REPORT

OF THE

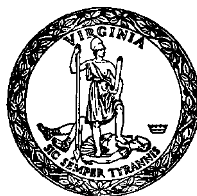
COMMISSION TO STUDY THE DESIRABILITY AND FEASIBILITY OF ACQUISITION OF DULLES INTERNATIONAL AIRPORT AND WASHINGTON NATIONAL AIRPORT BY THE COMMONWEALTH

To

THE GOVERNOR

And

THE GENERAL ASSEMBLY OF VIRGINIA



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1972

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REPORT OF THE COMMISSION TO STUDY THE DESIRABILITY AND FEASIBILITY OF THE DULLES INTERNATIONAL AND WASHINGTON NATIONAL AIRPORTS' ACQUISITION BY THE COMMONWEALTH

to

The Governor and The General Assembly of Virginia

Richmond, Virginia

To: HONORABLE LINWOOD HOLTON, *Governor of Virginia*

and

THE GENERAL ASSEMBLY OF VIRGINIA

I. INTRODUCTION

While the 1971 Special Session of the General Assembly was in progress, the President of the United States, in his annual budget message to the Congress, proposed that the Dulles International and Washington National Airports be sold in order to promote economy in the operation of the federal government. Faced with the possibility of Virginia's coming into possession of these two tremendous transportation facilities, the General Assembly determined it to be in the best interests of the Commonwealth that a thorough study be conducted by a special Commission of the desirability and feasibility of their acquisition. To this end Senate Joint Resolution No. 15 was passed, the text of which is as follows:

Whereas, the President of the United States has proposed that Dulles International Airport in Fairfax and Loudoun Counties and Washington National Airport in Arlington County be sold to and operated by an entity other than a federal agency; and

Whereas, the proper development of and operation of these airport facilities is important to the air transportation system and economy of the Commonwealth of Virginia; and

Whereas, the proper use and development of these facilities are of utmost importance and interest to the people of Northern Virginia; now, therefore, be it

Resolved by the Senate of Virginia, the House of Delegates concurring, That a commission is hereby created to study the desirability and feasibility of the Commonwealth of Virginia, through the Virginia Airports Authority or some other regional or interstate authority acquiring and operating the Dulles International Airport and the Washington National Airport, and the related effect of such action on the Friendship Airport in Maryland and its possible acquisition or operation. The Commission shall consist of eleven members, four of whom shall be appointed by the President of the Senate, only two of which may be from the membership thereof; five of whom shall be appointed by the Speaker of the House of Delegates, only three of which may be from the

membership thereof; and two members from the State at large to be appointed by the Governor. The Commission shall select its chairman. The Commission shall study all aspects of the problem. Members of the Commission shall receive no compensation for their services, but shall be reimbursed for their actual and necessary expenses incurred in the performance of their duties, for which, and for such professional and secretarial services as may be requisite, there is hereby appropriated from the contingent fund of the General Assembly the sum of fifteen thousand dollars. The Commission shall complete its study and report to the Governor and the General Assembly no later than December one, nineteen hundred seventy-one.

Pursuant to the appointive power granted by this Resolution, Governor Holton selected Martin L. Schnider, President, Northern Virginia Savings and Loan Association, Arlington, and Marvin M. Stanley, Associate Dean, School of Business Administration, College of William and Mary, Williamsburg, to serve on the Commission. The Speaker of the House of Delegates appointed Joseph R. Ambrose, Professor of Government, Christopher Newport College, Gloucester Point; Delegate Allen H. Harrison, Jr., Arlington; Alan F. Kiepper, City Manager, Richmond; Delegate Stanley A. Owens, Manassas; and Delegate James M. Thomson, Alexandria. The President of the Senate appointed Senator Leroy S. Bendheim, Alexandria; Senator Adelard L. Brault, Fairfax; Irby N. Hollans, Jr., Assistant Executive Director, Virginia State Chamber of Commerce, Richmond; and B. W. Spiller, President, WCVE-TV, Richmond.

The Commission elected Senator Brault to serve as Chairman and Mr. Owens to serve as Vice-Chairman. The Virginia Advisory Legislative Council and the Division of Statutory Research and Drafting made staff and facilities available to carry out this study; Laurens Sartoris and Roger C. Wiley, Jr., being assigned as counsel to assist the members and the study group.

From the outset the Commission was aware that the problems before it were complex in nature and that the advice of experts should be sought. Consideration was given first to financial and economic aspects. Here assistance was solicited from the Division of State Planning and Community Affairs. This Division responded to the Commission's need by preparing a preliminary analysis of the financial feasibility of acquiring the national capital airports (see Appendix). Robert J. Griffis, Chief, Office of Research and Information, John L. Knapp, Deputy Director, and Richard D. Brown, an Economist, were responsible for the report's preparation. The Commission wishes to extend, hereby, its expression of appreciation to these gentlemen and their staff for the invaluable contribution which the analysis represents toward the successful carrying forth of the charge put to it by the General Assembly. Based on the conclusions set forth in the analysis it appears that it may be financially feasible for the Commonwealth to acquire the two air facilities whether or not federal aid be provided and whether such acquisition be unilateral or multilateral, i.e. in conjunction with other jurisdictions, the District of Columbia and Maryland.

One of the Commission's several meetings was scheduled for two in the District of Columbia and Northern Virginia area. This meeting provided the members with an opportunity to conduct discussions with various administrative officials of the Federal Aviation Administration, which operates the national capital airports, and to tour the two facilities. The magnitude of the airports' operations was impressed upon all minds present. Unfortunately the federal representatives were prohibited from divulging any information relative to the terms under which the airports would be sold or to whom sale might be made. All that is known is that a bill is in preparation in Washington to authorize the disposition of the airports by the Federal Aviation Administration. Ignorance of the contents of such a bill has thwarted the Commission's efforts to reach ultimate conclusions.

Having determined that acquisition probably is feasible from a financial standpoint, it is the Commission's view that further study must be devoted to the multiplicity of other aspects yet unconsidered. With both time and funds in short supply, many questions have been left unanswered.

II. RECOMMENDATION

The Commission should be continued in existence by appropriate action of the General Assembly and sufficient funds should be appropriated to sustain the expense of retaining a highly skilled staff of consultants and other professionals to assist in fully carrying out the Commission's charge in the best interests of the Commonwealth.

III. REASONS FOR RECOMMENDATION

As is observed in this Report's Introduction, the Commission has been unsuccessful in obtaining any definitive indication from the Federal Aviation Administration or any other federal agency as to the plans for the disposition of the Dulles International and Washington National Airports. Consequently, the Commission's best efforts have gone forth in basic ignorance of ultimate decisions regarding the airports' fates. Under such circumstances it has been impossible to formulate conclusions suitable as a basis for directing the Commonwealth's course of action.

The financial feasibility study prepared by the Division of State Planning and Community Affairs, of necessity is based on a variety of assumptions subject to dispute until some form of verification becomes available. These assumptions include the following:

(1) Acquisition cost for Dulles and National Airports would be $105 million.

(2) Capital outlays and improvements at the airports over the next decade would correspond to those in the airports' master plans.

(3) Costs of depreciation and the depreciation reserve would be carried within the substantial capital outlay figures.

(4) Federal aid funds for the airports will continue to be available on the same basis as currently.

(5) Passenger and freight forecasts by the Federal Aviation Administration will hold true in future years.

(6) The administrative costs of the operation of the airports by a new owner cannot be determined.

(7) The most likely method to finance the airports' acquisition and capital outlays would be through 40-year revenue bonds at 6.3 percent annual interest for the acquisition and 20-year revenue bonds at 6 percent annual interest for the capital outlays. Clearly, there are variable factors which cannot be predicted with certainty regardless of the airports' ownership, but were the terms for disposition of the airports known the element of doubt surrounding these assumptions would be reduced.

Certainly the financial feasibility report has stimulated the interest of the Commission. If the airports can be acquired under reasonable financial terms with benefits redounding to the citizens of the Commonwealth, it would seem that acquisition would be the proper action to take. But there are other considerations to be made beyond the cost of acquisition. These include in depth consideration of the economics of ownership and operation, federal policy and regulations, various technical matters of airports and access thereto, environmental aspects, airport organization and administration and alternative

financial programs. There are additional matters for study which will come to light as investigation is made of these projected study topics.

A survey was conducted to determine if competent professional assistance is available to aid the Commission in the study of matters other than financial. A variety of consulting firms familiar with air transportation and airport problems were solicited for preliminary proposals. A vigorous response ensued, indicating in detail further matters for consideration. It is estimated that adequate treatment will require an amount approaching one hundred fifty thousand dollars.

The acquisition of Washington National and Dulles International airports is part of the broader problem of the total Virginia transportation system, in all modes. It is the major current economic decision facing air transportation development in Virginia. Virginia's primary concern should be how these airports may foster long-term economic development of the Commonwealth. Acquisition in large part is dependent upon the terms of the final federal disposition legislation. Accordingly, it is recommended that no action be taken to effect major restructuring of Virginia aviation policy, insofar as it affects common carrier air transportation, until the matter of airport acquisition, with its long-range impact on the Commonwealth's common carrier transportation system, is resolved.

