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ACTION MEMORANDUM

THE WHITE HOUSE

WASHINGTON

LOG NO.:

Date: July 20, 1976

Time:

FOR ACTION: Jack Marsh
Phil Buchen
Jim Cannon
Max Friedersdorf
Bill Seidman

~~XXXXXXXXXXXXX~~:
Brent Scowcroft
David Gergen

FROM THE STAFF SECRETARY

DUE: Date: Thursday, July 22

Time: 2:00 p. m.

SUBJECT:

Lynn memo (7/19) re: Proposed Aviation Noise
Policy Statement

ACTION REQUESTED:

☐ For Necessary Action☒ For Your Recommendations☐ Prepare Agenda and Brief☐ Draft Reply☒ For Your Comments☐ Draft Remarks

REMARKS:

PLEASE ATTACH THIS COPY TO MATERIAL SUBMITTED.

If you have any questions or if you anticipate a delay in submitting the required material, please telephone the Staff Secretary immediately.

Jim Connor
For the President



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

JUL 19 1976

ACTION

MEMORANDUM FOR:

THE PRESIDENT

FROM:

James L. Lynn

SUBJECT:

Proposed Aviation Noise Policy Statement

Secretary Coleman wishes to issue an aviation noise policy statement as soon as possible. He proposes to announce a major new program to curb aircraft noise and stimulate new plane production. The following discussion covers the background of the aviation noise issue, presents options concerning what the policy statement should say, and discusses the financing choices associated with one of the options.

A. Issuance of Statement

Background

- The extent of the aviation noise problem varies widely, basically depending upon proximity of residential areas to airports (e.g., LaGuardia Airport in New York causes annoyance to over a million people, Dulles to 3,500). In all, about six million people are significantly affected by airport noise.
- For several years environmental groups and airport-adjacent residents have pushed for federal aircraft noise reduction action. Their ranks have recently been joined by local airport authorities who are liable for noise damages and have lost several damage suits.
- The main federal action to date has been issuance of noise standards for new aircraft in 1969. However, given the longevity of jet aircraft, over 75% of the current air carrier fleet does not meet the standards.
- For purposes of considering the noise problem, aircraft can be divided into three groups:
 - 1) The original jets (e.g., B-707 and DC-8 types which are the noisiest) made before the issuance of federal standards. These aircraft make up about 25% of the commercial jet fleet.

- 2) Later versions (e.g., B-727, DC-9) which are less noisy but still don't meet the 1969 standards. About half of all airline planes are in this category.
 - 3) Most recent model types, such as the B-747 (wide body), and later model B-727s and DC-9s which comply with the federal standards. These make up the remaining 25% of the jet fleet.
- There are many ways to reduce aviation noise which are practiced to different degrees at present. Chief among them are:
- 1) Imposition of a jet ban or night curfew (e.g., such as at Washington National). This is the most effective method, but is not widespread due to the service reduction and accompanying financial loss it can entail.
 - 2) Operational techniques such as earlier power reduction on takeoff (e.g., Northwest reduces power at 1,000 instead of the usual 1,500 feet), runway use adjustments, schedule adjustments to avoid the use of the noisiest types of planes at close-in airports (e.g., at LaGuardia Airport, use of B-707 and DC-8 planes is prohibited).
 - 3) Land purchase, sound proofing buildings and local zoning measures.
 - 4) Retrofit of existing aircraft engines with sound-absorbing material or replacement of the engines with quieter ones.
 - 5) Retirement of the older, non-standard meeting aircraft and replacement with new, quieter airplanes.

Options

There are three major courses of action regarding what basic policy statement should be issued. The options differ in the emphasis they place on the noise reduction methods stated above. The options are:

- 1) Issue the statement and include in it a 6-10 year, \$3.5 billion program funded mainly by an environmental surcharge. This would stimulate additional private sector financing to replace the noisiest aircraft with new technology and retrofit some of the later model planes to meet the 1969 standards.
- 2) Defer making a policy statement for a few weeks to permit a paper to be presented to you which compares the costs and effectiveness of various noise abatement options.

- 3) Issue a policy statement which limits the federal regulatory role to that which is attainable within the airlines' own resources.

Discussion of Options

Option #1--This option would require most commercial aircraft operating in the U.S. to meet the 1969 noise standards within 6-10 years. It is intended that the oldest, noisiest jets (B-707s, DC-8s) would be replaced with a new, higher technology aircraft while the later model, non-standard planes (e.g., B-727s, DC-9s) would be retrofitted with sound absorbing material. The statement would also delineate the responsibilities of state and local authorities for taking certain actions (e.g., zoning) to limit aircraft noise exposure. A fuller discussion of this option can be found in Attachment A, prepared by DOT.

