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APPALACHIAN AIRPORTS

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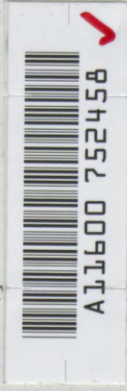
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HEARING

BEFORE THE



COMMITTEE ON PUBLIC WORKS

UNITED STATES SENATE

NINETY-SECOND CONGRESS

FIRST SESSION

ON

THE DEVELOPMENT OF REGIONAL AIRPORTS FOR THE
PURPOSE OF IMPROVING TRANSPORTATION
AND PASSENGER SAFETY

MARCH 2, 1971

Printed for the use of the Committee on Public Works



Serial No. 92-H6

U.S. GOVERNMENT PRINTING OFFICE

58-309 O

WASHINGTON : 1971

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APPALACHIAN AIRPORTS

TUESDAY, MARCH 2, 1971

U.S. SENATE,
COMMITTEE ON PUBLIC WORKS,
Washington, D.C.

The committee met at 11:15 a.m., pursuant to call, in room 4232, New Senate Office Building, Senator Jennings Randolph (chairman of the committee) presiding.

Present: Senators Randolph, Montoya, Eagleton, Boggs, Baker, Beall, and Buckley.

Also present: Richard B. Royce, chief clerk and staff director; J. B. Huyett, Jr., assistant chief clerk and assistant staff director; Barry Meyer, counsel; Philip T. Cummings, Richard D. Grundy, John Yago, Judy Parente, and Richard Herod, professional staff members; and Peggy Nagle, secretarial staff.

The CHAIRMAN. Gentlemen of the committee, as you know, we are in executive session following the reporting of the Appalachian Regional Development Commission bill at our prior meeting when the subcommittee met.

The committee print of the Appalachian Regional Commission bill, together with additional information will be placed in the record at this point.

(The material referred to follows:)

(1)

[COMMITTEE PRINT]

FEBRUARY 24, 1971

92D CONGRESS
1ST SESSION**S. 575**

IN THE SENATE OF THE UNITED STATES

FEBRUARY 3 (legislative day, JANUARY 26), 1971

MR. RANDOLPH (for himself, MR. COOPER, MR. AIKEN, MR. ALLEN, MR. BAKER, MR. BAYH, MR. BEALL, MR. BIBLE, MR. BOGGS, MR. BURDICK, MR. BYRD of Virginia, MR. BYRD of West Virginia, MR. CHURCH, MR. COOK, MR. CRANSTON, MR. EAGLETON, MR. EASTLAND, MR. ERVIN, MR. FULBRIGHT, MR. GRAVEL, MR. HARRIS, MR. HART, MR. HARTKE, MR. HATFIELD, MR. HOLLINGS, MR. HUGHES, MR. HUMPHREY, MR. JACKSON, MR. JAVITS, MR. JORDAN of North Carolina, MR. JORDAN of Idaho, MR. KENNEDY, MR. MCCLELLAN, MR. MCGEE, MR. MCGOVERN, MR. MCINTYRE, MR. MAGNUSON, MR. MATHIAS, MR. METCALF, MR. MONDALE, MR. MONTOYA, MR. MUSKIE, MR. NELSON, MR. PELL, MR. PERCY, MR. SAXBE, MR. SCHWEIKER, MR. SCOTT, MR. SPARKMAN, MR. SPONG, MR. STENNIS, MR. STEVENS, MR. STEVENSON, MR. TALMADGE, MR. TUNNEY, MR. WEICKER, and MR. WILLIAMS) introduced the following bill; which was read twice and referred to the Committee on Public Works

FEBRUARY , 1971

Reported by Mr. -----, with amendments

[Omit the part struck through and insert the part printed in *italic*]**A BILL**

To authorize funds to carry out the purposes of the Appalachian Regional Development Act of 1965, as amended.

- 1 *Be it enacted by the Senate and House of Representa-*
- 2 *tives of the United States of America in Congress assembled,*
- 3 That this Act may be cited as the "Appalachian Regional
- 4 Development Act Amendments of 1971".

1 SEC. 102. Subsection (b) of section 105 of the Appa-
2 lachian Regional Development Act of 1965 (40 App. U.S.C.
3 105) is amended to read as follows:

4 “(b) To carry out this section, there is hereby author-
5 ized to be appropriated to the Commission, to be available
6 until expended, such sums as may be necessary.”

7 SEC. 103. Section 106 (7) of the Appalachian Regional
8 Development Act of 1965 (40 App. U.S.C. 106 (7)) is
9 amended by striking out “June 30, 1971” and inserting in
10 lieu thereof “June 30, 1975”.

11 SEC. 104. Section (g) of section 201 of the Appalachian
12 Regional Development Act of 1965 (40 App. U.S.C. 201)
13 is amended to read as follows:

14 “(g) To carry out this section, there is hereby author-
15 ized to be appropriated to the President, to be available until
16 expended, \$175,000,000 for the fiscal year ending June 30,
17 1971; \$175,000,000 for the fiscal year ending June 30,
18 1972; \$180,000,000 for the fiscal year ending June 30,
19 1973; \$180,000,000 for the fiscal year ending June 30,
20 1974; \$185,000,000 for the fiscal year ending June 30,
21 1975; \$185,000,000 for the fiscal year ending June 30,
22 1976; \$185,000,000 for the fiscal year ending June 30,
23 1977; and \$180,000,000 for the fiscal year ending June 30,
24 1978.”

25 SEC. 105. (a) The third sentence of subsection (c) of

1 section 202 of the Appalachian Regional Development Act of
2 1965 (40 App. U.S.C. 202) is amended by striking out
3 "health services" and inserting in lieu thereof the following:
4 "health and child development services, including title IV,
5 parts A and B, of the Social Security Act. Notwithstanding
6 any provision of law requiring assistance or services on a
7 statewide basis, if a State provides assistance or services
8 under such a program in any area of the region approved
9 by the Commission, such State shall be considered as meeting
10 such requirement".

11 (b) Subsection (d) of such section is amended by add-
12 ing at the end the following: "The Federal contribution to
13 such expenses of planning may be provided entirely from
14 funds authorized under this section or in combination with
15 funds provided under other Federal or Federal grant-in-aid
16 programs. Notwithstanding any provision of law limiting
17 the Federal share in any such other program, funds appro-
18 priated to carry out this section may be used to increase such
19 Federal share to the maximum percentage cost thereof au-
20 thorized by this subsection."

21 SEC. 106. (a) The first sentence of subsection (a) (1)
22 of section 205 of the Appalachian Regional Development
23 Act of 1965 (40 App. U.S.C. 205) is amended by inserting
24 before the period at the end: "; and to control or abate mine
25 drainage pollution."

1 (b) Subsection (b) of such section is amended to read
2 as follows:

3 “(b) Notwithstanding any other provision of law, the
4 Federal share of mining area restoration project costs, in-
5 cluding reasonable planning, engineering, and costs of land
6 acquisition (limited to the fairly appraised value of the land
7 in its unreclaimed state), carried out under subsection (a)
8 of this section and conducted on lands other than federally
9 owned lands, shall not exceed 75 per centum of the total cost
10 thereof.”

11 (c) Subsection (d) of such section is amended to read
12 as follows:

13 “(d) No moneys authorized by this Act shall be ex-
14 pended for the purposes of reclaiming, improving, grading,
15 seeding, or reforestation of strip-mined areas (except on
16 lands owned by Federal, State, or local government bodies
17 or by private nonprofit entities organized under State law
18 for public recreation, conservation, or economic development
19 purposes, including the construction of low- or moderate-
20 income housing) until authorized by law. As a condition of
21 any grant made pursuant to this section, provision shall be
22 made for the recovery of any proceeds from the sale or lease
23 for private purposes of land reclaimed with such a grant,
24 for the purpose of further reclamation projects.”

25 SEC. 107. (a) The catchline for section 207 of the Ap-
26 palachian Regional Development Act of 1965 (40 App.

1 U.S.C. 207) is amended to read: "ASSISTANCE FOR PLAN-
2 NING AND OTHER PRELIMINARY EXPENSES OF PROPOSED
3 LOW- AND MODERATE-INCOME HOUSING PROJECTS".

4 (b) Subsections (a), (b), and (c) of such section are
5 amended to read as follows:

6 "(a) In order to encourage and facilitate projects for
7 community development, including the construction or reha-
8 bilitation of housing to meet the needs of low- and moderate-
9 income families and individuals, the Secretary of Housing
10 and Urban Development (hereafter in this section referred
11 to as the "Secretary") is authorized to make grants and loans
12 from the Appalachian Housing Fund established by this sec-
13 tion, under such terms and conditions as he may prescribe,
14 for necessary expenses of nonprofit, limited dividend, or coop-
15 erative organizations, or of public bodies, in planning and ob-
16 taining federally insured mortgage financing for housing
17 construction or rehabilitation projects for low- and moderate-
18 income families and individuals, under section 221, 235, or
19 236 of the National Housing Act or any other Federal law,
20 in any area of the Appalachian region determined by the
21 Commission.

22 "(b) No loan under subsection (a) of this section shall
23 exceed 80 per centum of the cost of planning and obtaining
24 financing for a project, including, but not limited to, pre-
25 liminary surveys and analyses of market needs, preliminary
26 site engineering and architectural fees, site options, applica-

1 *tion and mortgage commitment fees, legal fees, and construc-*
2 *tion loan fees and discounts. Such loans shall be made without*
3 *interest, except that any loan made to an organization estab-*
4 *lished for profit shall bear interest at the prevailing market*
5 *rate authorized for an insured or guaranteed loan for such*
6 *project. The Secretary shall require repayment of loans made*
7 *under this section, under such terms and conditions as he may*
8 *require, upon completion of the project or sooner, and except*
9 *in the case of a loan to an organization established for profit,*
10 *may cancel any part or all of such a loan, if he determines*
11 *that a permanent loan to finance such project cannot be ob-*
12 *tained in an amount adequate for repayment of such loan*
13 *under this section.*

14 “(c)(1) *Except as provided in paragraph (2) of this*
15 *subsection, no grant under this section shall exceed 80 per*
16 *centum of those expenses, incident to planning and obtain-*
17 *ing financing for a project, which the Secretary considers not*
18 *to be recoverable from the proceeds of any permanent loan*
19 *made to finance such project, and no such grant shall be*
20 *made to an organization established for profit.*

21 “(2) *The Secretary is authorized to make grants and*
22 *commitments for grants, and may advance funds under such*
23 *terms and conditions as he may require, to nonprofit orga-*
24 *nizations and public bodies for reasonable site development*
25 *costs and necessary off-site improvements, such as sewer and*
26 *water line extensions, whenever such a grant, commitment, or*

1 advance is essential to the economic feasibility of any hous-
2 ing construction or rehabilitation project for low- and mod-
3 erate-income families and individuals which otherwise meets
4 the requirements for assistance under this section, except that
5 no such grant shall exceed 10 per centum of the cost of such
6 project."

7 (c) Subsection (e) of such section is amended by strik-
8 ing out "The Secretary is further authorized to" and inserting
9 in lieu thereof "The Secretary or the Commission may".

10 SEC. 108. (a) The catchline for section 211 of the Ap-
11 palachian Regional Development Act of 1965 (40 App.
12 U.S.C. 211) is amended by adding at the end "AND EDUCA-
13 TION DEMONSTRATION PROJECTS".

14 (b) The first sentence of subsection (a) of such section is
15 amended by inserting "or operation" after "equipment".

16 (c) Subsection (b) of such section is amended to read as
17 follows:

18 "(b) (1) In order to assist in the expansion and improve-
19 ment of educational opportunities and services for the people
20 of the region, the Secretary of the Department of Health,
21 Education, and Welfare is authorized to make grants for
22 planning, construction, equipping, and operating educational
23 projects which will serve to demonstrate areawide educational
24 planning, services, and programs. Grants under this section
25 shall be made solely out of funds specifically appropriated for
26 the purposes of this Act and shall not be taken into account

1 in any computation of allotments among the States pursuant
2 to any other law.

3 “(2) No grant for the construction or equipment of any
4 component of an education demonstration project shall exceed
5 80 per centum of its costs.

6 “(3) Grants under this section for operation of com-
7 ponents of education demonstration projects, whether or not
8 constructed by funds authorized by this Act, may be made for
9 up to 100 per centum of the costs thereof for the two-year
10 period beginning on the first day that such component is in
11 operation as a part of the project. For the next three years of
12 operation, such grants shall not exceed 75 per centum of such
13 costs. No grants for operation of demonstration education
14 projects shall be made after five years following the commence-
15 ment of the initial grant for operation of the project. Notwith-
16 standing section 104 of the Public Works and Economic
17 Development Act of 1965 (42 U.S.C. 3134), an education-
18 related facility constructed under title I of that Act may be
19 a component of a demonstration education project eligible for
20 operating grant assistance under this section.

21 “(4) No grant for expenses of planning necessary for the
22 development and operation of an education demonstration
23 project shall exceed 75 per centum of such expenses.

24 “(5) No grant for planning, construction, operation,
25 or equipment of a demonstration education project shall be

1 *made unless the facility is publicly owned, or owned by a*
2 *public or private, nonprofit organization, and is not*
3 *operated for profit.*

4 “(6) *Any Federal contribution referred to in this sec-*
5 *tion may be provided entirely from funds appropriated to*
6 *carry out this section, or in combination with funds avail-*
7 *able under other Federal grant-in-aid programs providing*
8 *assistance for education-related facilities or services. Not-*
9 *withstanding any provision of law limiting the Federal share*
10 *in such programs, funds appropriated to carry out this sec-*
11 *tion may be used to increase such Federal share to the maxi-*
12 *mum percentage cost thereof authorized by the applicable*
13 *paragraph of this subsection.”*

14 SEC. 405. 109. (a) Section 214 (a) of the Appalachian
15 Regional Development Act of 1965 (40 App. U.S.C. 214)
16 is amended to read as follows:

17 “SEC. 214. (a) In order to enable the people, States,
18 and local communities of the region, including local develop-
19 ment districts, to take maximum advantage of Federal grant-
20 in-aid programs (as hereinafter defined) for which they
21 are eligible but for which, because of their economic situa-
22 tion, they cannot supply the required matching share, or
23 for which there are insufficient funds available under the
24 Federal grant-in-aid Act authorizing such programs to meet

1 pressing needs of the region, the President is authorized
2 to provide funds to the Federal Cochairman to be used for
3 all or any portion of the basic Federal contribution to proj-
4 ects under such Federal grant-in-aid programs authorized
5 by Federal grant-in-aid Acts, and for the purpose of in-
6 creasing the Federal contribution to projects under such
7 programs, as hereafter defined, above the fixed maximum
8 portion of the cost of such projects otherwise authorized by
9 the applicable law. In the case of any program or project
10 for which all or any portion of the basic Federal contribu-
11 tion to the project under a Federal grant-in-aid program is
12 proposed to be made under this subsection, no such Federal
13 contribution shall be made until the responsible Federal
14 official administering the Federal grant-in-aid Act authoriz-
15 ing such contribution certifies that such program or project
16 meets the applicable requirements of such Federal grant-in-
17 aid Act and could be approved for Federal contribution un-
18 der such Act if funds were available under such Act for
19 such program or project. Funds may be provided for pro-
20 grams and projects in a State under this subsection only if
21 the Commission determines that the level of Federal and
22 State financial assistance under Acts other than this Act, for
23 the same type of programs or projects in that portion of
24 the State within the region, will not be diminished in order
25 to substitute funds authorized by this subsection. Funds pro-

1 vided pursuant to this Act shall be available without regard
 2 to any limitations on areas eligible for assistance or authori-
 3 zations for appropriation in any other Act. Any findings,
 4 report, certification, or documentation required to be sub-
 5 mitted to the head of the department, agency, or instru-
 6 mentality of the Federal Government responsible for the
 7 administration of any Federal grant-in-aid program shall be
 8 accepted by the Federal Cochairman with respect to a
 9 supplemental grant for any project under such program."