We feel that Virginia would be ill-advised to launch into a vast airport venture without ample consideration of every known factor suitable for study. To date, there has been neither sufficient time nor funds available to allow for the full examination of the acquisition problems. Effort, time and funds are needed. We are more than willing to supply the first two of these if the General Assembly will appropriate the last.

Our work is not completed and cannot be completed until such time as the federal government is willing to make its plans known. When such plans do become known, Virginia should have before it all the relevant factual information to permit the making of intelligent decisions. We wish to amass and analyze such information.

There should also be an informed panel of individuals capable of maintaining an effective liaison between the Commonwealth and the federal administration. We believe that our work over the past several months has qualified us for this task.

We trust that it shall be the pleasure of the General Assembly to continue the Commission for another year for the above-stated reasons by approving the appended resolution.

Respectfully submitted,

ADELARD L. BRAULT, *Chairman*

STANLEY A. OWENS, *Vice-Chairman*

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MARTIN L. SCHNIDER

B. W. SPILLER

MARVIN M. STANLEY

JAMES M. THOMSON

SENATE JOINT RESOLUTION NO. ____

Continuing the Commission to Study the Desirability and Feasibility of the Acquisition of the Washington National and Dulles International Airports by the Commonwealth.

Whereas, the General Assembly by Resolution in 1971 did create a Commission to study the desirability and feasibility of the acquisition of the Washington National and Dulles International Airports by the Commonwealth; and

Whereas, such Commission since its creation has vigorously carried out its charge; and

Whereas, due to the magnitude and complexity of the matters considered by the Commission and the unavailability of needed information such Commission has not been able to formulate ultimate conclusions to be presented to the Governor and this General Assembly; now, therefore, be it

Resolved by the Senate of Virginia, the House of Delegates concurring, That the above referenced Commission created by Senate Joint Resolution No. 15 of the 1971 Special Session of the General Assembly be continued and titled the Airports' Acquisition Study Commission. The present members shall continue as members of the Commission; provided, that if any member be unwilling or unable to serve, or for any other reason a vacancy occurs, his successor shall be appointed in the same manner as the original appointment was made; and be it

Resolved, further, That such Commission shall continue its study of the desirability and feasibility of the Commonwealth's acquiring and operating, through an intrastate or interstate authority, the Dulles International Airport and the Washington National Airport, and the related effect of such action on the Friendship Airport in Maryland and its possible acquisition or operation; and, be it

Resolved, finally, That the members of the Commission shall receive no compensation for their services, but shall be reimbursed for their actual and necessary expenses incurred in the performance of their duties, for which, and for such professional and secretarial services as may be requisite, there is hereby appropriated from the contingent fund of the General Assembly a sum sufficient, not to exceed one hundred fifty thousand dollars. The Commission shall complete its study and report to the Governor and the General Assembly no later than December one, nineteen hundred seventy-three.

A REPORT ON THE FINANCIAL FEASIBILITY OF ACQUIRING THE NATIONAL CAPITAL AIRPORTS

Prepared for the Airports Acquisition Study Commission
by the Office of Research and Information
Division of State Planning and Community Affairs

November 1971

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INTRODUCTION

This report was prepared at the request of the Virginia Airports Acquisition Study Commission by the Office of Research and Information of the Division of State Planning and Community Affairs (DSPCA).

The project was under the direct supervision of Robert J. Griffis, Chief, Office of Research and Information DSPCA and the program design was developed by Dr. John L. Knapp, Deputy Director, DSPCA. Mr. Richard D. Brown, Economist in the Office of Research and Information provided valuable assistance in assembling and developing data.

A REPORT ON THE FINANCIAL FEASIBILITY OF ACQUIRING THE NATIONAL CAPITAL AIRPORTS

Purpose and Outline of Report

This report is intended to focus attention on the most significant factors that should be considered with regard to the acquisition of Washington National and Dulles International Airports by the Commonwealth of Virginia or an instrument of the Commonwealth. Consideration was also given to the possibility of including Baltimore's Friendship Airport in the acquisition arrangements.

The financial implications of (1) acquiring Dulles and National Airports and (2) acquiring Dulles, National, and Friendship Airports were investigated. No consideration was given to the administrative mechanism which would operate the airports if acquired although it had to be assumed that if Friendship Airport were part of the acquisition, a tri-state authority would be involved.

In investigating the financial implications of the airports' acquisition, four major elements relating to the financial feasibility of the acquisition were considered: (1) the acquisition price, methods of financing the acquisition, and estimated debt service costs of the acquisition; (2) the projected operating revenues of the airports based upon passenger and freight forecasts provided by the Federal Aviation Administration; (3) the estimated federal aid monies which could reasonably be expected to accrue to the airports under non-federal ownership and operation; and (4) the estimated capital outlays and improvement costs that would be necessary at the airports over the next decade. The impact of each of these elements was considered separately and then combined to determine the overall profit prospects, rate of return, costs of financing, the break-even purchase price for the airports' acquisition, and the financial feasibility of acquiring the airports. In addition to the financial implications, the report also investigated the question of providing improved ground transportation to Dulles Airport and between Dulles and National Airports and briefly covered other questions which the potential acquirer of the airports would have to consider.

Assumptions

In order to conduct a meaningful investigation into the financial feasibility of the airports' acquisition and complete this report, it was necessary to make several assumptions—some of which may prove to be incorrect at a later date.

First, it was assumed that the acquisition cost of Dulles and Washington National Airports would be $105 million—the price indicated in the President's budget message. However, the sale price of these airports will be set by Congress and may differ substantially from this figure. For Friendship Airport we have assumed an acquisition cost of $20 million which represents a rough estimate of the depreciated value of the airport. This figure may also prove to be incorrect.

Second, we have assumed that capital outlays and improvements at the airports over the next decade would correspond to those included in the airports' master plans as we have been able to determine them. The figures used were $150 million for Washington National, $70 million for Dulles, and $30 million for Friendship (a figure obtained from the Director of the Friendship Airport Authority). These figures may prove to be incorrect also, since the acquirer of the airports may wish to defer, cancel, or substitute certain of the capital

outlays and improvements. However, we do feel that if the forecasts made by F.A.A. are to be accomplished, then substantial capital outlay and improvement expenditures will be required.

Third, we have assumed that the costs of depreciation and the depreciation reserve would be carried within the substantial capital outlay figures and thus have not set up a separate depreciation reserve fund in our calculations.

Fourth, we have assumed that federal aid funds for the airports will continue to be available on the same basis as currently.

Fifth, we have assumed that the passenger and freight forecasts by F.A.A. will hold true in future years.

Sixth, we have not dealt with the possible administrative structure or the costs thereof in the operation of the airports by the acquirer and have not considered these administrative costs in our calculations.

Seventh, based on the Commonwealth's current fiscal outlook and the current bond market situation, it was assumed that the most likely method to finance the airports' acquisition and capital outlays was through 40-year revenue bonds at 6.3 percent annual interest for the acquisition and 20-year revenue bonds at 6 percent annual interest for the capital outlays which represented the least cost alternatives. It was further assumed that the acquisition and capital debt service costs would be allocated on an equal annual basis over the life of the bonds.

Financial Implications

Should Virginia decide to act on the proposed sale of Dulles and National Airports, a number of financial questions would be raised. The major variables which would have to be considered are the costs of acquiring the airports and the methods of financing the acquisition; projected operating revenues of the airports; the amount of federal aid that would be received; and the additional outlays that would be required for capital improvements. These factors are discussed below with regard to two alternative plans for acquisition.

PLAN A—THE PURCHASE OF DULLES AND NATIONAL AIRPORTS BY THE COMMONWEALTH OF VIRGINIA

The Costs of Acquisition and Methods of Financing

Before Virginia could hope to purchase Dulles and National Airports, a means of financing the acquisition would have to be found. Assuming that Congress would agree to sell the airports for $105 million, the price indicated in the President's budget message, two sources of potential funds would exist. The state could elect to issue revenue bonds secured by the net income of the airports or it could choose to float general obligation bonds backed by the full faith and credit of the Commonwealth.[1]

A comparison of the alternatives indicates that revenue bonds would be the more desirable approach. First, before any general obligation borrowing can take place, the demands set forth in the revised Constitution must be met. These require that the issue be approved by a majority of the General Assembly and by a majority of voters in a referendum. It is questionable whether the General Assembly members and the State's voters would approve a bond issue for airports in a certain region of the State.

Secondly, according to differing interpretations of the Constitution, projections have shown that the general obligation borrowing capacity for the next biennium could range between $82.1 million and $163.1 million.[1] Thus, if the airports' acquisition were financed by this means, a substantial amount, if not all, of the available funds from this source would be used. In addition, this would occur at a time when large outlays in the area of education, public welfare, etc. are going to be required of the State.

Finally, general obligation borrowing for the airports' acquisition would create additional debt service costs that would have to be paid from general fund revenues. Since current projections show that general fund expenditures will exceed revenues for the next biennium,[2] it is questionable whether sufficient funds would be available for this purpose.