Key arguments in favor of this option are:

- It would significantly lower aircraft noise levels over 4-10 years and take action on the long standing noise problem.
- By taking affirmative federal action on the noise problem, it could ease the pressure on local airport authorities to establish curfews and other operating restrictions which, if widespread, would be disruptive to air travel.
- Replacing the noisiest aircraft would create sizable orders for new aircraft and could stimulate airframe manufacturers into launching new, advanced aircraft types with improved fuel efficiency as well as quieter engines. Employment in the aerospace industry would also rise substantially and the competitive advantage of U.S. manufacturers would be enhanced.
- Local authorities could undertake land purchases, zoning regulations and other noise abatement steps with a definitive, long-term federal noise control policy with which to plan.

Option #2--This option would delay issuing a policy statement until a decision paper could be prepared which presented you with the full range of noise reduction options available. The paper would discuss the relative costs and benefits of options such as:

- 1) retrofit of all non-standard aircraft so as to achieve compliance,
- 2) retrofit of the noisiest set of aircraft only,
- 3) use of operating techniques and limited curfews at the most serious problem airports,
- 4) establishment of a noise pollution tax which escalates with the degree of noise an aircraft emits.

Factors in favor of this option are:

- In its present form Option #1 has no quantification of the benefits expected to be achieved and no comparison of the replacement/retrofit option with other measures which could be taken. It may be advisable to consider all viable options before endorsing a particular course of action.
- Some of the other approaches to noise reduction may be more cost effective than Option #1. For example, if all non-standard aircraft were retrofitted it would cost only 1/4 to 1/3 of Option #1 and yet also provide significant noise relief. Further, Option #1 would devote 90% of the noise reduction funds on planes which account for only 10% of the operations at noise-problem airports. The non-hardware noise reduction methods available also appear to offer substantial noise reductions. The use of curfews, for example, could be effective and not too disruptive if used selectively. However, the costs of these methods have not been fully identified.
- Options such as initiation of a noise pollution tax on non-standard aircraft and imposition of partial curfews have the advantage of being able to be tailored to local needs and wishes. A community could trade off, for example, a diminution of night service with a quieter environment. A noise tax would afford a community the means to undertake a limited land purchase/soundproofing program, but at the expense of higher air fares.
- The replacement/retrofit proposal may have substantive flaws which should be further explored. For instance the airline interest group, which conceived of the replacement/retrofit idea, contends that retrofitting the non-standard but less noisy aircraft (e.g., B-727s, DC-9s) would have no appreciable noise benefit, but would cost \$200-300 million. It is also not certain that Option #1 will result in a new generation of aircraft, given that the airlines could choose to purchase existing aircraft types, or to re-engine or retrofit a large number of the planes that DOT presumes would be replaced.

Option #3--This option would proceed with the issuance of a noise policy statement but would limit federal actions to promulgations of regulations for future aircraft types (to make them quieter than the 1969 standard levels) and establishment of the quietest operating procedures consistent with a high safety standard.

Factors in favor of this option are:

- It would keep federal involvement at a low level, allowing each community to determine the degree to which it wishes to impose operating restrictions (e.g., curfews) and other noise abatement measures. This seems appropriate because: 1) over half of the six million people appreciably affected by aircraft noise are located around five airports, 2) as noted earlier, a community could trade off the degree and cost of service with the amount of noise it wished to accept. There is evidence that many areas prefer to tolerate noise rather than reduce air activity because of service and employment losses that operating restrictions can bring.
- It is not clear that action to control noise at the source greatly changes people's perceptions of the annoyance that jet planes cause. There does not appear to be a clear correlation, for example, between the introduction of the new, quieter aircraft and the level of complaints made at a given airport. This may be due to the gradual nature of changes in the noise emissions made. An individual's threshold for being annoyed may simply drop over time to the new level.
- The noise problem is not growing, with 1975 being probably better than 1974 in terms of total noise generated. Since it is estimated that 1/3 to 1/2 of the noisiest aircraft will be retired over the next 10 years, the noise from the increase in total operations will be offset by a reduction in the number of most offensive planes.
- Several of the airlines cannot finance a replacement/retrofit without federal aid. This is a de facto proof that such a proposal is not economically reasonable, which is one of the factors which DOT must consider in any rulemaking action in noise regulation.
- The proposal appears to be inconsistent with Secretary Coleman's decision to let the Concorde, which is twice as noisy on takeoff as any other commercial jet, into the U.S. However, DOT contends that there is no inconsistency since the Concorde is a very limited demonstration which has a more symbolic than real noise impact.

Recommendations

Agency comments were received on Option #1. As mentioned earlier, the statement did not provide detailed discussions of the various options other than replacement/retrofit, so no comments on these are available. The agency comments which were received indicate:

- In favor of Option #1 (replacement/retrofit)--DOT, NASA, State, and HEW.
- In favor of Option #2 (further analysis)--CEQ and Justice.
- In favor of Option #3 (limited federal involvement)--CEA, COWPS, and OMB.

While no official position was expressed by EPA, it is known that they favor strict noise standards and heavy federal involvement in airport noise actions.

Decision

Option #1, issue the replacement/retrofit noise policy statement
_____.

Option #2, defer decision to develop and present other options
_____.

Option #3, approve a statement that involves a limited federal role
_____.