10 (b) The first sentence of subsection (c) of such section
 11 is amended by striking out "December 31, 1970" and in-
 12 serting in lieu thereof "December 31, 1974".

13 *SEC. 110. Section 224(b) of the Appalachian Regional*
 14 *Development Act of 1965 (40 App. U.S.C. 224) is amended*
 15 *by striking out "or" immediately preceding "(4)", and in-*
 16 *serting before the period at the end of such subsection: "or*
 17 *(5) for any land reclamation, water resource, or other en-*
 18 *vironmental project under section 203, 204, 205, 212, or*
 19 *214, except in furtherance of a comprehensive environmental*
 20 *improvement plan for an area of the region to be served by*
 21 *such a project, which is approved in the manner provided*
 22 *for programs or projects under sections 223 and 303."*

23 *SEC. 111. Subsection (a)(2) of section 302 of the Ap-*
 24 *palachian Regional Development Act of 1965 (40 App.*
 25 *U.S.C. 302) is amended to read as follows:*

1 “(a)(2) to make grants to the Commission for investi-
 2 gation, research, studies, evaluations, and assessments of
 3 needs, potentials, or attainments of the people of the region,
 4 technical assistance, training programs, demonstrations, and
 5 the construction of necessary facilities incident to such activi-
 6 ties, which will further the purposes of this Act. Grant funds
 7 may be provided entirely from appropriations to carry out
 8 this section or in combination with funds available under
 9 other Federal or Federal grant-in-aid programs or from any
 10 other source. Notwithstanding any provision of law limiting
 11 the Federal share in any such other program, funds appro-
 12 priated to carry out this section may be used to increase such
 13 Federal share, as the Commission determines appropriate.”

14 ~~SEC. 406.~~ 112. Section 401 of the Appalachian Regional
 15 Development Act of 1965 (40 App. U.S.C. 401) is
 16 amended to read as follows:

17 “SEC. 401. In addition to the appropriations authorized
 18 in section 105 for administrative expenses and in section 201
 19 for the Appalachian Development Highway System and
 20 Local Access Roads, there is hereby authorized to be appro-
 21 priated to the President, to be available until expended, to
 22 carry out this Act, \$268,500,000 for the two-fiscal-year
 23 period ending June 30, 1971; \$277,000,000 for the two-
 24 fiscal-year period ending June 30, 1973; and \$294,000,000
 25 for the two-fiscal-year period ending June 30, ~~1975~~, of

1 which amounts so authorized for such periods ending June
 2 30, 1973, and June 30, 1975, not to exceed \$155,000,000
 3 is authorized for the two-fiscal-year period ending June 30,
 4 1973, and not to exceed \$170,000,000 is authorized for the
 5 two-fiscal-year period ending June 30, 1975, to carry out
 6 sections 202 and 211; not to exceed \$15,000,000 is author-
 7 ized for the two-fiscal-year period ending June 30, 1973,
 8 and not to exceed \$15,000,000 is authorized for the two-
 9 fiscal-year period ending June 30, 1975, to carry out sections
 10 203, 204, 205, 206, and 212; not to exceed \$4,000,000 is
 11 authorized for the two-fiscal-year period ending June 30,
 12 1973, and not to exceed \$6,000,000 is authorized for the
 13 two-fiscal-year period ending June 30, 1975, to carry out
 14 section 207; not to exceed \$90,000,000 is authorized for the
 15 two-fiscal-year period ending June 30, 1973, and not to
 16 exceed \$90,000,000 is authorized for the two-fiscal-year
 17 period ending June 30, 1975, to carry out section 214; and
 18 not to exceed \$13,000,000 is authorized for the two-fiscal-
 19 year period ending June 30, 1973, and not to exceed \$13,-
 20 000,000 is authorized for the two-fiscal-year period ending
 21 June 30, 1975, to carry out section 202." 1975."

22 SEC. 407. 113. Section 405 of the Appalachian Regional
 23 Development Act of 1965 (40 App. U.S.C. 405) is
 24 amended by striking "1971" and inserting in lieu thereof
 25 "1975".

92^D CONGRESS
1ST SESSION

S. 744

IN THE SENATE OF THE UNITED STATES

FEBRUARY 10 (legislative day, JANUARY 26), 1971

MR. BYRD of West Virginia (for himself and Mr. RANDOLPH) introduced the following bill; which was read twice and referred to the Committee on Public Works

A BILL

To amend section 214 (b) of the Appalachian Regional Development Act of 1965.

- 1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*
3 That section 214 (b) of the Appalachian Regional Develop-
4 ment Act of 1965 (40 U.S.C. App. 214 (b)) is amended by
5 striking out the period at the end thereof, and inserting in
6 lieu thereof a comma and the following: "except that in the
7 case of any project for runway extension and construction,
8 approach clearances, and site preparation for navigational
9 aids (including land acquisition for these purposes), as ap-

II

1 proved by the Federal Aviation Administration to enhance
2 airport safety, such regulations may authorize the Federal
3 portion of such costs to be increased to 100 per centum
4 thereof.”.

U.S. SENATE,
COMMITTEE ON PUBLIC WORKS,
Washington, D.C., February 23, 1971.

Memorandum to: Senator Jennings Randolph.
From: Committee staff.
Subject: Appalachian Airport safety amendment.

Analysis

This new section provides for a program of safety improvements in Appalachian airports. Grants under this program, which would be made by the Secretary of Transportation, would be limited to upgrading safety at existing airports serving commercial air carriers.

Any improvement relating to safety would be eligible for funding, including the removal of airport hazards, the acquisition of safety equipment and navigation aids, and the acquisition of any land, easements, or airspace rights necessary for the project.

Projects would be formulated by the States and approved by the Commission in the same manner as all Appalachian projects. The committee report would direct the Commission not to make investments under this section in airports already having a high level of passenger and landing-fee revenues.

Federal participation would not exceed 90 percent of the project costs. The Secretary would have obligatory authority to make grants which would later be liquidated by appropriations, up to a total of \$40 million over the four year period ending June 30, 1975.

Explanation

In response to a request of Senator Randolph's, the Federal Aviation Administration prepared a report on the airport safety and navigational aids needs of the Appalachian Region. This report, made available to the Committee last December, contains a survey of estimated costs of airport safety improvements for the Appalachian States.

The recommended improvements to landing area and navigational aids for all commercial air carrier airports in the Appalachian region have an estimated cost of over \$117.5 million. Some of this need will be met by funds available under the Airport and Airway Development Act of 1970. However, not all of that need can be met under that Act.

Construction costs are generally higher for Appalachian airports, and funds are apportioned partially on the basis of passengers enplaned in a state, a formula which presently does not favor Appalachia. Also, local funds are scarce in Appalachia, and the Airport Development Act limits the Federal contribution to 50 percent (82 percent for airport lighting).

Many Appalachian airports are only marginally safe for large scale commercial operation. In order to fully develop the aviation potential of this Region, which lies within easy flying distance of many major metropolitan areas, all commercial airports must be made safe enough to allow an expansion of passengers handled.

APPALACHIAN AIRPORT SAFETY IMPROVEMENTS

Proposed Sec. 201A (a) In order to provide a system of airports in the Appalachian region which can accommodate a greater number of passengers in safety and thereby increase commerce and communication in areas with developmental potential, the Secretary of Transportation (hereafter in this section referred to as the "Secretary") is authorized to make grants to existing airports for the purpose of enhancing the safety of aviation and airport operations.

(b) Such airport safety improvement projects may include (A) approach clearance, the removal, lowering, relocation, and marking and lighting of airport hazards, navigation aids, site preparation for navigation aids, and the acquisition of adequate safety equipment (including fire-fighting and rescue equipment), and (B) any acquisition of land or of any interest therein, or of any easement through or other interest in airspace which is necessary for such projects or to remove or mitigate or prevent or limit the establishment of, airport hazards.

(c) Grants under this section shall be made solely from funds specifically made available to the President for the purpose of carrying out this Act in accordance with the provisions of this Act, and shall not be taken into account in the computation of the allotments among the States made pursuant to any other provisions of law.

(d) Except as context otherwise indicates, words and phrases used in this section shall have the same meaning as in the Airport and Airway Development Act of 1970 and the Federal Aviation Act of 1958, as amended.

(e) Federal assistance to any project under this section shall not exceed 90 percentum of the costs of the project, except for assistance for navigation aids which may be 100 percentum.

(f) The Secretary is authorized to incur obligations to make grants for airport safety improvement projects, in a total amount not to exceed \$40,000,000 during the period ending June 30, 1975. There are authorized to be appropriated to the President such sums as may be required for liquidation of the obligations incurred under this section.

The CHAIRMAN. It was decided at that time, that after we had approved certain amendments and incorporated them in the legislation for extension of the act, that there was one very vital matter on which there was not too much a difference of opinion, or desire to say, "I have the answer" by any member, but a hope to have a discussion of the development of airports in the region to better serve not only the safety of the passengers—that is primary—but also as in the original act, Senator Boggs and gentlemen, the development of transportation.

We called our roads developmental roads, and we are thinking in terms of the effective use, Senator Buckley, of these airports in the same category, the same frame of development, thinking in terms, of course, of the adequacy of the airports, the navigational aids and the safety features which are accentuated by the terrain in which the Appalachian program operates.

We have an appreciation today of the Administrator, John Shaffer, for his coming before the committee and on rather brief notice. There are those of us who have known Mr. Shaffer and Mr. Bowers for years, but we will have for the record the correct names and titles, just for our record.

We are grateful for the counsel that you shall share with us today. These questions are placed before you this morning because we continue to think of language that might meet the general objective as expressed in the subcommittee.

Would you, Mr. Shaffer, you and Mr. Bowers, or whoever you wish to present your counsel to us, discuss the situation as it affects the goal which we wish to incorporate in the Appalachian Extension Act?

STATEMENT OF JOHN H. SHAFFER, ADMINISTRATOR, FEDERAL AVIATION ADMINISTRATION, ACCOMPANIED BY CHESTER G. BOWERS, DIRECTOR, AIRPORT SERVICE, FEDERAL AVIATION ADMINISTRATION

Mr. SHAFFER. Mr. Chairman, I think it is factual to say that we have historically used criteria in the establishment of both aviation facilities and navigational aids to aviation on the statistical bases of existing distribution of population or the attendant concentration of population, business activity, plus economic and social considerations that are not, it seems to me, consistent with the announced objectives of people who have the executive responsibility which we all share to see if there is a way to do a better job of not only distribution of our population, but possibly the redistribution of our population.

The criteria today, the ones we use, really have the effect of lumping on top of existing facilities other facilities that further concentrate the economic activity and more people which create bigger problems rather than offer solutions to existing problems.

We have, during the past 2 years, undertaken a review of these criteria to determine a better way for allocation of these resources with the idea, the overriding consideration, that whereas airports were once built by cities, airports do in fact create new cities; new cities that won't have the crunch of total problems that some of the existing cities have today.

It is a very complex demographic model, and obviously there are many forces interacting and reacting, and it won't be an easy job, really, to bring about this transformation or reconfiguration, but we certainly have that objective in mind, and it may well become the overriding consideration as we review and plan new projects for the future.

As a matter of fact, by a happy coincidence, this happens to be the very day that we are having our third planning review conference, where we sit down with many of the more important people, and I use that word not exclusively, but inclusively, of the industry, to have them help us do the job of managing the resources that are afforded to us.

We would think that the topographical considerations in Appalachia and in other topographically similar regions of the country have as much to do with where navigation facilities should be installed as do the old, outmoded criteria of size of the State and population.

Obviously, passenger emplanements or current level of activity is another important consideration.

We want to foster the creation, as the Appalachian Act does create, the economic stimulus to uplift this whole Appalachia region to the higher level of economic activity that we want to see it have.

We must find different means that are sure to develop the economic generators that are needed to provide the capital-generating apparatus that will do the total job for the region. Without trying to make you all converts to aviation, I happen to hold the belief that the airport and the airplane are the principal economic generators in our modern society.

As a man having some interest in history, I believe, the steamship and the steam engine, built London. I believe the railroads by and large created Chicago as we know it today, and Rhoades was created by oars, the predecessor to steam and sails as propulsion systems.

Transportation does do these things, and today the airplane is perhaps the most productive vehicle in the transportation system. It won't do the job exclusively, or by itself, but it does provide a vehicle and the stimulus to generate and stimulate economic and social growth of the Appalachian Region.

There are many locations that need better facilities. One of them is clearly identified as Huntington, W. Va., an airport that is deficient both in runway length and in its electronic environment.

We would hope we can correct both of those shortcomings under the Appalachian authorizations and under the new Airport-Airway Development Act of 1970, which provides for the first time adequate funds to build airports and provide airway facilities.

(At this point Senator Montoya assumes the chair.)

Senator MONTOKA. From the \$280 million annually in the airport act in 1970, how much is allocated to the States in Appalachia?

Mr. SHAFFER. As I indicated, Mr. Chairman, under the old criteria of area and population, Appalachia would get about \$5 million out of the total annual authorization, with an additional \$3 million, roughly, on the basis of emplanements at the current level, or the previous year's level of arrivals and departures in the commercial system of the total Appalachian region.

This amounts to a total of about \$8 million out of \$280 million. Is this correct, Chet?

Mr. BOWERS. Yes, sir; but there is a discretionary fund that is available as well.

Senator MONTOKA. Is that adequate in order to unfold the airport development required in order for Appalachia to keep abreast of the improvements in the rest of the country?

Mr. SHAFFER. I would suggest that it is not, Mr. Chairman. Obviously the topography of the area really limits the transportation system to that which is best suited for the area, and here again my bias will show.