Based upon the above considerations, it was assumed that the issuance of revenue bonds would be the most likely method of financing the airports' acquisition. This approach was investigated, and it was found that 40-year bonds could be issued which would carry a 6.3 percent annual rate of interest. As indicated in Table A.1, assuming an acquisition cost of $105 million and an equalized annual debt service cost, the annual debt service outlays required would be $7,248,000.

Projected Operating Revenues

At the present time, operating revenues for National and Dulles Airports are $13,726,000. These exceed operating expenditures by $4,107,000 (see Table A.2). When allowances are made for federal mark-offs of depreciation and

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[1] Although the federal government could provide some means for financing the acquisition, this alternative is not analyzed, since it would be subject to negotiation.

[1] These projections were made by the staff of the Revenue Resources and Economic Study Commission and are based on provisions in the *Constitution of Virginia,* Article X, Section 9(b). For details see *Fiscal Prospects and Alternatives: A Staff Report to the Revenue Resources and Economic Study Commission* (Richmond, 1971), pp. 222-224.

[2] *Ibid.*, pp. 207-222.

interest,[1] there is a net loss of $2,161,000. This gap, however, is expected to be reduced according to budget estimates for fiscal years 1970-71 and 1971-72.

Should the state decide to purchase the two airports, any net operating revenues could be applied to debt service and capital outlays. FAA projections, based on passenger forecasts (see Tables A.2 and A.3), show that these will grow by 123 percent from $6,651,000 in fiscal year 1972-73 to $14,861,000 in fiscal year 1974-75. Thus, if the airports were acquired at the beginning of fiscal 1972-73, a substantial proportion of costs could be covered by operating revenues.

Federal Aid

Under the Airports Development and Planning Act, the federal government provides $250 million annually to aid airports. These funds are distributed in the following manner:

> 1/3 or $83.3 millions to the states based on population (Virginia's share of this total is $1,389,000).
>
> 1/3 to the Department of Transportation's discretionary fund.
>
> 1/3 to eligible sponsors of air carrier airports based on the ratio of the number of domestic enplaned passengers at that airport to the total number of enplaned passengers nationally.

According to the above formula, if Virginia purchased the National Capital Airports, it would receive no new aid from the 1/3 portion going to the states. On the other hand, because of acquisition, the state could expect additional revenues from the allocations made to eligible sponsors.[1] Based on Federal Aviation Administration projections of the proportion of enplaned passengers at National and Dulles Airports to those enplaned nationally (see Table A.4), federal aid would amount to approximately $3 million annually through fiscal year 1975-76.

Capital Outlays

According to Federal Aviation Administration estimates, projected capital outlays for the two airports total approximately $220 million ($150 million for National and $70 for Dulles) over the next decade. On a straightline annual average, this would amount to $22 million a year. We have assumed that this amount would be sufficient to provide for both new construction and a reserve for depreciation.

To examine the effect of capital outlays on the projected cash flow from operations, we analyzed both the best possible and the worst possible set of conditions. In the best situation, we assumed that 50 percent of the capital outlays for the airports would be funded by federal aid. This is the maximum amount that could be provided from the Department of Transportation's discretionary fund for eligible projects. Under the worst set of circumstances, we assumed that no additional federal aid would be supplied. The state's share in each case is assumed to be financed by revenue bonds at 6 percent interest.[2]

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[1] Federal mark-offs for depreciation and interest are bookkeeping entries kept by the Treasury.

[1] The state might also get additional aid from the discretionary fund. This amount, however, cannot be determined.

[2] This rate is consistent with the rate which the market is currently demanding on a 20-year issue of this type.

Under either set of constraints, the incremental revenues that would be earned by the airports would cover the costs of acquiring and operating the airports as well as meeting estimated capital outlay and improvement costs. However, as shown in Table II, the margin of error for the projections is slim ($9.2 to $18.9 million over the next four years). In this regard, perhaps it should be pointed out that F.A.A. projections for fiscal year 1970, which were drawn up on the same basis, tended to understate operating income. On the other hand, in this analysis we assumed no change in the structure of costs given a transfer of ownership. This may not be the case especially as far as administrative costs are concerned.

TABLE I.--PROJECTED OPERATING CASH FLOW STATEMENT FOR WASHINGTON NATIONAL AND DULLES INTERNATIONAL AIRPORTS IF PURCHASED BY VIRGINIA AT THE BEGINNING OF FISCAL YEAR 1972-73
(Thousand of Dollars)

Cash Flow	FEDERAL OWNERSHIP Estimated[a]	VIRGINIA OWNERSHIP Projected[b]				Total of Projections	Present Value at 8 Percent Discount Rate
	1971-72	1972-73	1973-74	1974-75	1975-76		
Operating Income[c]	$5,208	$6,651	$10,784	$12,897	$14,861	$45,193	$36,565
Less: Debt Service Costs (Acquistion)	...[d]	7,248[e]	7,284	7,248	7,248	28,992	24,006
Operating Profit or (Loss)	5,208	(-597)	3,536	5,649	7,613	16,201	12,559
Plus: Federal Aid[f]	...	3,175	3,125	3,034	3,000	12,334	10,232
Cash Flow Available for Capital Outlays	$5,208	$2,578	$6,661	$8,683	$10,613	$28,535	$22,791

a/ Estimated finances for fiscal year 1971-72 were derived from the National Capital Airports' budget submission to Congress.

b/ Projections for fiscal years 1972-73 to 1975-76 show sources and uses of funds assuming both airports were bought for $105 million at the beginning of the period.

c/ Operating income equals all revenues minus operating expenses other than depreciation and debt service costs.

d/ As long as the airports are under federal control, debt service costs are bookkeeping entries for the Treasury and do not involve cash flows.

e/ Debt service for acquisition of the airports assuming 40 revenue bonds can be floated at 6.3 percent interest. Amounts do not include the additional costs that would be incurred if capital outlays were financed from borrowing.

f/ Includes only that proportion of ADAP annual funds going to eligible sponsors of air carrier airports based on ratio of the number of enplaned passengers at that airport to the total enplaned passengers nationally.

Sources: Department of Transportation, Federal Aviation Administration, Federal Funds Budget for Fiscal Year 1972, pp. 723-726; Department of Transportation; Federal Aviation Administration, Summary of Annual Financial Results of Washington National and Dulles International Airports (1963-1969 with Forecasts Through 1976); Department of Transportation, Federal Aviation Administration, Washington National and Dulles International Airport Forecast (Washington: Office of Aviation Economics, 1970).

TABLE II.--THE EFFECT OF CAPITAL OUTLAY ON THE PROJECTED OPERATING CASH FLOW OF WASHINGTON NATIONAL AND DULLES INTERNATIONAL AIRPORTS
(Thousands of Dollars)

Fiscal Year	Projected Cash Flows	Capital Outlays (State Share)	Debt Service[a] on Capital Outlays	Net Cash Flow
		With Maximum Federal Aid		
1972-73	$ 2,578	$11,000	$ 967	$ 1,611
1973-74	6,661	11,000	1,934	4,727
1974-75	8,683	11,000	2,901	5,782
1975-76	10,613	11,000	3,868	6,745
Total	$28,535	$44,000	$ 9,670	$18,865
Present Value of Cash Flows at 8 Percent Discount Rate $15,093				
		With No Federal Aid		
1972-73	$ 2,578	$22,000	$ 1,925	$ 653
1973-74	6,661	22,000	3,870	2,791
1974-75	8,683	22,000	5,805	2,878
1975-76	10,613	22,000	7,740	2,873
Total	$28,535	$88,000	$19,350	$ 9,195
Present Value of Cash Flows at 8 Percent Discount Rate $7,395				

a/ Assuming that the state could float 20 year revenue bonds at 6 percent interest each year and that a constant amount would be allocated for debt service on each issue.

Profit Prospects, Rate of Return, and Costs of Financing

If Virginia were to purchase the National Capital Airports for $105 million at the beginning of fiscal year 1972-73, the foregoing analysis has indicated that operating revenues would be sufficient to cover the debt service costs of acquisition and of capital outlays. Another way of looking at the airports' profitability, however, is to measure the net rate of benefit that would accrue to the state. This is computed in three steps. First, the rate of return on the acquisition of Dulles and National Airports is calculated by dividing the average annual cash inflows of the investment by the average amount invested. This computation is shown in Table A.5 for two sets of circumstances with regard to federal aid for capital outlays. Second, the cost of financing Dulles and National Airports is computed by dividing the average annual debt service cost by the average amount borrowed during the period covered by the projections. This calculation is shown in Table A.6. Finally, the net rate of benefit that accrues to the state is derived by taking the difference between the rate of return and the costs of financing the acquisition. As shown below, this measure also demonstrates that the airports would be slightly profitable provided F.A.A. passenger and freight forecasts are accurate and our assumptions concerning the terms of sale, capital outlays, federal aid, and bond costs are valid.