B. Financing Alternatives (necessary only if Option #1 was chosen)

The following discusses various financing options available for the replacement/retrofit proposal. There are three basic alternatives available.

Options

Option A--DOT would propose that the CAB approve 2% environmental surcharges on tickets and freight rates that would generate about \$3 billion over 10 years. At the same time the surcharge is imposed, ticket and freight taxes collected for the airport/airway trust fund would be reduced by 2%. Revenues from the environmental surcharge would go into a special escrow fund managed by the air carriers. The fund would be used primarily as downpayments for the replacement of the oldest, noisiest jets, but the carriers would have flexibility in deciding how to use these funds to achieve noise reduction objectives.

DOT would further recommend legislation to authorize spending \$350 million of the existing airport/airway trust fund surplus to retrofit some of the newer airplanes which do not meet present noise standards. (Alternatively, DOT would propose that the cost of retrofitting these two and three engine planes be paid from the CAB

approved fund mentioned above, thus avoiding the need to seek legislation authorizing use of the trust fund for this purpose.)

Option B--Reduce the ticket tax as in Option A above, but keep the federal involvement minimal by letting the airlines recover through fare increases the funds needed to meet the federal standards.

Option C--Do not reduce taxes, but simply require the airlines to meet the federal standards by a given year (e.g., 1987).

Discussion of Options

Option A, which would establish a special escrow account for the airlines to draw upon for noise abatement purposes, has these advantages:

- The air carrier industry has several weak elements (Pan Am, TWA, Eastern) which would find meeting the DOT standards very difficult within their existing resources.
- A special escrow account will assure airframe manufacturers of substantial resources available to purchase new aircraft, enabling them to undertake the large capital start-up costs required for a new generation to be launched.
- DOT believes reduction of the ticket tax is warranted because there is a large (\$1.4 billion) surplus in the aviation trust fund which is expected to grow even larger with time. The Congress could well reduce the tax and eliminate this surplus.
- By using the ticket tax and the aviation trust fund, aviation users would finance the cost of quieting the noise which their travel creates. Reducing taxes while initiating a surcharge also has the advantage of keeping air fares constant.
- Would provide more assurance of compliance with noise standards in 6-10 years than other options.
- DOT has concluded this option would have minimal inflationary impact primarily because private sector outlays would be spread over a 10 year period and would be in the airframe industry which has idle manufacturing capacity.

Option B, which would reduce the ticket tax by 1/4 but leave the airlines to find sufficient funds to meet the federal standards has these merits:

- Leaves the airline industry with the decision of determining whether it is in their economic best interest to purchase new planes or retrofit their existing ones. No artificial incentives are established as in Option A.
- May avoid a financial stability problem which purchase of hundreds of new aircraft during a short time (as envisioned in Option A) may produce. Since the airlines have been traditionally overcapitalized, with many having poor debt/equity ratios, taking on additional debt through the purchase of many new aircraft may actually worsen their financial picture. It may also perpetuate the cyclical "boom or bust" tendency of the airframe manufacturing industry by creating a demand for new equipment which was not made by the marketplace.
- Represents less of a "hands-on" federal role than Option A, since it does not establish a special account and no formal pooling arrangement would be mandated. The escrow account can be viewed as anti-competitive since it would work against new entrants by building up entitlements for existing carriers based upon the revenues of each.
- Avoids building up entitlements for particular air carriers such as in Option A above, thus treating all existing and potential new carriers equally. (It can be argued that Option A is contrary to our aviation regulatory reform proposal since it cross-subsidizes carriers with noisy planes and builds up a fund for all existing carriers).

Option C, which would provide no financing, has these considerations:

- Avoids establishing special financing means to pay for federal environmental standards which would be a very bad precedent to set for other air, noise or water standards.
- Since the Administration has consistently argued that the aviation industry should contribute more than it presently pays towards the \$1.7 billion federal cost of operating the aviation system, a tax cut would be contradicting our own policy.
- Not advocating a tax cut places the debate on the reasonableness of a tax cut on its merits, not on what program such a cut might finance.
- Proposing a tax cut such as in Options A and B above would create a \$225-300 million increase annually in the 1977-86 deficit.

Recommendations

Option A, reducing taxes and establishing an escrow account is recommended by DOT.

Option B, reducing taxes with no special fund, did not receive a specific endorsement.

Option C, making no financing proposal, is recommended by CEA, COWPS, Justice, Treasury and OMB.

Decision

Option A, reduce taxes and establish an escrow account _____.

Option B, reduce taxes only _____.

Option C, make no financing provision _____.

Attachment



THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

RECEIVED AND SECURITY UNIT
THE WHITE HOUSE
WASHINGTON

MEMORANDUM FOR THE PRESIDENT
The White House

Subject: Aviation Program

The Administration has a unique opportunity to propose an innovative aviation program managed by the private sector to reduce airport noise, stimulate private financing of new aircraft, increase employment in the depressed aeronautical manufacturing industry, advance aircraft technology, and preserve the American share of the world aircraft market which is now being challenged by the Europeans.