I happen to believe that the airport and the airplane can handle the intercity passenger transportation needs of Appalachia better than the highways and the railroads.

Now, that does not suggest, or should not suggest to anyone that Appalachia doesn't need roads or railroads, but it simply says, I think, that an airport is more cost beneficial than either of the other two systems with construction costs being what they are, and that is not intended to be—I don't want it to be misconstrued as a criticism of labor because construction labor is getting a lot of attention elsewhere—but then it really is a fact that one can build an airport system for, I suggest, more modest capital outlays than one can create the other transportation systems.

Senator MONTOKA. Mr. Shaffer, I assume that your agency has made a survey and has a very firm indication of what the needs are in Appalachia dollarwise.

Can you present that to us now?

Mr. SHAFFER. I am unable to do so but Mr. Bowers who is the man directly responsible for doing the study we started as a promise, or a commitment, I should say, to Senator Byrd.

We agreed to analyze the requirements for Appalachia and then present to the Congress our view as to what is required; Mr. Bowers says he is now ready to summarize this for you.

Senator MONTOKA. Go ahead, Mr. Bowers.

Mr. BOWERS. Thank you, sir. Our estimate of need, for a 10-year period, 1971 through 1980, is in the neighborhood of \$110 to \$120 million, and this is only airport development estimated costs.

It does not include the costs of the electronic Nav aids. I do not have that figure, sir.

Senator MONTOKA. Give me a figure from your experience.

Mr. BOWERS. This would be a guess, but I would guess around \$100 million.

Senator BOGGS. Over the 10-year period?

Mr. BOWERS. Yes, sir.

Senator BAKER. In addition to the \$110 million?

Mr. BOWERS. Yes, sir. Navigation aids are procured by FAA, procured, installed and operated by FAA.

Senator BEALL. Do you think you can get them?

Mr. BOWERS. Yes, sir.

Senator BAKER. Mr. Chairman, may I ask a question in that connection?

Senator MONTOKA. Yes.

Senator BAKER. What kind of aids would you have in mind for an Appalachian airport?

Mr. BOWERS. Terminal nav aids.

Senator BAKER. That would be for the bigger airports. Do you have anything in mind for smaller airports?

I mean something like the TVOR's or other facilities that might be useful to small airports where so many people now get killed?

Mr. BOWERS. We have various other aids, the VOR, the low cost ILS's are just beginning to come into the market. We do not yet have them in our standard system, but certainly these are going to be in the future.

Senator BAKER. Do you have a package working someplace?

Mr. BOWERS. Yes, sir; I am sure we do. There are a number of States that have installed TVOR's. In Minnesota there are a number. They do not provide the precise definition, as does the ILS.

Mr. SHAFFER. We happen to believe that where you need it worst is in areas with topographical variation, that is where you need the best ILS system. Today's best ILS system is deficient in this area, because the ground, as you know, is part of the return pattern of the signal and we have variations today even with big moving aircraft on the airport.

The 747, for example, causes a scalloping of the signal. So we really need to do more work in research and development in this area, and as a matter of fact intend to. We are going to have a scanning beam ILS development which will bring into the system a totally new one which will, we hope, overcome all of the current technical difficulties, and we should have that by—fully developed and ready to go—by 1977.

Senator BAKER. If I could make one comment in this connection on navigational aids, I would hope that FAA would give particular attention to a more or less standard low cost package, or some sort of navigational aids for all nonairline airports, or small airline airports.

As Senator Cotton pointed out once in an aviation subcommittee hearing, you are just as dead if you get killed at a small airport as if at a large one.

This assistance ought to be pointed, also, toward the nonairline airports.

Mr. SHAFFER. Yes, sir.

Senator Boggs. Let me ask a question so I am certain that I understand it, Senator Baker.

When you say airports, does that mean public airports?

Senator BAKER. It provides in the bill that in order to be eligible for the designated improvements the airport has to be part of the public airport system.

It would have to be public.

Mr. SHAFFER. Yes; we are not able under current legislation to make any Federal participation in a private airport.

Senator MONTOYA. Mr. Shaffer, in view of the anticipated funding, by the Airport and Airway Development Act, and as you indicated that will not be sufficient, is it your feeling that there must be some supplementary funding for airport needs during the period of the next 10 years?

Mr. SHAFFER. Yes. As you know, Mr. Chairman, the local sponsor has a matching fund requirement that may be beyond the capability of those communities to provide.

Senator MONTOYA. That is 50-50, isn't it?

Mr. SHAFFER. It is 50-50 under the Airway-Airport Expansion Act, and in the specific case at Huntington, if you want to talk to that point, we believe the total cost of providing the 6,500 foot runway and the preparation for a complete ILS installation there would come to something like \$4.7 million.

The FAA share of that, of course, or the Federal Aviation share of that would be 2.3. The Appalachian Regional Commission would come in with 1.4, leaving a sponsor requirement of \$951,000, so this sometimes is beyond the capability of a community.

When you rack this one up against all their local priorities, such as solid waste removal—

Senator MONTOYA. Hasn't it been your experience that many of the allocations made to the States and the different municipalities for airport construction have returned back to the Treasury because there was a failure of local matching?

Mr. SHAFFER. This is correct.

Senator MONTOYA. This is very general, then, in the rural areas of this country, isn't it?

Mr. SHAFFER. Yes, sir, and I think this is why Congress gave the Secretary discretionary provisions for the first time. If we all embrace the idea, and I suggest that most of us do—

Senator MONTOYA. Have you used this discretion since the authority had been given to you?

Mr. SHAFFER. No, sir. It has not been necessary to use it up to now. We have processed some 49 requests, as I remember, thus far.

Senator MONTOYA. Have there been requests where matching was available?

Mr. SHAFFER. Yes. To review the history for some who were not present at the previous testimony, we had, I believe 455 requests on the books at the time the bill was signed in May of 1970.

We have boiled those, or distilled those to the point where we now have 355 meritorious requests from sponsors, and we have been processing this backlog in this first year of this new authorization.

So most of those sponsors have had their share. They have had funds for it.

There are still some that, to be completely responsive to you, there are several that have been lying fallow for sometime simply because the matching funds were not there.

In the case of Huntington, W. Va., that was the exact situation. They did not have their portion of the costs, and as a consequence we don't even have the ILS, complete there. We have no glide slope,

principally because the site construction or site preparation cost exceeded the community resources, when you consider it with all the other requirements for capital in that area.

The city did not have it.

(At this point Senator Randolph resumes the chair.)

Senator MONTOKA. That answers my question, Mr. Chairman.

Senator BEALL. In a situation where you are talking about ILS, is that a 50-50 situation, also?

Mr. SHAFFER. No, the ILS is provided 100 percent by federal funds. However, the site preparation is the responsibility of the sponsor. This is the most expensive part of it in this case.

It was more expensive here than the \$135,000 that would be required to buy the equipment and make the installation and check it out.

It is considerably more expensive to make the site preparation at Huntington than it is to furnish the equipment.

Senator BEALL. At the risk of being parochial, I was concerned about the airport at the Cumberland. I flew out of it as recently as Monday. I might bite my tongue once in awhile.

Mr. SHAFFER. We do believe our criteria have been deficient. We have too long, it seems to me, leaned on area and population criteria, and passenger emplanement for determining where these facilities should go without much concern for the hazards that are presented to the air transportation system by not having appropriate or adequate electronic aids in certain "rough" terrains and weather areas.

I think if we were inclined to, we could make quite a case that this out-moded criteria has cost us, in terms of lives and property loss, considerably more than the cost of equipment we didn't have for one reason or another.

Senator BEALL. So this developmental approach would then be a compliment to your present program?

Mr. SHAFFER. Senator Beall, it is clear that if we are going to do a better job of managing resources in this country and to work this complex model better I submit we have to change the criteria that causes things to happen in a better structured way rather than just let them happen on the basis of what I will call it entrepreneurship and relatively more aggressive governments in certain local areas.

Senator BEALL. Thank you.

The CHAIRMAN. Howard, you have, I believe, considered the matter, and Jim?

Senator BUCKLEY. May I ask a question?

The CHAIRMAN. Yes, indeed.

Senator BUCKLEY. Mr. Shaffer, you state your overall plan indicates a need of \$110 to \$120 million in the next decade. At the present time, you have about \$8 million available for Appalachia plus some discretionary funds.

Would the \$8 million, plus whatever is available in the discretionary account get you off on a proper basis for your ten year program, or do you need more money for the first year?

Mr. SHAFFER. The \$8 million is the estimated share for all of Appalachia in the first year of the program; that is \$8 million out of the \$280 million total in the fiscal year 1971 annual authorization; anything is a start.

Senator BUCKLEY. Let's put it this way. Could you digest more than \$8 million in the first year?

Mr. SHAFFER. Yes, sir. But the problem simply boils down to what has the higher priority on the basis of public benefit and total population served. That is to say that total transportation is a very complex demographic model, and maybe our answers have not been as good as they should have been in the past.

Hopefully we will do a better job now with more adequate resources.

It is going to be most difficult in this next few years to convert people to the philosophy, or get them to accept the philosophy that one should cause things to happen in a more precise way than we have in the past.

Things have frequently just happened in the past, and we have, I think, a frightening number of airports in the wrong locations, lots of concrete where we don't need concrete, and lots of places where we need concrete and there is not any.

This is to some extent a result of making decisions based on our own past experience, rather than making decisions against the background of what is wrong in our society today.

I think there is considerable wrong with it; we have concentrated our problems and our present criteria just lumps more on top. In other words, those who have, get, and with this comes bigger problems; rather than being a solution to the problems, it complicates it.

I hate to say this, but I do believe that the worst aspect of air transportation is ground transportation. We can't hope to solve the problem by concentrating more movement and more population in "gateway" situations.

We might be far better off to spread it a little more broadly.

Senator BUCKLEY. Are you suggesting that the New York area has too many airports?

Mr. SHAFFER. No, sir. The New York area has one very fine airport that is not used to its current capacity by reason of some other considerations. The population has impacted the airport and such things as noise and exhaust pollution are limiting its utilization and these are to be applauded. But my personal experience in aviation goes back to Idlewild Airport when it was created, and if we had preserved the site that was once available to it we would have a magnificent airport without very much public irritation with all the aviation activities attendant thereto.

But we did a lousy job of land use compatibility planning. We can and will do a better job with that today and in the future.

New York needs more capacity, but not in my opinion, necessarily another hub airport.

The CHAIRMAN. Senator Boggs?

Senator BOGGS. I defer to Senator Baker and my distinguished colleagues from the committee.

The CHAIRMAN. Howard?

Senator BAKER. I would more appropriately ask this question in the Commerce Committee, but I am going to ask it here because we are here now. On the issue that the present formula of the airport-airways trust fund creates an inequity running against Appalachia, for the reason you pointed out, namely those that has, gets, and those

that don't, don't, would you be in a position to give me any alternative formula that might be applied to create a more favorable situation, a realistic one?

Not now, but a future date.

Mr. SHAFFER. Yes, sir. As a matter of fact, we are currently reviewing the criteria, and part of the "menu" for this afternoon and evening session, of the overview conference starting at 1:30 this afternoon and going through 9:30 tonight—followed by a 2-day session next month—will be the development, on a consultative basis, of new criteria for the determination of where facilities will go.

Senator BAKER. Will these recommendations be transmitted to our committee at some point?

Mr. SHAFFER. Yes, sir; they will be sent to the Commerce Committee.

The CHAIRMAN. Howard, I think that is a good question, and the response indicates there is a concern and desire on the part of Mr. Shaffer and his associates to cope with this problem with a better formula and certainly with more realistic criteria than we have had to date.

I may ask you now, if there is no objection: There is an article which appeared in a magazine section of the Washington Star on Sunday, and I think it should be a part of this record.

I think that from the standpoint of the testimony of Mr. Shaffer and presumably all that has taken place, that it may well be a part of the printed record to accompany the hearings as we report the legislation and come to the Senate for determination.

Senator MONTAYA. I so move, Mr. Chairman.

The CHAIRMAN. Thank you, sir. All those in favor of my having that opportunity if we think it is best, will be counseled, but I think perhaps it would be helpful to people that might be looking into this subject.

(The article referred to follows:)

[From the Washington Star, Feb. 28, 1971]

THE FATAL FLIGHT TO HUNTINGTON

THE DISASTER THAT WIPED OUT THE MARSHALL UNIVERSITY FOOTBALL TEAM RAISES NEW QUESTIONS ABOUT AIR SAFETY AT SMALL AIRPORTS

(By Rhett Turner)

The Huntington (W. Va.) Marshall University football team expected East Carolina to be a pushover Saturday, Nov. 14, when they flew to Greenville, N.C., to play them. East Carolina had won only one game all season, and Marshall had beaten them by 30 points last year.

This was the only game Marshall played in 1970 for which they chartered an airliner rather than a bus.

The Marshall team boarded a bright blue and white Southern Airways jet for the trip on Friday, the 13th. Equipment manager John Hagan, superstitious about the date, decided to drive the load of football gear to Greenville in his truck.

There was extra room on the plane, and a few of Huntington's leading citizens and team supporters went along. As it turned out, 21 Huntingtonians, in addition to 48 members and coaches of the team, went on the flight. Four of Huntington's best-known doctors and their wives were aboard. There was a city councilman, an insurance executive, an automobile dealer and a trucking company executive who was one of Huntington's most active civic workers.

Brian O'Conner, the Marshall admissions officer, decided to go along. Don Booth, who filmed all Marshall games as a hobby, was aboard. His employer, Norman Weichman of the Chematron Co., was a photo bug and went along to assist Booth in taking movies of the East Carolina game.

Athletic director Charles Kautz had been extremely cautious in arranging for the chartered jet after the Wichita State team tragedy just a few weeks earlier. He reviewed the type of contract made with Southern Airways, and found little similarity in the standards and competence of the service available. Southern was a fully qualified scheduled airline, with the most stringent of pilot and equipment regulations. The Wichita State crash involved pilots and a plane licensed only for air taxi operations, for which the equipment and pilot standards were lower than for scheduled airlines. Kautz knew about such flight operations from bad experiences during the 1969 season.

The team boarded the jet confident that they had the best airline service available. Head coach Rick Tolley had planned to take his wife, Mary Jane, with him. But their large German shepherd dog had gotten sick the day before departure, and she stayed home. Tolley, 30, a great, friendly hulk of a man towering 6-feet-2, and weighing 245 pounds, was well known as a former center and linebacker at VPI. Before coming to Marshall University as head football coach in 1969, he was an assistant coach at Wake Forest.

Another former VPI football star, two-time all American Frank Loria, 24, now one of Tolley's assistant coaches was aboard. And there was assistant coach James (Shorty) Moss, 28, who played for West Virginia University, and freshman coach Gail Parker, 23.