TABLE III.--THE NET EFFECT OF AN ACQUISITION OF DULLES AND NATIONAL AIRPORTS

Net Effect of Acquisition with Maximum Federal Aid for Capital Outlays	
Average annual rate of return on airports	11.32%
Less: Average annual cost of financing the airports	7.61%
Average annual rate of benefit	3.71%

Net Effect of Acquisition with no Additional Federal Aid for Capital Outlays	
Average annual rate of return on airports	9.65%
Less: Average annual cost of financing the airports	8.11%
Average annual rate of benefit	1.54%

The Break-Even Purchase Prices of Dulles and National Airports

Based on our projections of operating income, federal aid, and debt service costs on capital outlays, the following amounts would be available from operations at Dulles and National Airports to finance a revenue bond issue.

TABLE IV.--MAXIMUM AMOUNT AVAILABLE TO SERVICE REVENUE BONDS FOR ACQUISITION OF DULLES AND NATIONAL AIRPORTS
(Thousands of Dollars)

Assuming Maximum Federal Aid For Capital Outlays		Assuming No Federal Aid For Capital Outlays	
Fiscal Year	Amount	Fiscal Year	Amount
1972-73	$ 8,859	1972-73	$ 7,901
1973-74	11,975	1973-74	10,039
1974-75	13,030	1974-75	10,126
1975-76	13,993	1975-76	10,121
Total	$47,857	Total	$38,187

Assuming that 40 year revenue bonds could be floated at 6.3 percent interest with equal annual outlays for debt service costs over the life of the bonds, the state could afford to pay $173.3 million with maximum federal aid for capital outlays or $138.3 million with no federal aid for capital outlays before the airports would become a less than break-even operation over the next four fiscal years. Yet, to get a break-even operation in every fiscal year, starting with 1972-73, the state could only afford to purchase the airports for $128.3 million given maximum federal aid for capital outlays or $114.4 million with no additional federal funds. These calculations are shown in Table V.

TABLE V.--THE BREAK-EVEN PURCHASE PRICES OF DULLES AND NATIONAL AIRPORTS
(Thousands of Dollars)

A. Purchase the Airports for $173.3 Million, With Maximum Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 8,859	$11,975	$13,030	$13,993	$47,857
Debt service on $173.3 million of revenue bonds at 6.3% interest	11,962	11,962	11,962	11,962	47,848
Net Cash Flow	$-3,103	$ 13	$ 1,068	$ 2,031	$ 9

Break-even here

B. Purchase the Airports for $128.3 Million, With Maximum Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 8,859	$11,975	$13,030	$13,993	$47,857
Debt service on $128.3 million of revenue bonds at 6.3% interest	8,856	8,856	8,856	8,856	35,424
Net Cash Flow	$ 3	$ 3,119	$ 4,174	$ 5,137	$12,433

Break-even here

C. Purchase the Airports for $138.3 Million, With no Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 7,901	$10,039	$10,126	$10,121	$38,187
Debt service on $138.3 million of revenue bonds at 6.3% interest	9,546	9,546	9,546	9,546	38,184
Net Cash Flow	$-1,645	$ 493	$ 580	$ 575	$ 3

Break-even here

D. Purchase the Airports for $114.4 Million, With no Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 7,901	$10,039	$10,126	$10,121	$38,187
Debt service on $114.4 million of revenue bonds at 6.3% interest	7,896	7,896	7,896	7,896	31,584
Net Cash Flow	$ 5	$ 2,143	$ 2,230	$ 2,225	$ 6,603

Break-even here

The above analysis presents the expected break-even purchase prices for the two airports under the extreme cases of maximum federal aid for capital outlays and no federal aid for capital outlays, and it has not allowed for any possible error or deviation in the F.A.A. passenger, freight, and revenue forecasts. In the next section, an analysis is made of expected break-even points under varying federal aid assumptions and with allowance for possible error in the F.A.A. forecasts.

A Decision Tree Analysis of Alternative Break-Even Points

In studying the financial feasibility of the airports' acquisition, we have for the most part presented extreme positions or relied completely on the accuracy of forecasts made by others. In reality, however, it is unlikely that the extreme alternatives will result or that the forecasts will prove absolutely accurate. Therefore, in this section we would like to introduce certain probable alternatives into our analysis and trace through the effects of these events on the financial feasibility of the airports' acquisition. The two major areas of concern are the extreme positions presented with regard to federal aid for capital outlays and the margin for error in the F.A.A. passenger and freight forecasts which are used as a base for projecting the operating revenues of the airports.

To indicate how any variation in these two factors would affect the break-even price of the airports, we make use of a Decision Tree Diagram. This model, presented in Table VI, shows the consequences of possible events that could take place once a decision is made. To read the chart, one must start to the left where a decision is made and work through the branches of the tree to the right where the outcome of that division is influenced by a sequence of events. In this case, should a decision be made to acquire Dulles and National Airports, the maximum price at which these airports could be bought and still have a break-even operation in fiscal year 1972-73 will be influenced first by the amount of federal aid received for capital outlays. Federal aid from the Department of Transportation's discretionary fund in turn could range anywhere from 0 to 50 percent of capital expenditures. We conceptualize this unknown by drawing five branches out from the trunk of the tree to represent approximate levels of funding that might occur (10%, 20%, 30%, 40%, and 50%).

Next, we consider the degree of accuracy in the projections of operating income. According to F.A.A. personnel, passenger projections for the Washington-Baltimore Area should have at least a 95 percent degree of accuracy, since in recent years they have been within a ±5 percent degree of error. Based on this assertion, we believe that the operating income projections should have at least a 90 percent degree of accuracy. Thus, we draw branches on the tree representing the possibilities that operating income is 10 percent higher than the projections, 10 percent lower than the projections, or that there is no appreciable error in the projections. These stem out from the former branches to show that the occurrence of the second set of events is independent of the first. That is, the projections of operating income may or may not vary despite what happens with respect to federal aid for capital outlays and vice versa.

After drawing all the combinations of alternatives for different amounts of federal aid for capital outlays and operating income projections, the branches of the tree show fifteen probable outcomes that could result from a decision to purchase the airports. By calculating the maximum amount of funds that would be available to service revenue bonds at 6.3 percent interest under each alternative, we were able to figure out the largest amount of debt that could be floated to purchase the airports. This figure ranged from $104.8 million to $137.9 million.

TABLE VI.--DECISION TREE SHOWING THE DIFFERENT BREAK-EVEN PURCHASE PRICES OF DULLES AND NATIONAL AIRPORTS GIVEN ALTERNATIVE EVENTS WITH RESPECT TO OPERATING INCOME PROJECTIONS AND FEDERAL AID FOR CAPITAL OUTLAYS

Decision	Possible Events		Maximum Price At Which Airports Could Be Bought To Have a Break-Even Operation in Fiscal Year 1972-73[a] (Millions of Dollars)	Total Net Cash Flow of Airports Over the Next Four Fiscal Years If Purchased at Break-Even Price[b] (Millions of Dollars)
Acquire Both Airports Outright	and receive 50% of capital outlays funded through federal aid (maximum)	with actual operating income 10% higher than projections	$ 137.9	$ +14.3
		with no error in operating income projections	128.3	+12.4
		with actual operating income 10% lower than projections	118.7	+10.6
	and receive 40% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	135.1	+13.1
		with no error in operating income projections	125.5	+11.3
		with actual operating income 10% lower than projections	115.9	+9.4
	and receive 30% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	132.3	+12.0
		with no error in operating income projections	122.7	+10.1
		with actual operating income 10% lower than projections	113.1	+8.2
	and receive 20% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	129.5	+10.8
		with no error in operating income projections	119.9	+8.9
		with actual operating income 10% lower than projections	110.2	+7.1
	and receive 10% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	126.7	+9.6
		with no error in operating income projections	117.1	+7.8
		with actual operating income 10% lower than projections	107.5	+5.9
	and receive no federal aid for capital outlays	with actual operating income 10% higher than projections	124.1	+8.4
		with no error in operating income projections	114.4	+6.6
		with actual operating income 10% lower than projections	104.8	+4.7

Exhibit: Range in break-even purchase prices $104.8 million to $137.9 million.

a/ The maximum price at which the airports could be purchased to have a break-even operation in fiscal year 1972-73 is calculated by computing the amount of funds that would be available in 1972-73 to finance revenue bonds given the occurrence of each event, and then by figuring out the largest amount of revenue bonds that could be serviced by those funds. In making this calculation, all assumptions with respect to interest and maturity on the revenue bonds (this is true of both revenue bonds for acquisition and for capital outlays) plus the projections of federal aid going to eligible sponsors of air carrier airports (based on the ratio of the number of enplaned passengers at that airport to the total of enplaned passengers nationally) are the same as those spelled out earlier in this study.

b/ If the airports are purchased at the break-even price for fiscal year 1972-73, our projections show that profits will result in the next three fiscal years. The amounts shown here are the cumulative total of those profits.