The Department of Transportation submitted to the Office of Management and Budget on June 1 a proposed Aviation Noise Policy Statement. This Noise Policy placed the primary responsibility on the airport proprietors and state and local governments to take action to reduce airport noise by locating airports outside populated areas, to assure compatible land use and zoning, and to acquire land around airports. The policy further clarifies the responsibility of the federal government to reduce aircraft noise at its source both by promulgating noise standards for new airplanes and by bringing the 75% of the existing fleet that does not now comply with federal noise standards into compliance within eight years. This policy statement is currently in the process of interagency review. I urge that the statement be approved, with certain refinements.

Bringing the current aircraft fleet into compliance with federal noise standards will require special financing arrangements. The Department of Transportation recommends that airlines be permitted to collect a 2% surcharge on airline tickets for ten years and use these funds primarily as down payments for the replacement of the oldest, noisiest four engine jets in the commercial fleet. 1/ The carriers, not the

1/ A 2% surcharge for a ten year period would raise about \$3 billion which is almost one-half of the cost of replacing those old noisy four engine airplanes that would remain in the fleet at the end of 1984, the date when full compliance with federal noise standards would be required. If after further analysis within the Administration, we

federal government, would operate the fund and they would have maximum flexibility in determining how to use the funds. At the same time the surcharge is imposed, the ticket tax collected for the Airport Trust Fund would be reduced by 2%. The Trust has accumulated a surplus that now exceeds \$1 billion. If the ticket tax continues to be levied at its present rate, the surplus will exceed \$2 billion by 1980 assuming full funding of all current authorizations. Although we would prefer to broaden the uses of the Trust Fund to include maintenance of the air traffic system, Congress has permitted this only to a limited extent. Eventually, the surplus will either become a target for unjustified spending proposals or the tax will be reduced. Of course, the moment the tax is reduced, the airlines probably would apply to the CAB to increase their fares to a like amount, but it is doubtful that the CAB would permit the increase, and if it does, there would be no direction as to how said increase is spent. I believe that this proposal is sound public policy because it prevents an increase in the cost of air travel while dedicating resources to the attainment of important objectives. It is also my judgment that Congress will reduce the ticket tax by 2% to 3%.

We recommend further that the Administration seek legislation to authorize the expenditure of an additional \$350 million from the existing Trust Fund surplus that would be used to quiet down some of the newer two and three engine airplanes. The Congress will then have the opportunity to consider whether the retrofit of the newer airplanes with sound absorbent material provides sufficient noise reduction to be worth the cost. 2/

I would like to highlight for you some of the advantages of this program:

Minimum Federal Involvement: Use of a surcharge collected and managed by the carriers with CAB approval avoids direct and continuing federal involvement in private sector capital investment decisions.

(footnote continued)

reach agreement that this objective may be achieved with less financing then we could reduce the number of years or the surcharge percentage. Several options along these lines are described in the attachments.

2/ Alternatively, we could include the cost of retrofitting these two and three engine planes in the CAB-approved fund that would be used for aircraft replacement and avoid the need to seek specific legislation to authorize the expenditure of trust funds.

- The financial burden will be placed on airline users rather than on the general public.
- A surcharge avoids use of general federal revenues.
- The airlines collect the surcharge, determine the distribution formula, and decide whether they prefer to replace or retrofit airplanes.

New Technology: Stimulating private financing for aircraft replacement will provide the estimated \$1 billion needed for Boeing to develop the 7X7 and \$500-\$800 million for McDonnell-Douglas to build to DCX200. A new generation of U. S. manufactured airplanes is presently stalled at the design stage because U. S. air carriers have not been able to finance new airplanes.

Employment: Aircraft replacement will generate jobs in the aerospace and related industries.

- An accelerated replacement program by the airlines that generates about \$12 billion dollars in aircraft sales, including sales abroad, would create over 240,000 jobs in the aerospace and related industries.
- Aircraft orders could reverse the heavy unemployment of the scientists and engineers in the commercial jet manufacturing industry.
- Immediate aircraft replacement would prevent a major shift of jobs to European countries whose manufacturers have captured a larger share of the aircraft market.

Exports: Accelerated production of these airplanes will help American manufacturers remain competitive in the world market.

- Aerospace products have been, in recent years, an important export of the United States, equaling 7% of the total in 1974. Twenty-seven percent of 1974 U. S. aerospace sales in 1974 were exported.
- European governments are now subsidizing their aerospace industries. (France's 5 year plan for 1971-75 contained a \$220 million annual subsidy for its aerospace industry).

- **European aerospace manufacturers** are beginning to produce aircraft, for example, the A-300-B, that will take sales away from U.S. manufacturers if U.S. companies do not produce new aircraft soon.

Energy: Production of a new generation of planes will promote energy conservation by improving fuel efficiency about 30% over the older four engine planes.

Better Air Service: New generation airplanes are more cost efficient to the airlines.