Assistant coaches Red Dawson and Deke Brackett drove to Greenville because they wanted to make a recruiting stop at Ferrum Junior College in southern Virginia on the way.

The breaks just didn't come that day for the Marshall team. East Carolina walked away the winner, 17-14.

In Atlanta on Friday Southern Airways Capt. Frank Abbott, 47, completed a round-trip flight to Huntsville and Dothan, Ala. He left the airport at 5:30 that afternoon and arrived home at about six o'clock. He went to bed at 9:30 p.m. and arose Saturday morning at nine.

At breakfast, Abbott discussed the charter flight to North Carolina and West Virginia with his wife, looked at a road map of the West Virginia area and asked her if she had ever been there. He left early for the airport because he wanted to do some extra checking on the weather. The rain and foggy conditions beginning to envelope West Virginia would probably make his flight to Huntington that day a marginal operation, he told his wife. Another Southern crew had flown the team to North Carolina on Friday: Abbott's flight to return them home would be his first visit to Huntington.

Abbott was one of Southern's senior pilots. He had logged 18,557 hours in the air, 2,194 of them in DC-9 jets. His copilot was to be Jerry R. Smith, 28, who had flown 5,872 hours, 1,196 of them in DC-9s.

Capt. Abbott and copilot Smith joined stewardesses Pat Vaught and Charlene Poat and charter coordinator Danny Deese at the Atlanta airport. They took off in a two-engine stretched DC-9 jet designated Southern 932, headed for Kingston, N.C., where they would pick up the team. Kingston, 30 miles from Greenville, had the 6,000 feet of runway to accommodate their aircraft: Greenville's airport runways were too short.

In the Marshall locker room after the game, sports editor Mike Brown of *The Huntington Herald Dispatch* talked with Rick Tolley and the players about the game. Everyone simply shook his head at the realization they had lost. Brown watched Tolley reach into his locker and put on his VIP class ring, which he usually removed during games. He heard coach Deke Brackett, 59, talk freshman coach Gail Parker into swapping places with him for the flight back to Huntington. The older Brackett felt that the auto ride back with Red Dawson would be extremely tiring for a man his age. So the younger Parker gave up his seat on the plane and drove back with Dawson.

Reporter Brown usually traveled with the team, as did Huntington TV sportscaster Ken Jones. But this time, Brown had driven down with his wife because they had decided to make of the trip a leisurely weekend together. As Brown and Jones gathered their belongings in the press box, Jones joked, "I'll be home by eight o'clock, and you'll still be driving."

Arthur Harris, Sr., father of a Marshall halfback, flew from his home near Passaic, N.J., to see the game and watch his son play. He discovered that, for

his return trip home, he could make better connections from Huntington than from Grenville that evening, so he asked and was permitted to join the group on the night back.

Now there were 70 passengers on Capt. Abbott's DC-9. Southern outfits the stretched version for 90 passengers, so all weight calculations showed the plane to be well within loading limits.

Southern 932 took off from Kingston at 6:38 p.m., and dinner was served.

In mid-November it's dark by six o'clock in the hills of West Virginia around Huntington. On the night of Nov. 14 there was light rain and, here and there, a patch of fog. The moisture-laden clouds hung low over the Tri-State airport. The ceiling was measured at 500 feet, with some scattered patches of low cloud 300 feet above the runway area. Visibility at the airport was five miles.

It was an hour and a half after dark when Southern 932 neared Huntington. Twenty miles from the airport, the regional air traffic control center in Indianapolis directed Capt. Abbott to descend to 5,000 feet and to contact the Huntington Approach Control operator for clearance to fly the instrument approach for landing.

At 7:23, copilot Smith confirmed the jet's descent to 5,000 feet and heard Huntington approach controller William Stiltner tell him the plane was cleared for the approach, and that "The surface winds are favoring runway 29, three five zero degrees at six. Altimeter two nine six seven. Report leaving five thousand." Copilot Smith confirmed that the plane had received the correct altimeter setting of 29.67 inches of mercury. Later analysis of the barometric altimeters showed that all the airplane's instruments had been set correctly to give them accurate readings.

At 7:24, approach controller Stiltner advised: "... the Huntington weather, three hundred scattered, measured ceiling five hundred variable (to) broken, one thousand one hundred overcast. Visibility five, light rain, fog and smoke. Ceiling ragged, variable four to six hundred."

The aircraft acknowledged receipt of the transmission and advised the controller that the approach would be made using runway 11, which had the preferred radio navigation aids and approach lights. There would be a slight breeze from the left and behind during descent and touchdown.

As the plane descended below 5,000 feet in the light rain, the air became a bit bumpy. Smith reported the altitude to Huntington approach control. One of the crew members said to the pilots on the plane's intercom, "Hope we don't have this all the way in. It's rough."

At 7:28, the jet passed over a radio beam shooting up from the ground 'northwest of the airport, and the tower was notified. Abbott was now beginning to follow procedures established by the Federal Aviation Administration for an instrument approach at Tri-State airport. The FAA publishes a special chart for each runway approved for instrument landings. Minimum altitudes and visibility are determined according to the kind and number of electronic aids installed at each airport.

The approach chart for Tri-State and the descent procedures were quite familiar to Abbott and Smith, though they had never landed there before. Southern Airways does not normally serve Huntington, but its pilots fly into many fields smaller than Tri-State with far fewer navigation aids.

Looking at his approach chart, Abbott would have noticed that Tri-State had only half of the radio guidance system used in an ILS (Instrument Landing System) approach. In addition to the bright approach lights ahead of the runway and white markings on the runway pavement, ILS runways normally have two special radio beams along the approach path to guide planes horizontally as they line up with the runway, and vertically as they descend to the proper touchdown spot. Transmitting units alongside the runways send out appropriate ILS radio beams. Huntington had the horizontal "localizer" beam but did not have the vertical "glide slope" beam.

Since there was no glide slope beam, FAA standards dictated a higher-than-usual minimum altitude safety margin until the runway or lights were sighted. This meant a pilot had to enact "missed approach" procedures—climb back up to a higher altitude and go around for another approach or fly to another airport—if he didn't see the runway at the specified minimum altitude.

As it descended to the prescribed approach altitude of 2,200 feet, a downdraft dropped Southern 932 some 200 feet. Noticing this, Abbott remarked to Smith that they must have gone through a little rain shower.

At 7:34, Abbott radioed the Tri-State tower that he was inbound over the "outer marker," a vertical radio beam 4.6 miles from the end of the runway. This meant he was lined up for the final approach.

Stiltner, in the tower with local Tri-State tower controller Herbert Howard, radioed back: "Southern 932 is cleared to land. You can advise on the lights, and the wind is now three four zero degrees, seven." This meant the plane would now have a slight cross wind of seven miles per hour coming from the left and behind.

The plane radioed, "Okay, the lights (will) be good about step three, I guess." Tower: "Roger, that's where they are with the rabbit. Advise when you want 'em cut." Copilot Smith: "Very good." This exchange called for the approach lights to be set on a brightness setting of three. The "rabbit" referred to the sequence flasher strobe lights, which seem to zip into the runway along a straight line ahead of it.

Smith's acknowledgment was the last transmission from the approaching jet. At the time there was no other air traffic to worry about. From the outer marker to the end of runway 11, the sky belonged to the chartered Southern Jet. Pilot Abbott eased his speed back to about 160 miles an hour, establishing what is known as a "rate-of-sink" glide down toward the runway. On jets, the nose is raised slightly when this type of glide is used. The FAA approach chart instructed the pilot to begin the descent 2,200 feet above sea level, which is 1,372 feet above the airport level at the outer marker. A diagram showed that the runway was 5,281 feet long and 828 feet above sea level. Also shown were high-intensity approach lights extending some 3,000 feet beyond the runway pavement for final alignment before touchdown.

Following the approach path on the chart, one may note that about 2,400 feet farther out was a tree-crested ridge marked 959 feet above sea level—or 130 feet higher than the runway a mile away.

Approach instruction directed the jet to descend no lower than 412 feet above runway level until passing over the "middle marker" radio beacon six-tenths of a mile from the runway.

Abbott told Smith he was going to adjust his descent speed reference indicator to 130 knots. Thirty seconds after the last radio exchange with the tower, Smith said on the cockpit intercom, "A thousand feet above the ground, rate and speed good." He was calling out speed and altitude readings to Abbott as the senior pilot controlled the descent. Ten seconds after this, Smith said, "Speed a little fast. Looks good, got bug and 12." This meant the plane was going 130 knots plus 12, or approximately 164 miles per hour.

Eleven seconds after this, at about 7:35, Abbott—depending on Smith to watch for the approach lights to appear ahead as they broke clear of clouds—asked, "See something?"

Smith: "No, not yet, it's beginning to light up a little bit on the ground here at eight . . . 700 feet."

Lights from houses, factories, or the runway lights could have begun to glow through the remaining overcast. Abbott continued to watch his instruments as the jet glided down.

Smith: "Bug and five." This probably meant the airspeed was now 155 miles per hour.

Again Smith: "There's your hundred above." This meant the plane was now 100 feet above the minimum descent altitude of 412 feet above the runway level. A few seconds later, one of the pilots indicated skepticism because the approach lights were not yet visible. "It'll be a missed approach." Then Smith's voice: "Four hundred." The plane was now at the minimum descent altitude. If the field were not sighted within seconds, the procedure would call for pulling up and going back for another try.

At about this time, 7:36, one of the men said what sounded like, "I see something." Then Smith said, "One hundred and 26."

Here questions arise. Did he mean 126 knots airspeed, or did he mean 126 feet above the runway altitude? If, upon reaching 400 feet, the pilots spotted the runway lights, it is possible Abbott began dropping the plane lower. If he was 126 feet above runway altitude, he was then down to treetop level as the plane crossed the dark ridge a mile from the runway.

In any case, somehow, the Southern DC-9 had descended too low.

Suddenly the lower tail of the plane raked across tall poplar and oak treetops. Another treetop clipped chunks off the radar dome in the nose as the plane passed over the ridge. Abbott shoved the throttle controls wide open. The engines began to wind up faster with their familiar, high pitched whine. Residents in near-

by houses heard the sound, as well as did Alfred Napier a 19-year-old carpenter who was driving his car up Route 75, below the plane's path.

But it was too late. The big jet lost speed and seemed to wobble over into the hollow ahead of the runway. It dropped across more trees and crossed Rte. 75 in front of Napier. Then it nosed down and rolled steeply to the right, plowing into the rising slope on the other side of the hollow. The nose and wing spars gouged a great trench. Debris cartwheeled up the hill as the entire mass exploded in a massive blast of fire. The sounds of the impact, lasting five seconds, interrupted the last word from one of the pilots on the intercom.

In the tower, Herbert Howard watched for the lights of Southern 932 to appear. A bright red glow appeared in the darkness beyond runway Eleven, but he heard nothing. Radio calls from the tower were answered by silence.

The plane's cockpit clock stopped at 7:37 p.m., as did the lives of 75 people.

Did the pilot exercise poor judgment in trying to make a long, low approach to land on a relatively short runway? Was there an engine failure? Did rain foul the altimeter system? Did the runway lights appearing briefly through patchy traces of fog and smoke play tricks on the pilots? Did lights from an oil processing plant in a low valley to the right of the approach path confuse Capt. Abbott? Or did smoke from its stacks blow into his path? These were some of the questions asked by the National Transportation Safety Board, the government agency responsible for all air-accident analyses and recommendations.

The FAA, responsible for traffic control and landing aids at Tri-State airport, was quickly criticized by Congress for failure to provide more electronic equipment, particularly a glide slope installation. Officials of the community once again raised voices for long-discussed improvement projects.

The Huntington tragedy isn't unique. It could happen in any of hundreds of U.S. localities where jet airliner traffic is increasing at a rate faster than the FAA and community leaders can cope with. There are 513 airports in the United States now served by airline planes. Only 262 of these have full instrument landing systems, including both horizontal localizer and vertical glide slope electronics. Eight others have only localizer electronics. Huntington's Tri-State airport is one of those eight. The others are at Lafayette, Ind.; Detroit City airport; Jackson, Mich.; Akron, Ohio municipal; Middletown, Ohio; Harrisburg, Pa. and Charlottesville, Va. Peculiar local terrain conditions have made glide slope installations difficult or impossible at these eight fields. Huntington would have required several million dollars worth of grading and filling of ravines before guide slope antennas could be installed.

Airliners landing at the remaining 243 U.S. airports that have no instrument landing systems at all must use far less precise approach procedures when attempting bad-weather landings. These are usually timed descents from single radio beacon stations located on or near the airports.

To what extent does this absence of equipment endanger passenger safety? The FAA says it does not at all, if minimum approach rules established by the agency are followed. Time after time, the safety board investigates an accident and finds that, at some time during the flight, some sort of rule was violated. The aircraft and pilot standards are high, maintenance is rigid, facilities on the ground are standardized, airborne procedures are proved through exhaustive tests and rehearsals. Yet, again and again, fate beats the odds and a tragedy occurs.

The solution must lie in continuing to raise the odds, in improving all the planes, runways, electronic devices and the pilots using them. A vertical glide slope device may have prevented Capt. Abbott from flying too low during his approach to Tri-State airport; but this is only speculation. At least, the odds would have been better had this sophisticated electronics device been there, and certainly Abbott's job would have been easier.

The prospects for improving the safety odds in the future are now much brighter since passage of the 1970 Airport and Airways Improvement bill by Congress. It sets up an aviation trust fund paid for by new airline passenger taxes and higher license fees and gasoline taxes on private and business aircraft. The trust fund is expected to contain \$250 million per year for allocation to airport and airways improvements.

As the legislation presently stands, 50-50 matching funds may be granted to communities for airport construction. The bulk of the trust money is slated for airports and airways used by airlines, with a smaller portion destined for grants to small community airports throughout the nation. FAA chief John Shaffer ex-

pects to allocate \$100 million between now and next July. One item in current FAA budget proposals however, has enraged both airline and general aviation interests: Included was a plan to divert almost \$9 million from airport and airways construction funds for FAA administration.

Hindsight tells us that the crash at Huntington wouldn't have happened if there had been more there to help Capt. Abbott. In addition to a glide slope beam, a longer runway at Huntington would have helped, as well as a greater awareness of air traffic growth and safety on the part of the people of southern West Virginia. A faster-moving FAA and Congress would have aided in getting the safety improvements Huntington needs.

No one will ever know exactly what Capt. Frank Abbott experienced or saw during those eternal last five seconds. But the fate of all those aboard Southern 932 awaits others when the cards are stacked wrong again at another U.S. airport.

The CHAIRMAN. Very quickly, Mr. Shaffer, you and Mr. Bowers, have had the opportunity of examining the suggested language?