PLAN B—PARTICIPATION IN A REGIONAL OR TRI-STATE AUTHORITY WHICH WOULD OPERATE DULLES, NATIONAL, AND FRIENDSHIP AIRPORTS

The Costs of Acquisition

Should the state join in a regional or tri-state compact which would create an authority to operate the National Capital Airports plus Friendship International Airport, two possible options exist. First, if the authority were given the opportunity to purchase the airports, annual debt service on revenue bonds, assuming a purchase price equal to the current depreciated cost of the airports ($125 million), would be $8,628,000 (see Table B.1). Second, if the authority were permitted to purchase Dulles and National but only to lease Friendship,[1] annual outlays, assuming lease payments equal to those currently being charged the Friendship Airports Authority, would be $8,648,000.[2] Since the cost difference in these two options is insignificant, we have assumed that annual outlays for an authority to operate the airports should be in the neighborhood of $8,640,000.

Projected Operating Revenues

For the period covering September 1, 1970, to June 30, 1971, funds provided by operations at Friendship totaled $228,134.[3] Using this as a base, we projected future operating income from passenger forecasts provided by the F.A.A. These projections, shown in Table B.2, were then added to those made for National and Dulles in the preceding analysis. Total projected operating revenues for the three airports are shown below.

PROJECTED OPERATING INCOME FOR NATIONAL, DULLES, AND FRIENDSHIP
(Thousands of Dollars)

Fiscal Year	*Amount*
1971-72	$ 5,540
1972-73	7,030
1973-74	11,208
1974-75	13,373
1975-76	15,395
Total	$52,546

Federal Aid

If a tri-state authority were set up to operate Dulles, National, and Friendship, it could collect all federal funds going to these airports from Section II of the Airport Development and Planning legislation. Based on F.A.A. projections of the Washington-Baltimore area share of continental U. S. enplaned passengers (Table B.3), this would amount to approximately $4 million annually through the 1970's.

[1] The City of Baltimore currently leases Friendship and has not expressed a desire to sell it.

[2] At present, the Friendship International Airports Authority leases the airport for $1.4 million a year. If this amount is added to the cost of debt service on revenue bonds to acquire Dulles and National (see Table A.1), the sum is $8,648 thousand.

[3] This amount includes net income plus charges against net income not requiring funds (i.e., depreciation and amortization).

Capital Outlays

According to information from the Friendship International Airport Authority, capital outlays for that airport should amount to $30 million over the next ten years. If this figure is added to the $220 million needed at Dulles and National, total requirements for the three airports would be $250 million. Assuming that the capital outlay funds are allocated at the rate of $25 million per year and given a continuation of federal aid at current levels, the airports' operating revenues would be sufficient to cover acquisition debt service costs, operations costs, and capital outlay debt service costs no matter what level of aid was received from the Department of Transportation's discretionary fund (see Tables VII and VIII).

TABLE VII.--PROJECTED OPERATING CASH FLOW FOR NATIONAL, DULLES, AND FRIENDSHIP AIRPORTS IF OPERATED BY A REGIONAL AUTHORITY
(Thousands of Dollars)

	Fiscal Years					
	1972-73	1973-74	1974-75	1975-76	Total of Projections	Present Value at 8 Percent Discount Rate
Operating income[a/]	$ 7,030	$11,208	$13,373	$15,395	$47,006	$38,050
Less: Acquisition cost[b/]	8,640	8,640	8,640	8,640	34,560	28,616
Operating profit or(loss)	(-1,610)	2,568	4,733	6,755	12,446	9,434
Plus: Federal aid[c/]	4,017	4,033	4,025	4,050	16,125	13.349
Cash flow available for capital outlays	$ 2,407	$ 6,601	$ 8,758	$10,805	$28,571	$22,783

a/ Operating income equals all revenues minus operating expenses other than depreciation, debt service costs, and lease payments.

b/ This is the amount that would be needed to service revenue bonds and to meet lease payments.

c/ Includes only that proportion of ADAP annual funds going to eligible sponsors of air carrier airports based on the ratio of the number of enplaned passengers at that airport to the total enplaned passengers nationally.

Sources: Department of Transportation, Federal Aviation Administration, Summary of Annual Financial Results of Washington National and Dulles International Airports (1963-1969) with Forecasts Through 1976; Department of Transportation, Federal Aviation Administration, Washington National and Dulles International Airport Forecast, Fiscal Years 1971-1980 (Washington: Office of Aviation Economics, 1970); Friendship International Airports Authority, Financial Statements and Schedules. June 30. 1971.

TABLE VIII.--THE EFFECT OF CAPITAL OUTLAYS ON THE PROJECTED OPERATING CASH FLOW OF NATIONAL, DULLES, AND FRIENDSHIP AIRPORTS
(Thousands of Dollars)

Fiscal Year	Projected Cash Flows	Capital Outlays (State Share)	Debt Service[a/] on Capital Outlays	Net Cash Flow
		With Maximum Federal Aid		
1972-73	$ 2,407	$ 12,500	$ 1,099	$ 1,308
1973-74	6,601	12,500	2,198	4,403
1974-75	8,758	12,500	3,297	5,461
1975-76	10,805	12,500	4,396	6,409
Total	$28,571	$ 50,000	$10,990	$17,581
Present Value of Cash Flow at 8 Percent Discount Rate $14,032				
		With No Federal Aid		
1972-73	$ 2,407	$ 25,000	$ 2,198	$ 209
1973-74	6,601	25,000	4,396	2,205
1974-75	8,758	25,000	6,594	2,164
1975-76	10,805	25,000	8,792	2,013
Total	$28,571	$100,000	$21,980	$ 6,591
Present Value of Cash Flow at 8 Percent Discount Rate $5,282				

a/ Assuming that the state could float 20 year revenue bonds at 6 percent interest each year and that a constant amount would be allocated for debt service on each issue.

Profit Prospects, Rate of Return, and Costs of Financing

If Virginia were to join a pact which would set up a tri-state authority to operate Dulles, National, and Friendship at the beginning of fiscal year 1972-73, and if that authority were permitted either to purchase all three airports for $125 million or to purchase Dulles and National for $105 million and to lease Friendship for $1.4 million annually, our analysis shows that operations would provide net revenues after paying acquisition costs (see Table VII). Moreover, given our assumptions for capital improvements borrowing, this income would be sufficient to pay all debt service costs of capital outlays (see Table VIII). Therefore, within the limitations of our assumptions and the degree of accuracy in our projections, it seems that the regional authority approach would be profitable. To measure how profitable, the rate of return for the authority and the costs of financing the authority can be compared as was done in the previous analysis. This computation, presented below, is based on the rate of return and the costs of financing calculations shown in Tables B.4 and B.5.

TABLE IX.--THE NET EFFECT OF SETTING UP A TRI-STATE AUTHORITY TO OPERATE DULLES, NATIONAL, AND FRIENDSHIP AIRPORTS
(Thousands of Dollars)

Net Effect of Setting Up a Tri-State Authority With Maximum Federal Aid for Capital Outlays	
Average annual rate of return on airports	10.52%
Less: Average annual cost of financing the airports	7.59%
Average annual rate of benefit	2.93%

Net Effect of Setting Up a Tri-State Authority With No Federal Aid for Capital Outlays	
Average annual rate of return on airports	9.02%
Less: Average annual cost of financing the airports	8.08%
Average annual rate of benefit	0.94%

The Break-Even Acquisition Costs of Dulles, National, and Friendship Airports

If a regional or tri-state authority were set up, our projections show that the following amounts would be available from operations to acquire Dulles, National, and Friendship Airports.

TABLE X.--MAXIMUM AMOUNTS AVAILABLE TO SERVICE THE ACQUISITION COSTS OF DULLES, NATIONAL, AND FRIENDSHIP AIRPORTS
(Thousands of Dollars)

Assuming Maximum Federal Aid For Capital Outlays		Assuming No Federal Aid For Capital Outlays	
Fiscal Year	Amount	Fiscal Year	Amount
1972-73	$ 9,948	1972-73	$ 8,849
1973-74	13,043	1973-74	10,845
1974-75	14,101	1974-75	10,804
1975-76	15,049	1975-76	10,653
Total	$52,141	Total	$41,151

Assuming that 40 year revenue bonds could be floated at 6.3 percent interest with equal annual outlays for debt services cost over the life of the bonds, the authority could afford to acquire the airports for $188.8 million with maximum federal aid for capital outlays or $149.0 million with no federal aid for capital outlays before the airports would become a less than break-even operation through the next four fiscal years. On the other hand, to get a break-even operation in every fiscal year, beginning with 1972-73, the authority could only afford to purchase the airports for $144.1 million given maximum federal aid for capital outlays or $128.1 million with no additional federal funds. These calculations are shown in Table XI.