- New technology airplanes will be more efficient to the carriers than the older aircraft in terms of seats, range and operational characteristics (easier maintenance, increased reliability of systems).
- Improved air service would be achieved without a significant increase in cost to users since DOT, as part of its proposal, requests a 2% reduction in the ticket tax collected for the Airport Trust Fund.

Noise Reduction: Affirmative federal action to reduce aircraft noise by the early retirement of the noisiest, oldest four engine jets (about 500 B-707s, DC-8s) and the retrofit of some of the newer two and three engine jets (B-727, B-737, DC-9) is necessary.

- New aircraft containing new noise control technology would reduce by more than two-thirds the land area and number of people presently impacted by noise problems for six million Americans, helping to forestall increasing damage suits against airports.
- Proliferation of curfews and other airport use restrictions that increasingly threaten to interfere with interstate commerce and disrupt the air traffic system will be deterred.

Air Quality: New airplanes will comply with engine pollution standards to be in effect in 1979.

I believe this proposal offers you an opportunity to address affirmatively a number of serious environmental, energy, transportation, export promotion and employment problems with minimal federal involvement and maximum private sector flexibility. If you approve the concept generally, I hope to work closely with my colleagues in the Cabinet to refine and improve the proposal to enable you to announce it as soon as possible.



William T. Coleman, Jr.

Enclosures:

Preferred financing proposal

Alternative financing proposals

Backup paper on financing aircraft
noise reduction

AVIATION NOISE FINANCING

DOT recommends a financing plan with the following key elements:

1. CAB would be asked to approve, and the Executive Branch would support (perhaps with an expression of Congressional desire), an across the board surcharge for 10 years of 2% on domestic passenger tickets and freight waybills. The airlines would be required to deposit the revenues from the surcharge in an Aircraft Replacement Fund.

Effect:

About \$3 billion (in inflated dollars) would flow into the Aircraft Replacement Fund over 10 years. This amount would finance approximately one-half of the cost (roughly \$6.4 billion) of some 200 to 275 of the B-707s and DC-8s that would otherwise be in airline service at the end of 1984, when the noise standard applies to those aircraft.*

2. The Aircraft Replacement Fund would be managed by intercarrier agreement under which each carrier would have entitlements to the Fund in proportion to its total system passenger and cargo revenue.

Effect:

Administration of the Fund by the airlines would minimize federal involvement.

3. The federal air passenger ticket and freight waybill taxes would be reduced from 8% to 6%, and from 5% to 3%, respectively.

* The amount of \$3 billion to be collected through the surcharge has been chosen because it is the sum that commercial banks have indicated to the airline industry would be required to induce their participation in financing an early aircraft replacement program. DOT is, however, conducting an analysis to ascertain whether some lesser amount might induce the participation of the financial community. Upon completion of that analysis the recommendation as to the duration of the 2% surcharge will be adjusted so that the collection will yield the amount deemed necessary.

Effect:

The lower user taxes flowing into the Airport and Airway Trust Fund would cover all outlays chargeable to the Fund under the ADAP bill. (An amendment would be needed to permit the use of uncommitted balances (\$1.4 billion) to finance the full annual authorizations included in the ADAP Act.)

Once the pending ADAP bill is enacted without a tax reduction, unused Trust Fund balances would grow rapidly (to \$1.7 billion by 1979) and become a target for tax reductions or unjustified spending proposals.

From a national interest point of view, the use of these excess revenues to help meet environmental and broad economic objectives is a sound and defensible policy alternative.

4. Any balances remaining in the Fund after program objectives have been achieved would be deposited in the Airport and Airway Trust Fund and dedicated to noise control purposes (including land acquisitions and easements).

5. The cost of retrofitting two and three engine airplanes will be paid from the Airport and Airway Trust Fund.

Effect:

About \$350 million (inflated dollars) will be taken from the Trust Fund for retrofit.

Attachments:

1. Effect of Aircraft Replacement Fund on carriers' finances.
2. Estimated Aircraft Replacement Fund revenues, 1977-1986.
3. (A&B) -- Impact on airport/airway fund of lower tax rates.

CARRIER CONTRIBUTION AND ENTITLEMENT
(Dollars in millions)

Contribution (2%
Passenger & Waybill Surcharge-
10 Years, 1977-1986)

Number of
Non-Complying
707's & DC-8's

Total
Entitlement^{1/}

Entitlement less
Contribution

Trunk

American	\$ 424.8	91	\$ 377	\$ (47.8)
Braniff	119.8	11	124	4.2
Continental	132.5	5	112	(20.5)
Delta	384.0	34	299	(85.0)
Eastern	357.1	-	342	(15.1)
National	83.2	-	75	(8.2)
Northwest	162.3	10	171	8.7
Pan American	28.7	79	353	324.3
Trans World	319.4	90	379	59.6
United	598.3	100	469	(129.3)
Western	126.2	23	109	(17.2)
<u>Total Trunk</u>	<u>\$ 2736.2</u>	<u>443</u>	<u>\$ 2810</u>	<u>\$ 73.8</u>

Local Service

Allegheny	\$ 103.5	-	\$ 80	\$ (23.5)
Frontier	41.2	-	37	(4.2)
North Central	39.6	-	34	(5.6)
Ozark	31.5	-	28	(3.5)
Piedmont	35.9	-	28	(7.9)
Air West	44.0	-	36	(6.0)
Southern	26.3	-	25	(1.3)
Texas International	15.8	-	17	1.2
<u>Total Local Service</u>	<u>\$ 337.8</u>	<u>-</u>	<u>\$ 287</u>	<u>\$ (50.8)</u>

^{1/} Total entitlement is determined by distributing the funds collected among carriers, on the basis of the proportion that each carrier's system revenues bear to the total of all revenues collected by the carriers.