Mr. SHAFFER. Yes, sir.

The CHAIRMAN. And you feel that it strengthens, complements the program in an area of the country that needs attention, and does not work, let's say, in opposition to the other program which is general in nature.

Mr. SHAFFER. It does not have a contrapurpose to other legislation. I think rather that it is complimentary, and will be very helpful. I suggest that it underscores administration policy, actually.

I really believe the President in certain of his messages to the Congress has clearly indicated the desire and intent to create, as they are identified, rural communities. I don't want the people of Huntington, W. Va., to think I regard it as a rural community, but it is certainly an area that has greater promise than has yet been fulfilled simply because it has been very difficult to get in and out of that region by any form of transportation. I think this really needs a lot of push.

The CHAIRMAN. It is certainly true what you are saying, Glenn, here has referred to the Cumberland, Md., airport, which is located across the Potomac in West Virginia. That airport is another one that is built on a hill, and all over the area there are these airports that, you know, are mountaintop or hilltop airports, with land often moved together to form a higher hill on which runways and navigation aids and approaches can be built so that we can serve our people.

Thank you, Mr. Shaffer, and thank you, Mr. Bowers. We have been helped by your counsel with us today, and for the committee and for myself as chairman, we are most appreciative.

Thank you.

Mr. SHAFFER. We certainly appreciate the support that we are getting from all of you in your respective committees not just this one. We don't want to, as I have indicated, unbalance transportation by moving air transportation too fast for the rest of the system, but we really believe that it can be shown to be very cost beneficial and the capital invested here has, we think, a very good chance for faster pay back.

This does not depreciate the contribution of the railroads and the highways. The facts simply suggest that the airplane, having come last, does not necessarily have to be "Tailend Charlie."

We believe that the airplane does contribute greatly to our society, to our mobility and this Nation's economic strength and growth.

The CHAIRMAN. Thank you again, Mr. Shaffer.

As we know, and while Mr. Shaffer and Mr. Bowers are yet with us, we consider many amendments on varying subjects as we develop the extension of the Appalachian program. My colleague, Senator Byrd of West Virginia, has had an intense interest in the proper funding of airports in the Appalachian region, and we have kept him informed on what we were thinking and doing to develop this effort within the committee.

Thank you very much.

We will now stand adjourned.

(Whereupon, at 12 noon, the committee adjourned subject to call of the Chair.)

(Additional information was supplied by Mr. Shaffer and follows:)

NOVEMBER 18, 1970.

Hon. JOHN H. SHAFFER,

*Administrator, Federal Aviation Administration, Department of Transportation,
Washington, D.C.*

DEAR MR. ADMINISTRATOR: Based on our conference today, this communication includes a request in two parts.

First, it would be appreciated if you would have a report prepared and forwarded to me as chairman of the Committee on Public Works listing the airports in the Appalachian Region and indicating the defects, if any, of each from the standpoints of (1) landing area, (2) navigational aids, (3) facilities for the processing of passengers inbound and outbound, and (4) the status of access roads from the closest primary or interstate highway to the airport. It would be helpful, too, if your report would include cost estimates (at estimated 1970 prices) of means for overcoming the deficiencies in categories (1) and (2), which come directly within the purview of FAA and which relate in a direct way to the safety of aircraft operations. Although this request has to do with airports of the Appalachian Region only at this time, please know that it is probable that our Committee and its members may wish similar data on other regions at a subsequent time.

This second part, submitted by me as a Senator from West Virginia interested in the specific problems of the airports and airport needs of the Huntington-Charleston sector, is as follows: I urge you to convene a joint conference of officials of the Central West Virginia Regional Airport Authority (operators of Kanawha Airport on the outskirts of Charleston), the Tri-State Airport (operators of Tri-State Airport in Wayne County, W.Va., near Huntington), and the Southwestern West Virginia Regional Airport Authority (planners of a proposed Midway Airport in Putnam County, W.Va., between Charleston and Huntington), and representatives of the Federal Aviation Administration. I believe much benefit would accrue to all parties concerned if such a conference were held and if its agenda would include exchange of experiences, plans (actual and tentative), and information as to their existing financial obligations, future financial needs, and potential finances available—local and Federal.

With personal esteem and appreciation, I am

Truly,

JENNINGS RANDOLPH.

DEPARTMENT OF TRANSPORTATION,
FEDERAL AVIATION ADMINISTRATION,
Washington, D.C., December 9, 1970.

Hon. JENNINGS RANDOLPH,
*U.S. Senate,
Washington, D.C.*

DEAR SENATOR RANDOLPH: This is in reply to your letter of 18 November 1970 asking for a report about the airports in the Appalachian Region. The report is enclosed. We have been able to provide detailed data on recommended development of the landing area and navigational aids for the airports in the region. Our material on facilities for processing passengers and on access roads is somewhat more limited. We hope it will serve your purpose.

At the request of Senator Byrd of West Virginia, the information in the report on landing area and navigational aids for the airports in the Appalachian Region has also been provided to the Senate Committee on Appropriations for inclusion in the hearing record of the Department of Transportation's Supplemental Appropriation Request for Fiscal Year 1971.

In your letter you urged that the Federal Aviation Administration convene a joint conference of public officials in the Huntington-Charleston region to explore airport needs and airport development problems. This proposal is a good one. It should provide the means to enable all parties to move forward with sound programs of airport development. We believe that the Governor or appropriate state representative should also be included among those who should appropriately examine airport development matters. We shall be moving forward on this proposal and be in further contact with you about the meeting.

Sincerely,

J. H. SHAFFER,
Administrator.

Enclosure.

REPORT ON THE DEVELOPMENT REQUIREMENTS OF APPALACHIAN AIRPORTS IN THE
NATIONAL AIRPORT SYSTEM

*Part I. Recommended Development (Landing Area and Navigational Aids) for
Appalachian Airports Included in the National Airport System Plan*

Contents

Attached Appendix "A" is a summary by state of the estimated cost of the development actions recommended for all Appalachian airports which are included in the National Airport System Plan.

Attached Appendix "B" details the airport development actions and estimated cost thereof for each involved airport.

APPENDIX A
DEVELOPMENT COST SUMMARY

State	Airports served by air carriers		Airports serving general aviation		State total cost
	Landing area	NAV aids	Landing area	NAV aids	
Alabama.....	\$5,743,000	\$1,153,800	\$4,541,000		\$11,437,800
Georgia.....	1,028,000	80,000	3,876,000		4,984,000
Kentucky.....	1,018,000	176,500	1,503,000		2,697,500
Maryland.....	530,000	31,500	397,000		958,500
New York.....	16,940,000	636,000	2,242,000		19,818,000
North Carolina.....	5,223,000	65,000	1,569,000		6,857,000
Ohio.....	869,000	0	716,000		1,585,000
Pennsylvania.....	30,219,000	2,050,000	9,156,000	\$224,000	41,649,000
South Carolina.....	1,193,000	80,000	530,000		1,803,000
Tennessee.....	5,610,000	440,000	3,092,000		9,142,000
Virginia.....	3,764,000	176,500	4,114,000		8,054,500
West Virginia.....	39,086,000	1,390,000	11,385,000		51,861,000
Total.....	111,223,000	6,279,300	43,121,000	224,000	160,847,300

APPENDIX B

Abbreviations used for:

Landing areas:

R/W	Runway
T/W	Taxiway
AVASI	Abbreviated Visual Approach Slope Indicator
MALS	Medium Intensity Approach Lighting System
REIL	Runway End Identifier Lights
ALS	Approach Lighting System

Navajids:

ILS -----	Instrument Landing System
MALS -----	Medium Intensity Approach Light System
ASR -----	Airport Surveillance Radar
MHW -----	Marker Beacon
VASI -----	Visual Approach Slope Indicator
DME -----	Distance Measuring Equipment

APPENDIX B

Location and landing area	Recommended development		
	Amount	Navajids	
		Projects	Amount
ALABAMA			
Airports served by air carriers:			
Anniston Municipal, Calhoun County: Land, localizer; paving, R/W 5/23 widen 5,000 by 50 feet; fire and rescue building; miscellaneous.	\$293,000	ILS	\$150,000
Birmingham Municipal, Jefferson County: Land, airport development and clear zone; paving, R/W 5/23 new 5,000 by 15 feet, R/W 18/36 extend 2,245 by 150 feet, strengthen 4,855 by 150 feet, T/W and apron; lighting, R/W 5/23 new, R/W 5/23 (existing) TDZ, - and upgrade, R/W 18/36 upgrade T/W; fire and rescue building; Miscellaneous.	4,015,000	ILS, ALS	396,200
Gladstone municipal, Etowah County: Land, clear zone; paving, strengthen T/W and apron; lighting, R/W; fire and rescue building; miscellaneous.	215,000	.....	
Huntsville, Madison County: Paving, R/W 18R/36L extend 700 by 150 feet T/W; lighting, extend R/W and T/W; miscellaneous.	392,000	ILS, ALS	231,100
Muscle Shoals, Colbert County: Land, clear zone; paving, R/W 11/29 extend 700 by 150 feet T/W and apron; lighting, R/W extend, T/W; fire and rescue building; miscellaneous.	478,000	ILS	200,000
Tuscaloosa, Van DeGraff, Tuscaloosa County: Paving, R/W 4/22 extend 1,400 by 150 feet, R/W 11/29 strengthen 4,000 by 50 feet, T/W; lighting, R/W 4/22 extend; fire and rescue building; miscellaneous.	350,000	ILS	176,500
Total air carrier	5,743,000	.....	1,153,800
Airports serving general aviation:			
Albertville-Municipals Marshall County: Land, airport development and clear zone paving, R/W 5/23 extend 500 by 75 feet, T/W and apron; lighting, R/W extend miscellaneous.	160,000		
Alexander City, Russell Field, Tallapoosa County: Land, clear zones; paving, R/W 18/36 strengthen 3500 by 75 feet, T/W; lighting, R/W extend miscellaneous.	121,000		
Centre Municipal, Cherokee County: Land, airport development and clear zone; paving, R/W 9/27 strengthen 3,300 by 60 ft, turnaround; miscellaneous.	65,000		
Clanton, Gragg, Chilton, County: Land-airport development and clear zone; paving, extend apron; lighting, R/W 8/26; miscellaneous.	82,000		
Courtland, Bay Field, Lawrence County: No recommended development, R/W 17/35, 5000 feet.			
Cullman, Folsom Field, Cullman County: Land, airport development and clear zone; paving, T/W and Apron; miscellaneous.	70,000		
Decatur, Pryor Field, Morgan County: Lighting, T/W; miscellaneous	33,000		
Fayette Municipal, Fayette County: Land, airport development and clear zone; lighting, R/W; miscellaneous.	54,000		
Fort Payne, Isbell Field, DeKalb County: Land, airport development and clear zone; paving, R/W 4/22 strengthen 3,350 by 60 feet, T/Wt and apron; lighting, miscellaneous.	75,000		
Gunther Municipal, Marshall County: Land, airport development and clear zone; paving, R/W 2/20 extend 900 by 75 feet, strengthen 3,000 by 75 feet, apron; lighting, extend R/W; miscellaneous.	107,000		
Haleyville Municipal, Winston County: Land, airport development and clear zone; paving, R/W 18/36 extend 200 by 60 feet, and strengthen 3,000 by 60 feet, T/W and apron; lighting, extend R/W; miscellaneous.	101,000		
Hamilton, Marion County, Marion County: Land, airport development and clear zone; paving, extend apron; miscellaneous.	66,000		
Hartselle, Roundtree Field, Morgan County: Paving, R/W 18/36 extend 300 by 80 feet.	15,000		
Jasper, Walker County, Walker County: Land, airport development and clear zone; paving, T/W and apron; lighting, R/W, miscellaneous.	104,000		

See footnote at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navajids	
		Projects	Amount
ALABAMA—Continued			
Airports served by air carriers—Continued			
Lanett Municipal, Chambers County: Land, airport development and clear zone; paving, R/W 8/26 extend 200 by 60 feet, strengthen 3,150 by 60 feet; lighting, R/W extend; miscellaneous.	\$54,000	-----	-----
Oneonta, Robbins Field, Blount County: Land, airport development and clear zone; paving, R/W 5/23 extend 200 by 60 feet and strengthen 3,300 by 60 feet T/W and apron; lighting, extend R/W; miscellaneous.	34,000	-----	-----
Pell City, St. Clair County, St. Clair County: Land, airport development and clear zone; paving, R/W 2/20 extend 800 by 100 feet, widen and strengthen 4,200 feet T/W; lighting, extend R/W; miscellaneous.	389,000	-----	-----
Russellville Municipal, Franklin County: Land, airport development and clear zone; lighting, R/W; miscellaneous.	49,000	-----	-----
Scottsboro Municipal, Jackson County: Land, airport development and clear zone; paving, R/W 4/22 extend 850 by 75 feet and strengthen 3,050 by 75 feet, T/W and apron; lighting, extend R/W; miscellaneous.	106,000	-----	-----
Sylacauga, Lee Merkel, Talladega County: Land, airport development and clear zone; lighting, beacon; miscellaneous.	54,000	-----	-----
Talladega Municipal, Talladega County: Lighting, beacon; miscellaneous.	39,000	-----	-----
Tallassee Municipal, Elmore County: Land, clear zone; paving, R/W 9/27 extend 640 by 75 feet and strengthen 3,160 by 75 feet; lighting, extend R/W; miscellaneous.	65,000	-----	-----
Wetumpka, Elmore Field, Elmore County: Land, airport development and clear zone; paving, R/W 9/27 extend 800 by 75 feet and strengthen 3,000 by 75 feet; lighting, plus; miscellaneous.	108,000	-----	-----
Site undecided.			
Roanoke, Randolph County: Land, airport development; paving, R/W 3,200 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	202,000	-----	-----
New airports to serve general aviation:			
Adamsville (Birmingham), Jefferson County: Land, airport development; paving, R/W NE/SW 3,900 by 75 feet, T/W and apron; lighting, R/W; miscellaneous.	302,000	-----	-----
Bessemer (Birmingham), Jefferson County: Land, airport development; paving, R/W NE/SW 4,700 by 100 feet, T/W and apron; lighting, R/W, T/W; miscellaneous.	959,000	-----	-----
Leeds (Birmingham), Jefferson County: Land, airport development; paving, R/W NE/SW 3,900 by 75 feet; lighting, R/W; miscellaneous.	299,000	-----	-----
Pinson (Birmingham), Jefferson County: Land, airport development; paving, R/W NE/SW 4,800 by 100 feet, T/W and apron; lighting, R/W; miscellaneous.	566,000	-----	-----
Warrior (Birmingham), Jefferson County: Land, airport development; paving, R/W NE/SW 3,200 by 60 feet, T/W and apron, lighting, R/W; miscellaneous.	212,000	-----	-----
Total general aviation	4,541,000	-----	-----
GEORGIA			
Airports served by air carriers:			
Rome, Russell, Floyd County: Land, airport development and clear zone; pavings, R/W 18/36 extend 2,000 by 150 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.		Localizer	
	1,028,000	-----	\$80,000
Total air carrier	1,028,000	-----	80,000
Airports serving general aviation:			
Calhoun, Tom B. David Field, Gordon County: Paving, R/W 17/35 extend 300 by 75 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.	49,000	-----	-----
Canton, Cherokee County, Cherokee County: Paving, R/W 4/22 widen 3,400 by 25 feet, T/W; lighting, R/W and T/W; miscellaneous.	69,000	-----	-----
Carrollton Municipal, Carroll County: Paving, T/W and apron; lighting, VASI, T/W and apron; miscellaneous.	225,000	-----	-----
Cedartown, Cornelius-Moore Field, Polk County: Paving, T/W and apron; lighting, R/W and T/W; miscellaneous.	78,000	-----	-----
Dalton Municipal, Whitfield: Land, airport development and clear zone; paving, R/W 13/31 extend 1,100 by 100 feet, widen 3,900 by 25 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	289,000	-----	-----
Ellijay, Gilmer County, Gilmer County: Land, airport development and clear zone; paving, R/W 3/21 extend 700 by 75 feet, widen 3,500 by 25 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	109,000	-----	-----
See footnotes at end of table.			