TABLE XI.--THE BREAK-EVEN ACQUISITION COSTS OF DULLES, NATIONAL, AND FRIENDSHIP AIRPORTS
(Thousands of Dollars)

A. Purchase the Airports for $188.8 Million, With Maximum Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 9,948	$13,043	$14,101	$15,049	$52,141
Debt service on $188.8 million of revenue bonds at 6.3% interest	13,032	13,032	13,032	13,032	52,128
Net Cash Flow	$-3,084	$ 11	$ 1,069	$ 2,017	$ 13

Break-even here

B. Purchase the Airports for $144.1 Million, With Maximum Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 9,948	$13,043	$14,101	$15,049	$52,141
Debt service on $144.1 million of revenue bonds at 6.3% interest	9,946	9,946	9,946	9,946	39,784
Net Cash Flow	$ 2	$ 3,097	$ 4,155	$ 5,103	$12,357

Break-even here

C. Purchase the Airports for $149.0 Million, With No Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 8,849	$10,845	$10,804	$10,653	$41,151
Debt service on $149.0 million of revenue bonds at 6.3% interest	10,286	10,286	10,286	10,286	41,144
Net Cash Flow	$-1,437	$ 559	$ 518	$ 367	$ 7

Break-even here

D. Purchase the Airports for $128.0 Million, With No Federal Aid for Capital Outlays

	Fiscal Years				
	1972-73	1973-74	1974-75	1975-76	Total
Amount available for debt service on acquisition	$ 8,849	$10,845	$10,804	$10,653	$41,151
Debt service on $128.1 million of revenue bonds at 6.3% interest	8,8425	8,842	8,842	8,842	35,368
Net Cash Flow	$ 7	$ 2,003	$ 1,962	$ 1,811	$ 5,783

Break-even here

A Decision Tree Analysis of Alternative Break-Even Points

The analysis in Table XI has presented the expected break-even purchase prices for the three airports under the extreme cases of maximum federal aid for capital outlays and no federal aid for capital outlays and has not allowed for any possible error or deviation in the F.A.A. passenger, freight, and revenue forecasts. Table XII, on the other hand, presents a decision tree of how probable events concerning federal aid for capital outlays and operating income projections could affect the break-even acquisition costs of Dulles, National, and Friendship Airports. The range in break-even prices ($118.0 million to $154.3 million) was calculated by the same methodology as was used previously with respect to Plan A.

TABLE XII--DECISION TREE SHOWING THE DIFFERENT BREAK-EVEN ACQUISITION COSTS OF DULLES, NATIONAL, AND FRIENDSHIP AIRPORTS GIVEN ALTERNATIVE EVENTS WITH RESPECT TO OPERATING INCOME PROJECTIONS AND FEDERAL AID FOR CAPITAL OUTLAYS

Decision	Possible Events		Maximum Price at Which the Three Airports Could be Acquired To Have a Break-Even Operation in Fiscal Year 1972-73 a/ (Millions of Dollars)	Total Net Cash Flow of Airports Over the Next Four Fiscal Years If Purchased at Break-Even Price b/ (Millions of Dollars)
Set Up Tri-State Authority to Operate the Airports	and receive 50% of capital outlays funded through federal aid (maximum)	with actual operating income 10% higher than projections	$ 154.3	$ +14.2
		with no error in operating income projections	144.1	+12.4
		with actual operating income 10% lower than projections	133.9	+10.5
	and receive 40% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	151.1	+12.9
		with no error in operating income projections	140.9	+11.0
		with actual operating income 10% lower than projections	130.7	+9.2
	and receive 30% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	147.9	+11.6
		with no error in operating income projections	137.7	+9.7
		with actual operating income 10% lower than projections	127.5	+7.8
	and receive 20% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	144.7	+10.3
		with no error in operating income projections	134.5	+8.4
		with actual operating income 10% lower than projections	124.3	+6.5
	and receive 10% of capital outlays funded through federal aid	with actual operating income 10% higher than projections	141.5	+9.0
		with no error in operating income projections	131.3	+7.1
		with actual operating income 10% lower than projections	121.1	+5.2
	and receive no federal aid for capital outlays	with actual operating income 10% higher than projections	138.3	+7.7
		with no error in operating income projections	128.1	+5.8
		with actual operating income 10% lower than projections	118.0	+3.9

Exhibit: Range in Break-Even Purchase Prices $118.0 million to $154.3 million.

a/ The maximum price at which the airports could be purchased to have a break-even operation in fiscal year 1972-73 is calculated by computing the amount of funds that would be available in 1972-73 to finance revenue bonds given the occurrence of each event, and then by figuring out the largest amount of revenue bonds that could be serviced by those funds. In making this calculation, all assumptions with respect to interest and maturity on the revenue bonds (this is true of both revenue bonds for acquisition and for capital outlays) plus the projections of federal aid going to eligible sponsors of air carrier airports (based on the ratio of the number of enplaned passengers at that airport to the total of enplaned passengers nationally) are the same as those spelled out earlier in this study.

b/ If the airports are purchased at the break-even price for fiscal year 1972-73, our projections show that profits will result in the next three fiscal years. The amounts shown here are the cumulative total of those profits.

Ground Transportation

The question of ground transportation revolves around improving the access between downtown Washington and Dulles Airport and between Washington National and Dulles Airports. With improved ground transportation access, Dulles would become more attractive to airline users, and consequently, the airline companies which would result in better and more frequent flight scheduling at Dulles.

There are two proposals under discussion which would increase the access to Dulles—the completion of Interstate 66 and the extension of Washington Metropolitan Area Transit Authority (METRO) lines to Dulles. The completion of Interstate 66 is being held up by a court injunction obtained by local citizens in Arlington County Court who have questioned its desirability and location. The Virginia Highway Department has the necessary funds and has acquired the right of way for the completion, but it is difficult to say when the case will be resolved. The completion of Interstate 66 would significantly cut the driving time [1] between downtown Washington and Dulles Airport.

The extension of the METRO lines to Dulles has been considered as a long-range possibility by METRO and appears on METRO's maps but has not been reviewed or approved and is not being currently planned for by METRO. However, a recently released feasibility study funded by the Office of High-Speed Ground Transportation of the Department of Transportation has reported favorably on the extension of METRO to Dulles—*Dulles Airport Rapid Transit Service Feasibility Study*, July, 1971. A METRO station is scheduled for completion at Washington National Airport by 1975, and if an extension is made to Dulles from downtown Washington, there would be as part of the presently planned METRO System connections between Washington National and Dulles through Arlington. The feasibility study has examined five service alternatives for serving Dulles with capital costs (in 1969 dollars) ranging from $49 million to $88 million and operating costs ranging from $1.4 million to $3.5 million annually. Despite the favorable findings of the feasibility study, the extension of METRO service to Dulles apparently has a low priority with METRO officials, and its early completion barring special governmental subsidy is unlikely.

The question of ground transportation has been raised because it is one of the problems the owner-operator of the National Capital Airports will have to deal with if the volume of passenger traffic forecast for these airports is to be handled efficiently and if a better coordination of flight scheduling and services is to be achieved at the two airports.

Other Considerations

There are many additional questions and considerations involved in the potential acquisition of the airports besides those mentioned, and many of these factors impact on the revenue structure of the airports. These questions and considerations will arise regardless of which group acquires the airports or the administrative structure set up to manage the airports. Major questions and considerations would be: the negotiation of contracts with concessionaires and transportation firms and the treatment of existing contracts; the negotiation of landing fees and rentals with the airlines; the treatment of the 700 odd federal civil service employees now employed by the Federal Aviation Administration at the airports including their salary schedules and programmed increases; the continuing role of the Federal Aviation Administration in the operation of the

[1] The estimated driving time from downtown Washington would be cut from approximately 45 minutes presently to approximately 25 minutes.

airports; the negotiation of schedule changes and restrictions on airport usage with the Civil Aeronautics Board; the negotiations with METRO over the location of the transit station at Washington National Airport; and the relationship of Friendship Airport to the National Capital Airports. The point has been made that if Virginia or a tri-state authority purchases the airports, negotiating advantages would arise in negotiating landing fees with the airlines and schedules with the Civil Aeronautics Board. While this would probably be true with regard to Friendship which now operates and negotiates independently, it might not be true of the National Capital Airports which are currently under the same management. Under a tri-state authority, the airlines would have difficulty playing off Friendship against the National Capital Airports as has been done in the past. However, if the National Capital Airports were acquired by Virginia without Friendship Airport, the negotiating situation might not be much different than it now is.

A final factor to be considered is taxation. Virginia might collect some additional sales and use taxes, and assuming that the Buck Act would not apply at Washington National Airport under non-federal ownership or that similar restrictive provisions were not written into the purchase agreement, the state could also collect additional revenues from the aviation fuels tax. No estimate has been made on the additional sales and use tax that could be collected, but according to State Tax Department officials, the amount collected would not be large, and some items not now taxed may be taxed in the future regardless of ownership. Based on a comparison of the aviation fuel pumped at Washington National and across the state in the last fiscal year and the amount of net statewide aviation fuel taxes collected, the estimated net aviation fuel taxes that would be produced at Washington National Airport would be in the range of $250,000 to $300,000—assuming that the air carriers took no action to shift fueling operations from National Airport. Probably the major benefactor from the transfer of ownership would be Arlington County. With a change in ownership, Arlington County might be given the authority to tax personal property at National Airport. However, the additional tax revenue accruing to Arlington County would not be very large. For instance, the annual personal property tax collections at Dulles last year were only $134,000, and although National would probably produce a multiple of this amount, the figure would not be large in relation to Arlington's approximately $30 million in tax revenues last year.