<u>Carrier</u>	<u>Contribution (2% Passenger & Waybill Surcharge- 10 Years, 1977-1986)</u>	<u>Number of Non-Complying 707's & DC-8's</u>	<u>Total Entitlement</u>	<u>Entitlement less Contribution</u>
<u>Cargo</u>				
Flying Tiger	31.1	16	8	(23.1)
Seaboard	17.4	11	46	28.6
Airlift	4.5	5	24	19.5
<u>Total Cargo</u>	<u>\$53.0</u>	<u>32</u>	<u>78</u>	<u>25.0</u>
<u>Other</u>				
Supplemental Carriers	48.2	31	92	43.8
Intrastate Carriers	125.5	-	42	(83.5)
Hawaiian	14.8	-	11	(3.8)
Honolulu	11.5	-	7	(4.5)
<u>Total Other</u>	<u>\$200.0</u>	<u>31</u>	<u>152</u>	<u>(48.0)</u>
<u>TOTAL</u>	<u>\$3327.0</u>	<u>495</u>	<u>3327.0</u>	<u>- 0 -</u>
<u>Other Carriers^{2/}</u>		<u>17</u>		
<u>TOTAL</u>		<u>523</u>		

^{2/} Includes commercial operators and flying clubs. Revenue contribution and entitlements for these carriers are not provided due to lack of revenue data.

Attachment 2

REVENUE COLLECTIONS - AIRCRAFT REPLACEMENT FUND

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>Ten Year Total</u>
<u>AIRCRAFT REPLACEMENT FUND</u>											
et Surcharge	224	244	258	271	284	303	322	341	360	377	2484
bill Surcharge	<u>22</u>	<u>26</u>	<u>28</u>	<u>32</u>	<u>36</u>	<u>38</u>	<u>38</u>	<u>40</u>	<u>40</u>	<u>42</u>	<u>342</u>
otal	<u>246</u>	<u>270</u>	<u>206</u>	<u>303</u>	<u>320</u>	<u>341</u>	<u>360</u>	<u>381</u>	<u>400</u>	<u>419</u>	<u>3327</u>

CASE A. EXISTING TAX STRUCTURE, LATEST CONFEREES COMPROMISE ON ADAP & MAINTENANCE

5/27/76

(In \$ Millions)

	<u>1976</u>	<u>TQ</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Beginning Uncommitted Balance	889	1269	1378	1520	1693	1892	2105
Plus Trust Fund Revenues	<u>969</u>	<u>254</u>	<u>1046</u>	<u>1128</u>	<u>1205</u>	<u>1268</u>	<u>1338</u>
Subtotal	1858	1523	2424	2648	2898	3160	3443
Less: ADAP	412	103	525	555	590	625	
Maintenance	-	-	250	275	300	325	
F&E	250	62	250	250	250	250	
RE&D	68	18	77	85	90	95	
Subtotal	<u>1128</u>	<u>1340</u>	<u>1322</u>	<u>1483</u>	<u>1668</u>	<u>1865</u>	
Plus Estimated Interest *	<u>141</u>	<u>38</u>	<u>198</u>	<u>210</u>	<u>224</u>	<u>240</u>	
Ending Uncommitted Balance	1269	1378	1520	1693	1892	2105	

Interest for FY 1976 and the transition quarter is as shown in the FY 1977 Budget; interest thereafter is calculated at 8% of average cash balance.

Beginning Cash Balance	2013	2393	2502	2644	2817	3016	3229
Plus Revenues Less Expenses	<u>239</u>	<u>71</u>	<u>-56</u>	<u>-37</u>	<u>-25</u>	<u>-27</u>	
Ending Cash Balance	2252	2464	2446	2607	2792	2989	
Average Cash Balance			(2474)	(2625)	(2804)	(3002)	
Interest	<u>141</u>	<u>38</u>	<u>198</u>	<u>210</u>	<u>224</u>	<u>240</u>	
Balance Carried Forward	2393	2502	2644	2817	3016	3229	

5/27/76

CASE. B. 6% PASSENGER TICKET TAX, 3% WAYBILL TAX, LATEST CONFEREE COMPROMISE ON ADAP & MAINTENANCE
(In \$ Millions)