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navals	
		Projects	Amount
GEORGIA—Continued			
Airports serving general aviation—Continued			
Gainesville Municipal, Hall County: Land, airport development and clear zones; paving, R/W 4/22, extend 1,000 by 100 feet, reconstruct 4,000 by 100 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	\$724, 000		
Jasper, Pickens County, Pickens County: Land, airport development and clear zones; paving, R/W 1/19 3,600 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	199, 000		
Jefferson, Jackson County, Jackson County: Land, airport development and clear zones; paving, R/W 16/34, extend 900 by 100 feet, widen 4,100 by 25 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.	201, 000		
Toccoa, Toccoa-Stephens County, Stephens County: Land, airport development and clear zones; paving, R/W 2/20, extend 1,300 by 75 feet, strengthen 4,000 by 75 feet, widen 4,000 by 25 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.	478, 000		
Winder, Winder, Barrow County: Land, airport development and clear zones; paving, R/W 4/22, extend 1,500 by 100 feet, strengthen 4,600 by 100 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	519, 000		
Cartersville, Cartersville, Bartow County: Land, airport development and clear zones; paving, R/W 18/36, extend 800 by 75 feet, widen 3,200 by 15 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	144, 000		
Blairsville, Blairsville, Union County: Land, airport development and clear zones; paving, R/W 7-25, extend 600 by 75 feet, strengthen 3,200 by 75 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.			
Lawrenceville, Gwinnett County, Gwinnett County: Land, airport development and clear zones; paving, R/W 7/25, extend 2,000 by 100 feet, widen 3,000 by 40 feet, strengthen 3,000 by 60 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.	504, 000		
Site undecided.			
Cleveland, White County, White County: Land, airport development and clear zones; paving, R/W 3,500 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	183, 000		
Total general aviation	3, 876, 000		
KENTUCKY			
Airports served by air carriers:			
London, London-Cabot War Memorial, Laurel County: Land, airport development and clear zone; paving, T/W and apron; lighting, R/W and T/W, economical approach aids; miscellaneous.	1, 018, 000	1 ILS, MALS	\$176, 500
Total air carrier	1, 018, 000		176, 500
Airports serving general aviation:			
Ashland, Ashland-Boyd Co., Greenup County: Land, airport development and clear zones; paving, R/W 10/28, extend 600 by 100 feet, T/W's; lighting, extend R/W, T/W; miscellaneous.	195, 000		
Harlan, Tucker-Guthrie Memorial, Harlan County: Land, airport development; paving, R/W 8/26, extend 800 by 60 feet apron; lighting, R/W 8/26; miscellaneous.	152, 000		
Middlesboro, Middlesboro-Bell Co., Bell County: Land, airport development and clear zones; strengthen R/W 10/28, 3,630 by 75 feet, apron; miscellaneous.	75, 000		
Morehead, Morehead-Rowan Co., Rowan County: Land, airport development and clear zones; paving, R/W 5/23 extend 600 by 75 feet; lighting, R/W 5/23; miscellaneous.	63, 000		
Mt. Sterling, Mt. Sterling-Mont. Co., Montgomery County: Land, airport development and clear zones; lighting; miscellaneous.	67, 000		
Paintsville, Prestonburg A/P-Combs Field, Johnson County: No recommended development; R/W 13/31, 2,800 feet.			
Somerset, Somerset Pulaski Co., Pulaski County: Land, airport development; paving turnaround; apron; lighting; miscellaneous.	98, 000		
Stanton, Stanton Powell County: Lands, clear zones; lighting, R/W 6/24 miscellaneous.	50, 000		
West Liberty, West Liberty, Morgan County: Land-airport development and clear zones; paving R/W 7/25 extend 400 by 60 feet, lighting, R/W 7/25; miscellaneous.	84, 000		
Whitesburg, Whitesburg Municipal, Letcher County: Lighting, 17/35	18, 000		
Williamsburg, Williamsburg-Cumberland Falls, Whitley County: Land, airport development and clear zones, paving, R/W 5/23, apron; lighting, R/W 5/23, miscellaneous.	184, 000		

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navalds	
		Projects	Amount
KENTUCKY—Continued			
Airports serving general aviation—Continued			
Site undecided: Olive Hill, Olive Hill, Carter County: Land, airport; paving, R/W 2/20 extend 300 by 50 feet, widen 2,800 by 10 feet, T/W; lighting, R/W; miscellaneous.	\$90,000		
Recommended new hazard, Perry County: Land, airport development; paving, R/W 3,700 by 60 feet, T/W, apron; lighting, R/W; miscellaneous.	427,000		
Total general aviation.....	1,503,000		
MARYLAND			
Airports served by air carriers: Hagerstown Municipal, Washington County: Land, clear zones; paving, R/W 9/27 extend 900 by 150 feet, T/W; lighting, R/W and T/W; miscellaneous.	530,000	Improve ILS	\$31,500
Total air carrier.....	530,000		31,500
Airports serving general aviation:			
Cumberland Municipal, Mineral Co., W. Va.: Land, clear zones; paving, T/W and apron; lighting, T/W; miscellaneous.	332,000		
Oakland, Garrett County, Garrett County: Paving, R/W 8/26 extend 1,800 by 75 feet, strengthen 2,500 by 75 feet, T/W and apron; lighting, R/W, REIL; miscellaneous.	397,000		
Total general aviation.....	729,000		
NEW YORK			
Airports served by air carriers:			
Binghamton, Broome County: Paving, R/W 16/40 extend 1,700 by 150 feet, T/W and apron; lighting, extend R/W and T/W; miscellaneous.	3,526,000	ILS (2d).....	204,000
Elmira, Chemung County: Land, clear zone; paving, R/W 6/24 extend 1,700 by 150 feet; R/W 10/28 extend 2,200 by 150 feet; T/W; lighting, extend R/W and T/W; fire and rescue building; miscellaneous.	3,173,000		
Ithaca, Thompson County: Land, clear zone; paving, R/W 14/32 extend 1,300 by 150 feet; T/W and apron; lighting, R/W 14/32 extend, T/W; fire and rescue building; miscellaneous.	1,585,000	ILS, ¹ MALS...	216,000
Jamestown Municipal, Chautauga County: Land, clear zone; paving, R/W 7/25 widen 5,300 by 50 feet, extend 700 by 150 feet, strengthen 5,300 by 100; R/W 13/31 widen 4,500 by 50 feet, extend 1,000 by 150 feet, T/W; lighting, R/W and T/W. AVASI and REILS; miscellaneous.	3,753,000	ILS, ¹ MALS...	216,000
Orlean Municipal, Chautauga County: Land, airport development and clear zone; paving, R/W 4/22 widen 4,700 by 50 feet, extend 2,300 by 150 feet, R/W 15/33 new pave 2,500 by 50 feet, T/W and apron; lighting, R/W and T/W, REIL; fire and rescue building; miscellaneous.	4,903,000		
Total air carrier.....	16,940,000		636,000
Airports serving general aviation:			
Cortland, Cortland County, Cortland County: Land, clear zone; paving, R/W 6/24 extend 500 by 75 feet; lighting, R/W, VASI and REILS.	89,000		
Dunkirk Municipal, Chautaugua County: Land, clear zones; paving, T/W and apron; lighting, R/W and T/W, VASI and REILS; miscellaneous.	472,000		
Hornell Municipal, Steuben County: Lighting, AVASI and REILS.	10,000		
Oneonta Municipal, Otsego County: Land, clear zone; paving, R/W 6/24 extend 800 by 75 feet, T/W and apron; lighting, R/W and T/W, AVASI and REIL; miscellaneous.	751,000		
Sidney Municipal, Delaware County: Land, airport development and clear zones; paving, R/W 6/24, new 3300 by 75 feet, T/W and apron; lighting, R/W; MALS/AVASI/REILS; miscellaneous.	414,000		
Wellsville Municipal, Allegany County: Paving, T/W. Lighting, T/W; AVASI and REILS.	165,000		
Site undecided.			
Green, Green airport, Chenango County: Land, airport development and clear zones, paving, R/W NE/SW new 2,700 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	341,000		
Total general aviation.....	2,242,000		0

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navalids	
		Projects	Amount
NORTH CAROLINA			
Airport served by air carriers:			
Asheville Municipal, Buncombe County: Land, airport development and clear zone; paving, R/W 16/34 extend 2,500 by 150 feet, strengthen 6,500 by 150 feet, T/W and apron; lighting, extend R/W and T/W; fire and rescue and maintenance building; miscellaneous	\$2,678,000	DME @ ILS...	\$50,000
Winston-Salem, Smith-Reynolds, Forsyth County: Land, airport development and clear zone; paving, R/W 3/215, extend 1,061 by 150 feet R/W 15/33 strengthen 6,651 by 150 feet; T/W and apron; lighting, extend R/W, T/W; miscellaneous	2,545,000	REIL.....	15,000
Total air carrier.....	5,223,000		65,000
Airports serving general aviation:			
Elkins Municipal, Surry County: Paving, turnarounds; lighting, R/W and T/W; miscellaneous	75,000		
Morgantown, Morgantown-Lenoir, Caldwell County: Land, airport development and clear zone; paving, R/W 3/21 widen 4,000 by 25 feet, extend 1,000 by 100 feet; T/W; lighting, extend R/W, T/W; miscellaneous	305,000		
Mt Airy, Mt Airy-Surry County, Surry County: Land, airport development and clear zone; paving, R/W 18/36 extend 6,000 by 75 feet, T/W lighting, upgrade, R/W, T/W; miscellaneous	174,000		
Wilkesboro, Wilkes County, Wilkes County: Land, airport development and clear zone; paving, R/W 6/24 extend 400 by 75 feet, T/W, lighting, extend R/W, T/W; miscellaneous	212,000		
Site undecided			
Boone (P), Boone-Blowing Rock, Watauga County: Land, airport development and clear zone; paving, R/W 12/30 5,000 by 75 feet, T/W and apron; lighting, R/W; miscellaneous	803,000		
Total general aviation.....	1,569,000		
OHIO			
Airports served by air carriers:			
Portsmouth, Scioto County, Scioto County: Land, clear zone; paving, R/W 18/36 widen 4,200 by 50 feet, extend 1,200 by 150 feet, T/W and apron; lighting, extend and relocate R/W, T/W; miscellaneous	550,000		
Zanesville Municipal, Muskingum County: Land, airport development and clear zones; paving, R/W 4/22 extend 800 by 150 feet, T/W; lighting, extend R/W, T/W; miscellaneous	319,000		
Total air carrier.....	869,000		
Airports serving general aviation:			
Athens, Ohio University, Athens County: Land, airport development and clear zones; paving, R/W 6/24 extend 1,500 by 100 feet, T/W apron; lighting, R/W extend, T/W; miscellaneous	445,000		
Cambridge Municipal, Guernsey County: Land, airport development; lighting, R/W; miscellaneous	68,000		
Chillicothe, Ross County, Ross County: Land, airport development and clear zones; paving, apron extend; lighting, upgrade R/W; miscellaneous	153,000		
Coshocton, Richard Downing, Coshocton County: Land, airport development and clear zones; paving, apron and T/W; miscellaneous	50,000		
Total general aviation.....	716,000		
PENNSYLVANIA			
Airports served by air carriers:			
Bradford, Bradford International, McKean County: Land, airport development and clear zone; paving, R/W 14/32 extend 1,000 by 50 feet, R/W 5/23 extend 1,500 by 100 feet and strengthen 4,500 by 100 R/W 5/23 extend 1,500 by 100 feet and strengthen 4,500 by 100 feet, T/W apron; lighting, extend both R/W's, T/W; fire and rescue building; miscellaneous	2,158,000	Improve ILS..	1,000
DuBois, DuBois-Jefferson Co., Jefferson County: Paving, R/W 7/25 widen 5,500 by 50 feet, strengthen 4,700 by 100 feet, T/W; lighting, R/W and T/W; miscellaneous	543,000		