TABLE A.1 DEBT SERVICE ON 40 YEAR REVENUE BONDS (AMOUNT $105 MILLION) AT 6.3 PERCENT INTEREST ASSUMING A CONSTANT ANNUAL OUTLAY
(Thousands of Dollars)

End of Year	Amount Outstanding	Interest at 6.3 Percent	Repayment of Principle [a]	Total Debt Service
1	$105,000	$6,615	$ 633	$7,248
2	104,367	6,575	763	7,248
3	103,694	6,533	751	7,248
4	102,979	6,488	760	7,248
5	102,219	6,440	808	7,248
6	101,411	6,389	859	7,248
7	100,552	6,335	913	7,248
8	99,639	6,277	971	7,248
9	98,668	6,216	1,032	7,248
10	97,636	6,151	1,097	7,248
11	96,539	6,082	1,166	7,248
12	95,373	6,008	1,240	7,248
13	94,133	5,930	1,318	7,248
14	92,815	5,847	1,401	7,248
15	91,414	5,759	1,489	7,248
16	89,925	5,665	1,583	7,248
17	88,342	5,565	1,683	7,248
18	86,659	5,460	1,788	7,248
19	84,871	5,347	1,901	7,248
20	82,970	5,227	2,021	7,248
21	80,949	5,100	2,148	7,248
22	78,801	4,964	2,284	7,248
23	76,517	4,820	2,428	7,248
24	74,099	4,668	2,580	7,248
25	71,509	4,505	2,743	7,248
26	68,766	4,332	2,916	7,248
27	65,850	4,148	3,100	7,248
28	62,750	3,953	3,295	7,248
29	59,455	3,746	3,502	7,248
30	55,953	3,525	3,723	7,248
31	52,230	3,290	3,958	7,248
32	48,272	3,041	4,207	7,248
33	44,065	2,776	4,472	7,248
34	39,593	2,494	4,754	7,248
35	34,839	2,195	5,053	7,248
36	29,786	1,876	5,372	7,248
37	24,414	1,538	5,710	7,248
38	18,704	1,178	6,070	7,248
39	12,634	769	6,452	6,248
40	6,182	389	6,182	6,571
Total	$ 0	$184,243	$105,000	$289,243
Present Value of Debt Service at 8 Percent Discount Rate				$ 86,398

a/ To simplify the calculation we assume that in any one year an odd amount of debt could be retired.

TABLE A.2--OPERATING STATEMENTS FOR WASHINGTON NATIONAL AND DULLES INTERNATIONAL AIRPORTS, ACTUAL, FISCAL 1967-68 TO 1969-70; ESTIMATED, FISCAL YEARS 1970-71 TO 1971-72; AND PROJECTED, FISCAL YEARS 1972-73 TO 1975-76
(Thousands of Dollars)

Fiscal Year	Total Income	Operating Expenses	Operating Profit or (Loss)	Interest and Depreciation	Profit or (Loss)
Actual					
1967-68	$11,952	$ 7,983	$ 3,969	$ 7,573	($3,604)
1968-69	11,776	8,718	3,057	7,095	(4,037)
1969-70	13,726	9,619	4,107	6,289	(2,161)
Estimated					
1970-71	14,976	10,683	4,293	7,355	(3,062)
1971-72	16,349	11,141[a/]	5,208	7,352	(2,144)
Projected					
1972-73	17,413	10,762	6,651	8,122	(1,471)
1973-74	21,635	10,851	10,784	10,257	527
1974-75	23,812	10,915	12,897	11,399	1,498
1975-76	25,815	10,954	14,861	12,769	2,092

Note: Details may not add due to rounding.

a/ Includes $267 thousand in pay raises enacted subsequent to the budget submission.

Source: Department of Transportation, Federal Aviation Administration, Summary of Annual Financial Results of Washington National and Dulles International Airports (1963-1969) With Forecasts Through 1976; Department of Transportation, Federal Aviation Administration, Federal Funds Budget For Fiscal Year 1972.

TABLE A.3 - PASSENGER FORECASTS FOR WASHINGTON NATIONAL AND DULLES INTERNATIONAL AIRPORTS
(Total Enplaned and Deplaned)

Fiscal Year	Dulles	Washington National
Actual:		
1964-65	863,435	6,544,081
1965-66	1,119,081	7,658,970
1966-67	1,333,561	8,497,093
1967-68	1,653,822	9,705,369
1968-69	2,006,374	10,051,906
1969-70	2,218,118	10,124,423
Forecast:		
1970-71	2,330,000	10,108,000
1971-72	2,640,000	10,700,000
1972-73	3,000,000	11,434,000
1973-74	3,454,000	12,130,000
1974-75	3,994,000	12,900,000
1975-76	4,571,000	13,698,000

Source: Department of Transportation, Federal Aviation Administration, *Washington National and Dulles International Airport Forecast, Fiscal Year 1971-1982*, (Washington: Office of Aviation Economics, 1970), p. 9.

TABLE A.4--WASHINGTON AREA SHARE OF CONTINENTAL U. S. DOMESTIC ENPLANED PASSENGERS

Fiscal Years	Washington National	Dulles	Total
Actual			
1965-66	3.73%	0.45%	4.18%
1966-67	3.76	1.48	4.24
1967-68	3.55	0.50	4.05
Projected			
1968-69	3.35	0.57	3.92
1969-70	3.27	0.63	3.90
1970-71	3.24	0.68	3.92
1971-72	3.19	0.68	3.87
1972-73	3.09	0.72	3.81
1973-74	2.96	0.79	3.75
1974-75	2.84	0.80	3.64
1975-76	2.74	0.86	3.60

Source: Department of Transportation, Federal Aviation Administration, Washington National and Dulles International Airports Forecasts, Fiscal Years 1970-1981 (Washington: Office of Aviation Economics, 1969), p. 10.

TABLE A.5--RATE OF RETURN ON THE ACQUISITION OF DULLES AND NATIONAL AIRPORTS

Rate of Return With Maximum Federal Aid for Capital Outlays				Rate of Return With No Additional Federal Aid for Capital Outlays			
		Cash Inflows from Operations[a/]				Cash Inflows from Operations[a/]	
Virginia's Investment	Amount	Fiscal Year	Amount	Virginia's Investment	Amount	Fiscal Year	Amount
Purchase price of airports plus capital improvements:	$105,000,000			Purchase price of airports plus capital improvements:	$105,000,000		
Fiscal Year 1972-73	11,000,000	1972-73	$ 9,826,000	Fiscal Year 1972-73	22,000,000	1972-73	$ 9,826,000
Fiscal Year 1973-74	11,000,000	1973-74	13,909,000	Fiscal Year 1973-74	22,000,000	1973-74	13,909,000
Fiscal Year 1974-75	11,000,000	1974-75	15,931,000	Fiscal Year 1974-75	22,000,000	1974-75	15,931,000
Fiscal Year 1975-76	11,000,000	1975-76	17,861,000	Fiscal Year 1975-76	22,000,000	1975-76	17,861,000
Total investment in four years	$149,000,000	Total cash inflows	$57,527,000	Total investment in four years	$193,000,000	Total cash inflows	$57,527,000
Average investment during period[b/]	$127,000,000	Average annual cash inflow	$14,382,000	Average investment during period[b/]	$149,000,000	Average annual cash inflow	$14,382,000

Average annual rate of return = $\frac{\$14,382,000}{\$127,000,000} = \underline{11.32\%}$

Average annual rate of return = $\frac{\$ 14,382,000}{\$149,000,000} = \underline{9.65\%}$

a/ Cash inflows from operations include the operating income of the airports plus the federal aid received from that proportion of ADAP annual funds going to eligible sponsors of air carrier airports based on the ratio of the number of enplaned passengers at Dulles and National to the total enplaned passengers nationally.

b/ The average investment during the period is calculated by adding the initial investment in the airports plus the investment in the airports after four years and then dividing the amount by two $\left(\frac{\$105,000,000 + \$149,000,000}{2}\right)$.

TABLE A.6--THE COSTS OF FINANCING THE ACQUISITION AND OPERATION OF DULLES AND NATIONAL AIRPORTS

Cost of Financing With Maximum Federal Aid for Capital Outlays			
Borrowing by Virginia	Amount	Total Debt Service Costs[a/]	
		Fiscal Year	Amount
Amount borrowed for acquisition	$105,000,000		
Plus capital improvements for:			
Fiscal Year 1972-73	11,000,000	1972-73	$ 8,215,000
Fiscal Year 1973-74	11,000,000	1973-74	9,182,000
Fiscal Year 1974-75	11,000,000	1974-75	10,149,000
Fiscal Year 1975-76	11,000,000	1975-76	11,116,000
Total amount borrowed in four years	$149,000,000	Total debt service costs	$38,662,000
Average amount borrowed during period	$127,000,000	Average annual debt service	$ 9,666,000

Average Annual Cost of Financing the Airports = $\frac{\$\ 9,666,000}{\$127,000,000}$ = 7.61%

Cost of Financing With No Federal Aid For Capital Outlays			
Borrowing by Virginia	Amount	Total Debt Service Costs[a/]	
		Fiscal Year	Amount
Amount borrowed for acquisition	$105,000,000		
Plus capital improvements for:			
Fiscal Year 1972-73	22,000,000	1972-73	$ 9,173,000
Fiscal Year 1973-74	22,000,000	1973-74	11,118,000
Fiscal Year 1974-75	22,000,000	1974-75	13,053,000
Fiscal Year 1975-76	22,000,000	1975-76	14,988,000
Total amount borrowed in four years	$193,000,000	Total debt service costs	$48,332,000
Average amount borrowed during period	$149,000,000	Average annual debt service	$12,083.000

Average Annual Cost of Financing the Airports = $\frac{\$\ 12,083,000}{\$149,000,000}$ = 8.11%

a/ Includes the debt service costs on revenue bonds floated for acquisition of the airports and on those issued for capital improvements.