	<u>1976</u>	<u>TQ</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Beginning Uncommitted Balance	889	1269	1378	1276	1165	1038	884
Plus Trust Fund Revenues	<u>969</u>	<u>254</u>	<u>811</u>	<u>874</u>	<u>932</u>	<u>981</u>	<u>1035</u>
Subtotal	1858	1523	2189	2150	2097	2019	1919
Less: ADAP	412	103	525	555	590	625	
Maintenance	-	-	250	275	300	325	
F&E	250	62	250	250	250	250	
RE&D	<u>68</u>	<u>18</u>	<u>77</u>	<u>85</u>	<u>90</u>	<u>95</u>	
Subtotal	1128	1340	1087	985	867	724	
Plus Estimated Interest *	<u>141</u>	<u>38</u>	<u>189</u>	<u>180</u>	<u>171</u>	<u>160</u>	
Ending Uncommitted Balance	1269	1378	1276	1165	1038	884	

Interest for FY 1976 and the transition quarter is as shown in the FY 1977 Budget; interest thereafter is calculated at 8% of average cash balance.

	2013	2393	2502	2400	2289	2162	2008
Beginning Cash Balance	239	71	-291	-291	-298	-314	
Plus Revenues Less Expenses	<u>2252</u>	<u>2464</u>	<u>2211</u>	<u>2109</u>	<u>1991</u>	<u>1848</u>	
Ending Cash Balance			(2351)	(2254)	(2140)	(2005)	
Average Cash Balance	<u>141</u>	<u>38</u>	<u>189</u>	<u>180</u>	<u>171</u>	<u>160</u>	
Interest	2393	2502	2400	2289	2162	2008	
Balance Carried Forward							

ALTERNATIVE OPTIONS FOR
AVIATION NOISE FINANCING

The following options might be considered as alternatives to DOT proposal to facilitate replacement and retrofit of aircraft that do not comply with the FAA noise standards:

Option #1

1. CAB would be encouraged through an expression of legislative intent to permit an environmental surcharge of 2% on domestic passenger tickets and freight waybills for 5 years. Revenues from the surcharge would be placed in an escrow fund to be used primarily for replacement of 4 engine aircraft.

Effect:

About \$1.4 billion would be provided for the replacement fund over 5 years.

2. The replacement fund would be managed by the airlines under an inter-carrier agreement.

Effect:

Administration of the replacement fund by the carriers would keep federal involvement to a minimum.

3. The replacement fund would be disbursed as follows:

- - 50% would be distributed in cash to the participating airlines in proportion to the surcharges each contributes to the fund;
- - 50% would be used as a loan guarantee fund with the

entitlement of each participating carrier computed on the basis of its total system revenues. Loan guarantees would be authorized up to three times the amount of each airline's entitlement.

Effect:

About \$1.4 billion in cash would be available to carriers.

Use of a loan guarantee fund enables carriers to obtain financing for new airplanes.

4. Any unused balance in the loan guarantee fund after all loans have been paid off will be placed in the Airport and Airways Trust Fund.

5. The tax on passenger tickets and freight waybills collected for the Airport and Airways Trust Fund would be reduced by 2% for 5 years.

Effect:

A reduction in the ticket tax to balance the surcharge prevents the cost of air transportation from increasing.

6. Appropriations would be authorized from the Airport and Airways Trust Fund to pay the cost of retrofitting those non-FAR 36 aircraft which the airlines elect to retain in domestic service, rather than replace or retire them.

Effect:

The cost of retrofitting 2/3 engine airplanes is estimated to be about \$350 million (in inflated dollars). If the airlines choose to retrofit the approximately 75 four-engine aircraft which may be economic to retrofit

then the cost would increase by \$225 million.

Option #2

1. The CAB would be encouraged to approve a 2% surcharge for 7 years on carriers' domestic passenger tickets and freight waybills. Revenues from the surcharge would go into a replacement fund.

Effect:

About \$2 billion in revenues, 30% of the approximately \$6.4 billion needed to replace 4 engine airplanes would flow into the replacement fund.

2. The replacement fund, managed by the airlines under an inter-carrier agreement, would be distributed according to the amount each carrier contributes.

Effect:

Administration of the fund by carriers minimizes federal involvement.

Funds could be used for purchase of any type of new aircraft.

There would not be any cross subsidy or pooling of funds.

3. International carriers and the portion of a domestic carrier's airplanes used in international service (determined by the proportion its international revenues bear to total revenues) are exempt from the domestic standard and do not participate in the domestic Aircraft Replacement Fund.

Effect:

About one-third of TWA's and almost all of Pan Am's fleet would be exempted. The exempt portion of an American carrier's fleet would come within the international fund (6 below).

4. Any balance in the replacement fund at the end of the 7 year period would be placed in the Airport and Airways Trust Fund.

5. The tax on passenger tickets and freight waybills collected for the Airport and Airways Trust would be reduced by 2% for 7 years.

Effect:

A reduction in the ticket tax that corresponds to the surcharge will not increase the cost of air transportation.

6. A surcharge on all international tickets and waybills would be collected to facilitate replacement of 4 engine airplanes in international service for both domestic and foreign carriers. A distribution formula would be worked out through ICAO.