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navalids	Amount
Projects			
PENNSYLVANIA—Continued			
Airports served by air carriers—Continued			
Erie, Erie International, Erie County: Land, airport development and clear zone; paving, R/W 6/24 extend 1,500 by 150 feet, T/W and apron; lighting, extend R/W, T/W; fire and rescue building expanded; miscellaneous.	\$1,769,000	ILS/ALS (2d), Terminal radar.	\$1,204,000
Franklin, Chess-Lamberton, Vanango County: Land, airport development and clear zone; paving, R/W 2/20 extend 800 by 150 feet, R/W 11/29 extend 1,100 by 150 feet, widen 3,700 by 50 feet, T/W; lighting, both R/W's, T/W; fire and rescue building miscellaneous.	1,052,000	MALS, Localizer.	114,000
Hazleton Municipal, Luzerne County: Land, clear zone; paving, R/W 10/28 widen 4,900 by 50 feet, extend 887 by 150 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	1,293,000	MALS, Localizer.	114,000
Johnstown, Johnstown Cambria Co., Cambria County: Paving, R/W 15/33 extend 700 by 150 feet, R/W 5/23 extend 530 by 150 feet; lighting, extend both R/W's.	153,000	ILS, ¹ mals, VASI.	226,000
Martinsburg, Blair County, Blair County: Land, airport development and clear zone; paving, R/W 2/20 widen 5,500 by 50 feet, R/W 12/30 extend 1,000 by 100 feet, T/W; lighting, R/W and T/W; fire and rescue building, miscellaneous.	795,000	-----	-----
Phillipsburg, Mid-State, Centre County: Paving, R/W 16/34 strengthen 5,710 by 150 feet; miscellaneous.	195,000	MALS, Localized.	114,000
Pittsburg, Greater Pittsburg, Allegheny County: Land, airport development and clear zones; paving, R/W 14/32 extend 2,500 by 150 feet, extensive relocation and modernizing of T/W's and aprons. Lighting, R/W, Relocate and TDZ (10L), In-R/W, T/W; miscellaneous.	18,738,000	Improve ILS.	227,000
Wilkes-Barre, Wilkes-Barre-Scranton, Luzerne County: Land, airport development and clear zone; paving, R/W 4/22 extend 2,150 by 150 feet, strengthen 5,200 by 150 feet, T/W; lighting, extend R/W and T/W; miscellaneous.	2,666,000	VASI	18,000
Williamsport, Williamsport-Lycoming, Lycoming County: Land, airport development and clear zone; paving, R/W 9/27 extend 1,060 by 150 feet, T/W and apron; lighting, extend R/W and T/W; miscellaneous	857,000	Improve ILS, VASI.	32,000
Total air carrier	30,219,000	-----	2,050,000
Airports serving general aviation:			
Beaver Falls, Beaver County, Beaver County: Paving, apron; lighting, econ. Als; fire and rescue building, miscellaneous.	168,000	Final approach fix.	20,000
Bloomsburg Municipal, Columbus County: Land, airport development and clear zone; paving, R/W 8/26 widen 2,800 by 10 feet, extend 400 by 60 feet, T/W; lighting, R/W and T/W; miscellaneous.	145,000	-----	-----
Butler, Butler-Graham, Butler County: Land, airport development and clear zone; paving, R/W 7/25 extend 700 by 100 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	914,000	-----	-----
Connellsville, Fayette County: Land, airport development and clear zone; paving, R/W 5/23 extend 400 by 100 feet; lighting, R/W and T/W; miscellaneous.	410,000	-----	-----
Corry, Lawrence, Erie County: Land, airport development and clear zone; paving, R/W 15/33 extend 700 by 60 feet, widen 3,000 by 10 feet T/W and apron; lighting, R/W and T/W; miscellaneous.	202,000	-----	-----
Coudersport, Potato City, Potter County: Land, airport development and clear zone; paving, R/W 9/27 pave 4,000 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	317,000	-----	-----
Eagles Mere Municipal, Sullivan County: Paving, R/W 11/29 pave 3,000 by 60 feet, T/W and apron; miscellaneous.	88,000	-----	-----
Ebensburg, Cambria County: Land, airport development and clear zone; paving, R/W 6/24 widen 3,200 by 25 feet, extend 600 by 75 feet, apron; lighting, R/W; miscellaneous.	144,000	-----	-----
Embleton Municipal, Venango County: Land, airport development and clear zone; paving, R/W 3/21 pave 3,500 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	196,000	-----	-----
Greenville Municipal, Mercer County: Land, airport development and clear zone; paving, R/W 14/32 extend 700 by 75 feet, T/W; lighting, R/W and T/W; miscellaneous.	95,000	-----	-----
Indiana, Jimmy Stewart, Indiana County: Land, airport development and clear zone; paving, R/W 10/28 extend 500 by 75 feet, T/W; lighting, R/W and T/W; miscellaneous.	153,000	-----	-----
Latrobe, Westmoreland Latrobe, Westmoreland County: Land, airport development and clear zone; paving, T/W and apron; lighting, T/W; miscellaneous.	825,000	-----	-----
Mononghela, Rostraver Field, Westmoreland County: Paving, T/W and apron; lighting, T/W; miscellaneous.	204,000	-----	-----

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navalds	
		Projects	Amount
PENNSYLVANIA—Continued			
Airports serving general aviation—Continued			
Mt. Pocono, Monroe County: Land, R/W extend and clear zone; paving, R/W 13/31 extend 1,000 by 100 feet, apron and T/W; lighting, R/W and T/W; miscellaneous.	\$270,000		
New Castle Municipal, Lawrence County: Paving, T/W; lighting, T/W; miscellaneous.	95,000		
Pittsburgh, Allegheny County, Allegheny County: Paving, apron and T/W; lighting, apron and T/W, fire and rescue building, miscellaneous.	1,219,000	ILS, ALS	\$204,000
Pottsville, Joe Ferby-Schuylkill Co., Schuylkill County: No development recommended; R/W 11/29 4,600 feet.			
Punxsutawney Municipal Jefferson County: Land, airport development and clear zone; paving, R/W 7/25 extend 500 by 75 feet; lighting, R/W and T/W; miscellaneous.	92,000		
Reedsville Mifflin County, Mifflin County: Land, airport development; paving, R/W 5/23 extended 1,200 by 100 feet widen 3,200 by 25 feet, T/W; lighting, R/W; miscellaneous.	328,000		
St. Marys Municipals, Elk County: Paving, T/W; lighting, T/W; miscellaneous.	92,000		
Scranton Municipal, Lackawanna County: Land, clear zone; paving, R/W 1/19 extend 515 by 100 feet; lighting, R/W; miscellaneous.	140,000		
Selingsgrove, Penn Valley, Snyder County: Land, R/W extend and clear zone; paving, T/W and apron; lighting, T/W; miscellaneous.	164,000		
Somerset, Somerset County, Somerset County: Paving, R/W 6/24 strengthen 3,500 by 75 feet, T/W and apron; lighting, T/W; miscellaneous.	142,000		
State College, University Park, Centre County: Land, R/W extend and clear zone; paving, R/W 6/24 widen 3,000 by 25 feet, extend 1,550 by 75 feet, T/W; lighting, R/W; miscellaneous.	270,000		
Titusville, Crawford County: Paving, T/W; lighting, T/W; miscellaneous.	130,000		
Towanda, Bradford County: No development recommended, pending new airport to serve Bradford County.			
Washington, Washington County, Washington County: Land, airport development and clear zone; paving, R/W 9/27 extend 400 by 100 feet; lighting, R/W; miscellaneous.	211,000		
Waynesburg, Greene County, Greene County: Land, airport development and clear zone; paving, R/W 8/26 extend 500 by 75 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	337,000		
Wilkes-Barre, Wilkes-Barre Wyo. Va., Luzerne County: Land, airport development and clear zone; paving, R/W 6/24 strengthen 3,415 by 75 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	177,000		
Site undecided for general aviation:			
Mt. Pleasant, Mt. Pleasant Scottdale, Fayette County (P): Land, airport; paving, R/W 3,400 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	231,000		
Mt. Union (P), Huntington County: Land, airport; paving, R/W 3,200 by 50 feet, T/W and apron; lighting, R/W; miscellaneous.	241,000		
Wellsboro, Grand Union State, Tioga: Land, airport development and clear zone, paving, R/W 9/27, pave 3,100 by 50 feet, T/W and apron; lighting, R/W; miscellaneous.	162,000		
Recommended new for general aviation:			
Clearfield, Clearfield County: Land, airport development; paving, R/W E-W 3,500 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	361,000		
Emporium, Cameron: Land, airport development; paving, R/W 3,300 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	322,000		
Warren, Warren County: Land airport development; paving, R/W 3,400 by 60 feet, T/W and apron; lighting, R/W; miscellaneous.	311,000		
Total for general aviation	9,156,000		224,000
SOUTH CAROLINA			
Airports served by air carriers:			
Anderson, Anderson County, Anderson County: Paving, strengthen; R/W, T/W, apron, T/W; lighting, T/W; miscellaneous.	203,000	Localizer	80,000
Greer, Greenville-Spartanburg, Greenville-Spartanburg County: Land, clear zone, paving, extend R/W 3/21 1,100 by 50 feet and T/W 1,400 by 75 feet, apron; lighting, extend R/W and T/W, apron; miscellaneous.	990,000		
Total air carrier	1,193,000		80,000

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navajids	
		Projects	Amount
SOUTH CAROLINA—Continued			
Airports serving general aviation:			
Greenville, municipal, downtown Greenville County: Land, clear zones, paving, T/W and apron; lighting, rehabilitated, R/W, T/W, AVASI and REIL; fire and rescue; miscellaneous.	\$330,000		
Spartanburg, Spartanburg downtown Memorial, Spartanburg County: Paving, T/W and apron; lighting, T/W and MALS.	200,000		
Total general aviation	530,000		
TENNESSEE			
Airports served by air carriers:			
Bristol, Tri-City Municipal, Sullivan County: Land, airport development and clear zones; paving, R/W 4/22 extend 3,000 by 150 feet, T/W, apron; lighting R/W 4/22; miscellaneous.	1,008,000		
Chattanooga, Lovell Field, Hamilton County: Land, airport development; paving, R/W 2/20 extend 2,500 by 150 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	2,250,000	ILS, VASI	\$220,000
Crossville, Memorial, Cumberland County: Paving, T/W; lighting, AVASI; miscellaneous.	67,000	VASI	20,000
Knoxville, McGhee Tyson, Blount County: Land, airport development and clear zones; paving, R/W 4L/22R extend 1,500 by 150 feet, T/W and apron; lighting, R/W 4L/22R Q and TDZ, T/W; miscellaneous.	2,285,000	ILS	200,000
Total, air carrier	5,610,000		440,000
Airports serving general aviation:			
Athens, McMinn County, McMinn County: Land, airport development and clear zones; paving, R/W 2/20 extend 800 by 100 feet, strengthen 4,000 by 75 feet, widen 4,000 by 25 feet, T/W and apron; lighting, extend R/W; AVASI; miscellaneous.	290,000		
Cleveland, Hardwick Field, Bradley County: Land, airport development and clear zones; paving, R/W 3/21 extend 1,500 by 100 feet, widen 3,300 by 25 feet, T/W and apron; lighting, extend R/W; AVASI; miscellaneous.	289,000		
Cookeville, Putnam County, Putnam County: Land, airport development and clear zones; paving, R/W 17/35 extend 1,400 by 100 feet; widen 3,800 by 25 feet; strengthen 3,800 by 75 feet; T/W and apron; lighting, extend R/W; miscellaneous.	326,000		
Copperhill, Martin Campbell Field, Polk County: Lighting, R/W; AVASI.	31,000		
Dayton, Mark Anton, Rhea County: Lighting, R/W	23,000		
Gainsboro, Jackson County: Lighting, AVASI	8,000		
Greeneville, Municipal, Greene County: Lighting, AVASI	8,000		
Jacksboro, Campbell County, Campbell County: Lighting, R/W; AVASI.	31,000		
Jamestown, Municipal, Fentress County: Lighting, R/W; AVASI	31,000		
Jasper, Marion County, Marion County: Lighting, R/W	24,000		
Knoxville, Knoxville-Downtown Isl., Knox County: Paving, apron; lighting, AVASI; REIL; buildings, fire and rescue.	90,000		
Lafayette Municipal, Macon County: Land, airport development; paving, R/W 18/36 extend 600 by 75 feet; miscellaneous.	37,000		
Livingston Municipal, Overton County: Paving, R/W 3/21 strengthen 3,000 by 50 feet, T/W and apron; miscellaneous.	26,000		
Madisonville, Monroe County, Monroe County: Land, airport development and clear zones; paving, R/W 5/23, extend 500 by 75 feet, apron; lighting, R/W; miscellaneous.	66,000		
McMinnville, Warren County Memorial, Warren County: Land, airport development and clear zone; paving, R/W 5/33 extend 300 by 100 feet, widen 4,500 by 25 feet; lighting, extend R/W; AVASI.	195,000		
Morristown, Moore-Murrell Field, Hamblen County: Land, airport development and clear zones; paving, R/W 5/23 extend 1,300 by 100 feet, widen 4,000 by 25 feet, strengthen 4,000 by 75 feet; T/W and apron; lighting, extend R/W, AVASI; miscellaneous.	513,000		
Oneida, Scott Municipal, Scott County: Land, airport development and clear zones; paving, R/W 5/23 extend 700 by 75 feet, apron; lighting, R/W.	82,000		
Rockwood, Fowler Field, Morgan County: Lighting, AVASI	8,000		
Rodgersville, Hawkins County, Hawkins County: Lighting, R/W, AVASI.	32,000		
Sevierville, Sevier County, Sevier County: Land, airport development and clear zones, paving, R/W 10/28 extend 500 by 75 feet; T/W; Lighting, extend R/W; miscellaneous.	106,000		