TABLE B.1 - DEBT SERVICE ON 40 YEAR REVENUE BONDS (AMOUNT $125 MILLION) AT 6.3 PERCENT INTEREST ASSUMING CONSTANT ANNUAL OUTLAYS
(Thousands of Dollars)

End of Year	Amount Outstanding	Interest at 6.3 Percent	Repayment of Principle[a]	Total Debt Service
1	$125,000	$7,875	$ 753	$8,628
2	124,247	7,828	800	8,628
3	123,447	7,777	851	8,628
4	122,596	7,724	904	8,628
5	121,692	7,666	962	8,628
6	120,730	6,606	1,022	8,628
7	119,708	7,542	1,086	8,628
8	118,622	7,473	1,155	8,628
9	117,467	7,400	1,228	8,628
10	116,239	7,323	1,305	8,628
11	114,934	7,241	1,387	8,628
12	113,547	7,153	1,475	8,628
13	112,072	7,060	1,568	8,628
14	110,504	6,962	1,666	8,628
15	108,838	6,857	1,771	8,628
16	107,067	6,745	1,883	8,628
17	105,184	6,626	2,002	8,628
18	103,182	6,500	2,128	8,628
19	101,054	6,366	2,262	8,628
20	98,792	6,224	2,402	8,628
21	96,388	6,072	2,556	8,628
22	93,832	5,911	2,717	8,628
23	91,115	5,740	2,888	8,628
24	88,227	5,558	3,070	8,628
25	85,157	5,365	3,263	8,628
26	81,894	5,159	3,469	8,628
27	78,424	4,941	3,687	8,628
28	74,738	4,707	3,920	8,628
29	70,818	4,462	4,166	8,628
30	66,652	4,199	4,429	8,628
31	62,223	3,920	4,707	8,628
32	57,515	3,625	3,005	8,628
33	52,510	3,307	5,320	8,628
34	47,190	2,973	5,655	8,628
35	41,535	2,617	6,011	8,628
36	35,524	2,238	6,390	8,628
37	29,134	1,835	6,793	8,628
38	22,341	1,407	7,221	8,628
39	15,120	952	7,676	8,628
40	7,444	469	7,444	7,913
Total	$ 0	$219,405	$125,000	$344,405

Present Value of Debt Service at 8 Percent Discount Rate $102,852

a/ To simplify the calculation, we assume that in any one year an odd amount of debt could be retired.

TABLE B.2--PASSENGER AND OPERATING INCOME PROJECTIONS FOR FRIENDSHIP INTERNATIONAL AIRPORT, FISCAL YEARS 1971-72 TO 1975-76

Fiscal Year	Passenger Projections[a/]	Operating Income Projections
1971-72	3,500,000	$ 332,500
1972-73	3,994,000	379,430
1973-74	4,461,000	423,795
1974-75	5,007,000	475,665
1975-76	5,616,000	533,520
Total	22,578,000	$2,144,910

a/ Total enplaned and deplaned.

Source: Department of Transportation, Federal Aviation Administration, Washington National and Dulles International Airport Forecasts, Fiscal Years 1971-1982 (Washington: Office of Aviation Economics, 1970), p. 10.

TABLE B.3- WASHINGTON-BALTIMORE AREA SHARE OF CONTINENTAL U.S. DOMESTIC ENPLANED PASSENGERS

Fiscal Years	Washington National	Dulles	Baltimore	Total Area
Actual				
1965-66	3.73%	0.45%	0.99%	5.17
1966-67	3.76	0.48	0.92	5.16
1967-68	3.55	0.50	0.97	5.02
Projected				
1968-69	3.35	0.57	0.98	4.90
1969-70	3.27	0.63	0.98	4.88
1970-71	3.24	0.68	0.94	4.86
1971-72	3.19	0.68	0.96	4.83
1972-73	3.09	0.72	1.01	4.82
1973-74	2.96	0.79	1.09	4.84
1974-75	2.84	0.80	1.19	4.83
1975-76	2.74	0.86	1.26	4.86

Source: Department of Transportation, Federal Aviation Administration, _Washington National and Dulles International Airport Forecasts Fiscal Years 1970-1981_ (Washington: Office of Aviation Economics, 1969), p. 10.

TABLE B.4--RATE OF RETURN FOR A TRI-STATE AUTHORITY OPERATING DULLES, NATIONAL AND FRIENDSHIP AIRPORTS

Rate of Return With Maximum Federal Aid for Capital Outlays

Authority's Investment	Amount	Cash Inflows from Operations[a/]	
Purchase price of airports	$125,000,000	Fiscal Year	Amount
Plus capital improvements:			
Fiscal Year 1972-73	12,500,000	1972-73	$11,047,000
Fiscal Year 1973-74	12,500,000	1973-74	15,241,000
Fiscal Year 1974-75	12,500,000	1974-75	17,398,000
Fiscal Year 1975-76	12,500,000	1975-76	19,445,000
Total investment in four years	$175,000,000	Total cash inflows	$63,131,000
Average investment during period	$150,000,000[b/]	Average annual cash inflow	$15,782,750

Average annual rate of return = $\frac{\$\ 15,782,750}{\$150,000,000} = 10.52\%$

Rate of Return With No Federal Aid for Capital Outlays

Authority's Investment	Amount	Cash Inflows from Operations[a/]	
Purchase price of airports	$125,000,000	Fiscal Year	Amount
Plus capital improvements:			
Fiscal Year 1972-73	25,000,000	1972-73	$11,047,000
Fiscal Year 1973-74	25,000,000	1973-74	15,241,000
Fiscal Year 1974-75	25,000,000	1974-75	17,398,000
Fiscal Year 1975-76	25,000,000	1975-76	19,445,000
Total investment in four years	$225,000,000	Total cash inflows	$63,131,000
Average investment during period	$175,000,000[b/]	Average annual cash inflow	$15,782,750

Average annual rate of return = $\frac{\$\ 15,782,750}{\$175,000,000} = 9.02\%$

a/ Cash inflows from operations include the operating income of the airports plus the federal aid received from that proportion of ADAP annual funds going to eligible sponsors of air carrier airports based on the ratio of the number of enplaned passengers at Dulles and National to the total enplaned passengers nationally.

b/ The average investment during the period is calculated by adding the initial investment in the airports plus the investment in the airports after four years and then dividing the amount by two $\left(\frac{\$125,000,000 + \$175,000,000}{2}\right)$.

TABLE B.5--THE COST OF FINANCING A TRI-STATE AUTHORITY TO OPERATE DULLES, NATIONAL AND FRIENDSHIP AIRPORTS

Cost of Financing with Maximum Federal Aid for Capital Outlays

Borrowing by Authority	Amount	Total Debt Service Costs[a/]	
		Fiscal Year	Amount
Amount borrowed for acquisition	$125,000,000		
Plus capital improvements for:			
Fiscal Year 1972-73	12,500,000	1972-73	$ 9,739,000
Fiscal Year 1973-74	12,500,000	1973-74	10,838,000
Fiscal Year 1974-75	12,500,000	1974-75	11,937,000
Fiscal Year 1975-76	12,500,000	1975-76	13,036,000
Total amount borrowed in four years	$175,000,000	Total debt service costs	$45,550,000
Average amount borrowed during period	$150,000,000	Average annual debt service	$11,387,500

Average Annual Cost of Financing the Authority = $\frac{\$\ 11,387,500}{\$150,000,000}$ = 7.59%

Cost of Financing with No Federal Aid for Capital Outlays

Borrowing by Authority	Amount	Total Debt Service Costs[a/]	
		Fiscal Year	Amount
Amount borrowed for acquisition	$125,000,000		
Plus capital improvements for:			
Fiscal Year 1972-73	25,000,000	1972-73	$10,838,000
Fiscal Year 1973-74	25,000,000	1973-74	13,036,000
Fiscal Year 1974-75	25,000,000	1974-75	15,234,000
Fiscal Year 1975-76	25,000,000	1975-76	17,432,000
Total amount borrowed in four years	$225,000,000	Total debt service costs	$56,540,000
Average amount borrowed during period	$175,000,000	Average annual debt service	$14,135,000

Average Annual Cost of Financing the Authority = $\frac{\$\ 14,135,000}{\$175,000,000}$ = 8.08%

a/ Includes the debt service costs on revenue bonds floated for acquisition of the airports and on those issued for capital improvements.