The communities have not had time to prepare plans or make application for Federal funds to accomplish these improvements; hence, will be faced with a reduction in the effectiveness of jet service or its cancellation without an opportunity to provide the newly-required runway length.

The impact of this requirement on the Federal Airport Program is not known to me, but it appears it will be substantial. It might be estimated, however, on the basis of aircraft on order. Seven trunk airlines have ordered 140 BAC ONE-ELEVEN or DC-9 aircraft. Eight regional carriers have ordered 33 of the same type aircraft. Certainly a large number of these airplanes will be operated into airports where no plans have been made for the expenditure of Federal funds for 15% additional runway.

The addition of 15% more runway may prevent some landing incidents in the future, though a study of past history does not provide a convincing argument for an additional 15%. The application of the 15% wet runway rule would have prevented few, if any, landing incidents. During 1965 approximately 900,000 landings were made by U.S. turbo-jet aircraft in domestic and foreign operations. It is barely possible that one landing incident might have been prevented with 15% more runway. I believe there must be a more logical solution to this problem than the regulatory penalty imposed upon the entire industry by the 15% rule.

If the 15% additional runway is required to accommodate the wet runway condition, then it is most logical to consider a method of determination of landing dis-

tance for the BAC One-Eleven which is based upon landing on wet runways for certification purposes. Mohawk Airlines respectfully requests that due considerations be given its proposal.

Very truly yours,

CARL A. BENSOTER,
Executive Vice President.

FEDERAL AVIATION AGENCY,
OFFICE OF THE ADMINISTRATOR,
Washington, D.C., January 14, 1966.

Mr. CARL A. BENSOTER,
*Executive Vice President, Mohawk Airlines, Inc.,
Utica, N.Y.*

DEAR MR. BENSOTER: The Administrator has asked that I reply to your letters dated December 14, 1965, and January 11, 1966, in which you request approval of the British Civil Airworthiness Requirements Reference Landing method as an acceptable means of complying with the alternate provision of FAR 121.195(d). This request, pertaining to the BAC 1-11, 200 series airplane, was made in accordance with the statement in Advisory Circular AC 121.195(d)-1 that "any other method the applicant elects to present will be given due consideration."

In recent meetings with you and Mr. Ken Lawson, British Aircraft Corporation, certain data were requested. These data were to include comparisons of the distances obtained, using the British method, the Advisory Circular method, and the present U.S. certification method, reverse thrust reliability data, data for the effect of reverse thrust on stopping distances, and runway/tire friction coefficients obtained during testing.

A thorough review of the data has been completed, and this review showed that the only appreciable difference found between the British Reference method and that outlined in AC 121.195(d)-1 is performance credit for reverse thrust which is included in the British method.

The Advisory Circular states that the Agency has determined that any credit for reverse thrust should be withheld pending the development of operational landing distance standards on dry as well as wet runways. Industry organizations were informed in Advisory Circular No. 121.195(d)-1, on November 19, 1965, that reverse thrust credit would not be granted at this time.

The reliability data on the Spey type reversers do not present a more acceptable case than exists for other designs; hence, does not alter the status quo in this area.

It is, therefore, concluded that the BAC 1-11 having no other compensating features will in effect be the same as any comparable U.S. certificated aircraft; therefore, we are unable at this time to authorize any special consideration or accept an alternate method based upon use of reverse thrust for the BAC 1-11.

As you are aware, the development of a realistic operational landing requirement that would be suitable for the economic and safe operation of Jet transport airplanes for all operating conditions has been difficult and extremely controversial.

We are continuing our efforts in this regard and hopefully expect to develop new requirements with the assistance and participation of interested industry personnel as soon as possible.

Sincerely yours,

D. D. THOMAS,
Deputy Administrator.

THE NEW ENGLAND COUNCIL,
Boston, Mass., May 6, 1966.

HON. A. S. MIKE MONRONEY,
Chairman, Subcommittee on Aviation of the Senate Commerce Committee,
Washington, D.C.

DEAR MR. CHAIRMAN: We understand that your Subcommittee is presently considering legislation to extend the Federal Airport Act for three additional years. This letter is written to express the strong interest of The New England Council in favorable action by the Congress on this proposal.

As you may know, The New England Council was established in 1925 at the request of the six New England Governors. It is a private non-profit organization with a broadly representative membership interested in the sound economic development of the region. As a consequence, it is particularly interested in legislation that would strengthen the regional air transportation system in New England.

Extension of the Federal Airport Act is particularly crucial at this time if the regional air transport needs of New England are to be adequately met. As you know, Northeast Airlines, which provides a substantial amount of local air service to points in New England, has recently changed hands and the new management has ordered turbo prop and turbo jet airplanes. These planes, once in operation, should greatly improve the less than adequate service provided by Northeast in the past.

In order to accommodate these new planes, it will be necessary to make improvements in existing airports. An estimate of the amount of money needed indicates that significantly more Federal aid will be required in the next two years than has been received in the past. For example, Massachusetts has averaged \$2 million per year in Federal airport aid in the past four years. An additional \$750,000 will be required each year to put outlying airports in shape to take advantage of Northeast's new planes. Maine presents an even bigger problem. It has received an average Federal allocation for the past four years of approximately \$75,000 annually. Recently the Maine legislature has authorized approximately \$4 million as the State's 50% share of airport improvements that will be required to handle Northeast's new jets. In turn, the Federal aid program must provide an equal amount if service is to be adequate. Such Federal assistance to be effective will have to be available for at least three or four years.

We must emphasize that the air transportation needs of New England cannot be met adequately without extension of the Federal Airport Act for at least three years and the availability of increased Federal financial assistance.

Sincerely yours,

GARDNER CAVERLY.

CITY OF BALTIMORE,
DEPARTMENT OF AVIATION,
Friendship International Airport,
Maryland, May 4, 1966.

Hon. SENATOR A. S. MONRONEY,
U.S. Senate Office Building,
Washington, D.C.

DEAR SENATOR MONRONEY: During my testimony concerning S. 3096 yesterday you asked me if Friendship Airport is receiving adequate Federal Airport Aid and I replied that we never get all that we ask, but are grateful for what we receive.

The thought now occurs to me that you wanted to know if we consider that we are being treated fairly concerning the amount of aid which we receive, having in mind our competition with Dulles and Washington National.

I believe that we have consistently received fair treatment from the FAA in Federal Aid and in aids to navigation. I have never noticed any discrimination whatsoever against Friendship in these matters.

It was distinct pleasure to see you again. I was a Senate page in the days of that fine, blind Senator Gore of Oklahoma and I recognize in you a true gentleman of the old school and a worthy successor to those outstanding Senators who have passed on.

With all sincerity,
Sincerely,

JOHN O. COLONNA,
Director of Aviation.