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Navais Projects	Amount
TENNESSEE—Continued			
Airports serving general aviation—Continued			
Winchester, Municipal, Franklin County: Lighting, R/W.....	\$23,000	.....	.....
Site undecided:			
Tullahoma, William Northern, Coffee County: Land, airport develop- ment.	435,000	.....	.....
New airports:			
Oak Ridge, Anderson County: Land airport development; paving, runway 4,000 by 75 feet, T/W and apron; lighting, R/W; miscella- neous.	418,000	.....	.....
VIRGINIA			
Airports served by air carriers:			
Dublin, New River Valley, Pulaski County: Paving, T/W's and apron; lighting, T/W.	994,000	ILS.....	\$176,500
Hot Springs, Ingalls Field, Bath County: Land, airport development and clear zones; paving, construction R/W 11/29 4,700 by 100 feet, R/W 6/24 strengthen 5,600 by 100 feet, T/W and apron; lighting, R/W 11/29, T/W; fire and rescue; miscellaneous.	2,770,000	.....	.....
Total, air carrier.....	3,764,000	.....	176,500
Airports serving general aviation; miscellaneous.			
Blacksburg, VPI Airport, Montgomery County: Land, clear zones; paving, R/W 12/30, extend 1,000 by 100 feet, strengthen 4,200 by 100 feet, T/W; lighting, extend R/W, T/W.	629,000	.....	.....
Grundy Municipal, Buchanan County: Paving, apron; lighting, up- grade R/W, REIL; miscellaneous.	36,000	.....	.....
Marion-Wytheville, Mountain Empire, Smyth County: Land, airport development and clear zones; paving, R/W 8/26, extend 4,000 by 75 feet, strengthen 2,000 by 75 feet, T/W and apron; lighting, ex- tend R/W; T/W, REIL, MALS; miscellaneous.	791,000 791,000	..... .....	.....
Pennington Gap, Lee County, Lee County: Land, airport development and clear zones; paving, R/W 7/25 extend 750 by 60 feet, widen 2,250 by 10 feet, apron; lighting, R/W; miscellaneous.	200,000	.....	.....
Wise, Lonesome Pine, Wise County: Land, airport development and clear zones; paving, R/W 6/24 strengthen 4,700 by 75 feet, widen 4,700 by 25 feet, extend 1,400 by 100 feet, T/W and apron; lighting, R/W, T/W, REIL, MALS; miscellaneous.	1,728,000	.....	.....
New airport to serve general aviation:			
Tazewell, New Tazewell: Land, airport development; paving, R/W 3,500 by 50 feet, T/W and apron; lighting, R/W, T/W; miscellaneous.	730,000	.....	.....
Total, general aviation.....	4,114,000	.....	.....
WEST VIRGINIA			
Airports served by air carriers:			
Beckley, Raleigh County Memorial, Raleigh County: Land, airport Development and clear zone; Paving, new R/W 5,100 by 150 feet, strengthen R/W 10-28, 100 by 5,000 feet, T/W and apron; lighting, New R/W, T/W; miscellaneous.	2,306,000	ILS, ¹ MALS...	177,000
Bluefield, Mercer County, Mercer County: Land, airport develop- ment and clear zones; paving, R/W 4/22 widen 4,743 by 50 feet, extend 1,957 by 100 feet, strengthen 4,730 by 100 feet, T/W and apron; lighting, extend R/W, T/W; miscellaneous.	4,771,000	ILS, ¹ MALS, VASI.	233,000
Charleston, Kanawha, Kanawha County: Paving, extend R/W 5/23 900 by 150 feet, T/W; lighting, extend R/W; T/W; miscellaneous.	5,400,000	Replace ASR and add radar beacon.	256,000
Charleston-Huntington, New, Putnam County: Land, airport develop- ment and clear zones; paving, R/W 1/15 8,300 by 150 feet, T/W and apron; lighting, R/W, T/W; buildings, fire and rescue; miscel- laneous.	15,427,000	.....	.....
Clarksburg, Benedum, Harrison County: Paving, strengthen R/W 3/21 5,200 by 150 feet, T/W and apron; lighting, REIL R/W 3 and 21, VASI R/W3.	245,000	ILS, ^{1,2} MALS...	80,000
Elkins, Elkins-Randolph Co., Randolph County: No development recommended R/W 13/31 4,542 feet.	0	Localizer, Market.	118,000
Huntington, Tristate, Wayne County: Land, airport development and clear zones; paving, R/W 11/29 extend 1,220 by 150 feet, strengthen 4,980 by 150 feet, T/W and Apron; lighting, R/W 11/29 extend, T/W AVASI, REIL; Miscellaneous.	5,475,000	ILS, ^{1,2} MALS, VAS.	92,000
Martinsburg Municipal, Berkeley County: Paving, extend T/W and apron; lighting, T/W; MALS; AVASI	120,000	MALS.....	28,000
Morgantown Municipal, Monongalia County: Paving, extend T/W and apron; lighting, T/W, REILS, VASK buildings, Fire and rescue; miscellaneous.	412,000	ILS ¹ , MALS...	177,000

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Nav aids	
		Projects	Amount
WEST VIRGINIA—Continued			
Airports served by air carriers—Cont.			
Parkersburg, Wood County, Wood County: Land, airport development and clear zones; paving, R/W 3 extend 1,200 by 150 feet, T/W, apron; lighting, R/W 3 extend, T/W; miscellaneous.	\$3,167,000	ILS, ¹ MALS...	\$221,000
Wheeling, Wheeling-Ohio Co., Brook and Ohio Counties: Land, airport development clear zones; paving, R/W 3/21 extend 400 by 150 feet, R/W 16/34 widen 4,500 by 150 feet, T/W and apron; lighting, R/W 3/21 extend, T/W, miscellaneous.	1,763,000	Improve ILS...	8,000
Total air carrier.....	39,086,000		1,390,000
Airports serving general aviation:			
Lewisburg, Greenbrier Valley, Greenbrier County: Land-airport Development and clear zone, Paving, R/W 4/22 extend 2,000 by 150, strengthen 6,000 by 150 feet; T/W and apron lighting, extend R/W and T/W; REIL; AVASI; MALS.	2,668,000		
Pineville, Wyoming County, Wyoming: Paving, R/W 7/25 extend 500 by 60 feet; T/W and apron lighting, extend R/W; REILS; AVASI; MALS; miscellaneous.	410,000		
Point Pleasant, Mason County, Mason County: Paving, R/W 7/25 extend 800 by 75 feet, widen 3,200 by 15 feet, strengthen 3,200 by 60 feet; T/W and apron lighting, extend R/W; AVASI; MALS, REILS; miscellaneous.	410,000		
Summersville, Summersville, Nicholas: No development recommended R/W 4-22 3,000 by 50 feet.			
Sutton, Braxton County: Land-airport Development and clear zones, paving R/W and extend 550 by 60 feet, T/W and apron lighting, extend R/W; T/W; AVASI; MALS; miscellaneous.	236,000		
Weirton, Weirton Hancock and Brook Counties: and Land-airport Development and clear zones paving, R/W 4/22 3,400 by 60 feet; T/W and apron lighting, runway; miscellaneous.	334,000		
Williamson, Mingo County, Mingo County: Paving, R/W 5/23 extend 600 by 60 feet, T/W and apron lighting, extend R/W; AVASI; REILS; MALS; miscellaneous.	256,000		
Recommended.....			
New airports.....			
Davis, Tucker County: Land-airport development, paving runway, 5,000 by 75 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	1,080,000		
Fairmont, Marion County: Land-airport development, paving runway, 3,400 by 60 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	829,000		
Fayetteville, Fayette County: Land-airport development, paving runway, 3,800 by 60 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	726,000		
Recommended new airports serving general aviation:			
Keyser, Mineral County: Land-airport development, paving runway, 3,200 by 60 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	461,000		
Logan, Logan County: Land-airport development, paving runway, 3,600 by 60 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	555,000		
Moundsville, Marshall County: Land-airport development, paving runway, 3,500 by 60 feet; T/W and apron lighting, R/W and T/W; miscellaneous.	718,000		
Pipetown, Summers County: Land, airport development; paving, runway 3,800 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	477,000		
Ripley, Jackson County: Land, airport development; paving, runway 3,300 by 75 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	330,000		
Spencer, Roane County: Land, airport development, paving, runway 2,800 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	627,000		
Site undecided:			
New Martinsville, Civil Air Patrol, Wetzel County: Land, airport development and clear zones; paving, runway 2,700 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	210,000		
Petersburg Municipal, Grant County: Land, clear zones; paving, runway 2,800 by 60 feet, T/W and apron; lighting, R/W and T/W.	164,000		

See footnotes at end of table.

APPENDIX B—Continued

Location and landing area	Recommended development		
	Amount	Nav aids	
		Projects	Amount
WEST VIRGINIA—Continued			
Site undecided—Continued			
Richwood Municipal, Nicholas County: Land, airport development and clear zones; paving, runway 3,300 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	\$446,000		
Welch Municipal, McDowell County: Land, airport development and clear zones; paving, runway 3,200 by 60 feet, T/W and apron; lighting, R/W and T/W; miscellaneous.	398,000		
Total, general aviation	11,385,000		

¹ Programed 1971.² Localizer only.

Part II. Facilities for the Processing of Passengers Inbound and Outbound at Appalachian Airports Served by Certified Air Carriers

While the National Airport System Planning process being implemented in response to Sec. 12 of the Airport and Airway Development Act of 1970 will in the future identify the terminal area development needed at airports comprising the national system, such needed development has not been identified in the past Federal planning process. As the result, the terminal area development needs of Appalachian airports served by air carriers, with but two exceptions, are unknown. The exceptions are Pittsburgh, Pennsylvania, and Asheville, North Carolina.

Despite the foregoing deficiency, the 1968 financial survey of air carrier airports by the Senate Aviation Subcommittee of its Committee on Commerce (Senate Report No. 1355) provides some insight as to the scope and probable costs for correcting terminal area deficiencies at Appalachian airports served by air carriers.

Senate survey

Attached Appendix "A" lists the 45 Appalachian airports served by air carriers in rank order of annual enplaning passengers.

The 1968 Senate determined the following to be the mean capital requirement needed to correct deficiencies within air carrier airports' terminal areas, depending upon their respective levels of annual enplaned passengers.

Annual enplaned passenger activity level:	5-year capital need (1969-73)
0 to 10,000	\$300,000
10,000 to 50,000	815,000
50,000 to 250,000	3,700,000
250,000 to 1,000,000	15,600,000
Over 1,000,000	97,600,000

Application of the foregoing to the listing of Appalachian airports contained in Appendix "A" permits broad generalizations that the terminal area deficiencies at the 17 airports generating less than 10,000 enplaned passengers annually are probably minor in character; that at the 14 generating between 10,000 and 50,000, terminal area deficiencies are probably moderate in character; that at the 10 generating between 50,000 and 250,000, terminal area deficiencies likely range upward to moderately severe; and, that at the 3 top activity airports, the terminal area deficiencies likely range from moderately severe to very severe.

While the foregoing is imprecise, some credence to the foregoing is afforded by the knowledge of actual needs at Pittsburgh, Pennsylvania, and Asheville, North Carolina.

PITTSBURGH, PA. TERMINAL AREA NEEDS¹

A. Short Range (by 1970):

1. Construction of temporary finger additions to existing terminal. Estimated cost \$2-3.5 million.

¹ Terminal area development actions as recommended in Airport Master Plans developed by the Air Transport Association of America.

2. Relocate Post Office, REA and freight facilities from ground level of existing terminal. Estimated cost \$.5-1.0 million.
- B. Long Range (by mid 1970's) : 1. Construct new terminal and related facilities. Estimated cost \$70-90 million.

ASHVILLE, N.C. TERMINAL AREA NEEDS¹

- A. Short Range (by 1970) :
1. Develop 20-30 acres of land for terminal complex expansion. Estimated cost \$.5-.8 million.
 2. Enclose existing concourse. Estimated cost \$50-75,000.
- B. Long-range (1975-80) : 1. Construct additional terminal facilities and expand gate positions from existing 5 to 14. Estimated cost \$2-3 million.

APPENDIX A

Appalachian airports served by air carriers (rank order of enplaned passengers)

	<i>Enplaned passengers (12 months ended June 30, 1969)</i>
1. Pittsburgh, Pa.....	2, 827, 800
2. Birmingham, Ala.....	442, 800
3. Knoxville, Tenn.....	355, 200
4. Charleston, W. Va.....	227, 600
5. Huntsville, Ala.....	219, 600
6. Chattanooga, Tenn.....	188, 800
7. Greenville-Spartansburg, S.C.....	154, 600
8. Bristol, Tenn.....	147, 500
9. Asheville, N.C.....	122, 200
10. Binghamton, N.Y.....	120, 700
11. Elmira, N.Y.....	113, 700
12. Wilkes-Barre, Pa.....	112, 800
13. Erie, Pa.....	112, 100
14. Huntington, W. Va.....	87, 200
15. Parkersburg, W. Va.....	49, 000
16. Ithaca, N.Y.....	46, 600
17. Williamsport, Pa.....	44, 900
18. Winston-Salem, N.C.....	44, 800
19. Clarksburg, W. Va.....	32, 500
20. Bradford, Pa.....	28, 400
21. Morgantown, W. Va.....	22, 400
22. Muscle Shoals, W. Va.....	21, 700
23. Phillipsburg, Pa.....	20, 500
24. Anniston, Ala.....	19, 200
25. Bluefield, W. Va.....	18, 500
26. Jamestown, N.Y.....	18, 400
27. Tuscaloosa, Ala.....	14, 800
28. Martinsburg, Pa.....	13, 700
29. Johnstown, Pa.....	9, 900
30. Beckley, W. Va.....	9, 000
31. Gadsden, Ala.....	8, 100
32. Hot Springs, Va.....	4, 240
33. Wheeling, W. Va.....	3, 800
34. Anderson, S.C.....	3, 530
35. Dubois, Pa.....	3, 190
36. Dublin, Va.....	2, 690
37. Elkins, W. Va.....	2, 400
38. London, Ky.....	2, 350
39. Crossville, Tenn.....	1, 290
40. Zanesville, Ohio.....	1, 070
41. Martinsburg, W. Va.....	1, 030
42. Rome, Ga.....	980
43. Olean, N.Y.....	890
44. Portsmouth, Ohio.....	770
45. Hazleton, Pa.....	180

¹ Terminal area development actions as recommended in Airport Master Plans developed by the Air Transport Association of America.

Part III. Status of Access Roads at Appalachian Airports From the Closest Primary or Interstate Highway to the Airport

General

There are no known major access problems currently associated with any airport in the Appalachian region. However, it is probable that minor access road improvements, such as widening of existing roadways, could enhance the airport's operational efficiency at select locations.

Federal effort to identify and alleviate access road constraints to airports has been concentrated upon the major airports serving large and medium air traffic hubs. There are three such hubs—Pittsburgh, Pennsylvania (L), Birmingham, Alabama (M) and Knoxville, Tennessee (M)—in the Appalachian region. The current access situation for each is as follows:

Pittsburgh, Pennsylvania

Greater Pittsburgh Airport is about 17.0 miles from the Central business district. The enroute travel speed during the airport's peak hour periods approximates 50 MPH. The airport's current expansion program is dovetailed to the completion of the Interstate system in the airport's vicinity. That action together with other airport access road improvements which are underway should perpetuate the airport's current access evaluation rating of good.

Birmingham, Alabama

Birmingham Municipal Airport is about 5.1 miles from the Central business district. The average enroute time is about 15 minutes during peak hours and the average travel speed about 20-25 MPH. Its current Federal evaluation rating is adequate.

The travel delays which are occurring are due to truck routes crossing the access route and because of a narrowing of the roadway leading directly to the airport.

Knoxville, Tennessee

McGhee-Tyson Municipal is about 14.2 miles from the Central business district. The average enroute time is about 18 minutes during peak hour and the average travel speed about 45 MPH. Its current Federal evaluation rating is good. Uncoordinated traffic signals within the Central business district were observed by the Federal survey to be the only cause of access delay.

IMPROVEMENTS UNDERWAY OR COMPLETED AT OTHER APPALACHIAN LOCATIONS—BY APPALACHIAN REGIONAL COMMISSION

1. *Gainesville, Georgia.*—Construction of a 0.4 mile airport access road from F-13 loop to Ridge Road (\$130,000—ARC #06560R).
2. *Harlan, Kentucky.*—Construction of a 1.3 mile airport access road from U.S. 119 to airport (\$132,430—ARC #08930R).
3. *Hagerstown, Maryland.*—Construction of a 0.33 mile airport access road from U.S. Route 11N to airport (\$74,533—ARC #0466—Rev.).
4. *Coshocton, Ohio.*—Construction of a 0.8 mile airport access road from U.S. 36 to airport (\$92,000—ARC #1556).
5. *Huntington, West Virginia.*—Construction of a 1.2 mile airport access road from U.S. Route 75 to airport (\$2,367,160—ARC #1560).
6. *Gallipolis, Ohio.*—Construction of a 0.27 mile airport industrial park access road from U.S. 35 and 7 to airport (\$13,000—ARC #1010).