Effect:

Separation of domestic and international operations prevents uneven treatment of either domestic or foreign carriers.

7. Appropriations would be authorized from the uncommitted balance (\$1.4 billion) in Airport and Airways Trust Fund to pay for retrofit of 2/3 engine airplanes.

Option #3

1. Require the carriers to submit a plan within 6 months after a noise rule takes effect stating the number of airplanes they intend to retrofit and the number they intend to replace.

Effect:

The FAA, airframe manufacturers, and airlines will know the estimated demand for retrofit kits and new airplanes and can estimate the costs.

2. An escrow fund would be created and would receive moneys from two sources:

- - the \$1.4 billion surplus in the Airport and Airways Trust

Fund;

- - a 1% surcharge approved by the CAB to be levied on domestic passenger tickets and freight waybills.

Effect:

About \$2 billion would be placed in the fund in 5 years. Of this amount, \$1.4 billion would be available immediately to be used for replacement.

The carriers would decide how they would meet the noise requirements.

3. Disburse the funds as follows:

- - Estimate the retrofit costs and set the amount necessary to meet them aside;

- - Allocate the funds remaining after retrofit equally among the airplanes to be replaced.

Effect:

The total cost of retrofit (\$350 million in current dollars) would be covered.

About \$1.6 billion, approximately 25% of the amount needed to replace 4-engine airplanes (roughly \$6.4 billion), would be available for that purpose.

BACKUP PAPER ON FINANCING AIRCRAFT NOISE REDUCTION

I. INTRODUCTION

There are four parts to the aircraft noise problem:

- One, an unacceptably high level of noise at major U.S. airports, and the resultant pressure for a responsible Federal Government noise-reduction program.
- Two, the inability of much of the airline industry to obtain conventional financing to undertake a noise reduction program.
- Three, the present unavailability of new-generation aircraft as suitable replacements under the program.
- Four, declining employment in the U.S. aerospace industry, and threatening encroachment of government subsidized foreign competition on the U.S. share of the world aerospace market.

II. DEFINITION OF THE PROBLEM

A. The National Airport Noise Problem

Aircraft noise has become a serious problem at seven key U.S. airports and a considerable irritation and annoyance at about one hundred more, derogating the quality of life for 6 to 7 million citizens. Pressure from airport operators and consumer groups compel action by the Federal Government in order to avoid:

- Curfews at major airports, which would interfere with air commerce and disrupt our national air system by delaying mail and cargo, and requiring expensive and difficult repositioning and rescheduling of aircraft.
- Billions of dollars in potential law suits and/or land acquisitions.
- Federal preemption of local restrictions and the resultant Federal liability for claims against local airport operators.

To correct the noise problem, DOT proposes issuance of a regulation requiring operators of the aircraft not meeting FAR 36 standards to comply with these standards within a 6- to 8-year period, depending on aircraft type, by retiring and replacing them except in the case of newer aircraft for which retrofit makes sense.

- There are 2,148 jet aircraft in the U.S. commercial fleet today. Of these, 77 percent, or 1,654 planes, exceed FAR 36 standards. These consist of approximately 500 1960-vintage four-engine aircraft, 1,100 more recent two- and three-engine aircraft, and 50 early 747's. Relatively few of the noisy aircraft are found in the fleets of the all-cargo and supplemental carriers. The majority are owned by the trunk carriers; four trunks--American, Pan Am, TWA, and United--account for nearly two-thirds.
- If all 1,654 noisy aircraft were retrofitted; the cost in today's dollars would range from approximately \$870 million to \$1.6 billion:
 - \$255 million for the 1,100 two- and three-engine aircraft (at an average cost of over \$200,000 per aircraft).
 - From \$600 million to \$1.3 billion for the approximately 500 four-engines (not including the 747's). The cost of these kits--which have not yet been developed--is estimated to range from \$1.2 million to \$4.5 million, depending on certain assumptions, the most important of which is the number of aircraft to be retrofitted. A reasonable estimate, assuming all four-engines were retrofitted, would be from \$1.2 million to \$2.5 million per aircraft. The higher unit cost, as compared to the two- and three-engine retrofit, is a function of the greater difficulty of retrofitting these planes, the larger number of engines, and the smaller numbers of planes involved.
 - The 50 747's would cost approximately \$13 million to retrofit.
- Retrofit is conceded to increase operating costs for most narrow-bodied four-engine aircraft, and it is expected the airlines will choose to replace rather than retrofit these aircraft. The kits are expensive and would add nothing to the useful life of the planes. The airlines have indicated it would be economically preferable to replace almost all with a quieter, more efficient aircraft, if one were available, contingent upon obtaining the necessary financing.
- Not all the four-engine aircraft in the fleet today will be in the fleet at the end of 1984. But not all will have been retired either. Between now and then, it is expected that the airlines will purchase on the order of 700 additional aircraft* to meet

* Projecting the composition of individual carrier fleets and the total U.S. fleet 8 years into the future is a difficult, complicated exercise, requiring considerable amounts of judgment as to carrier decisions, as well as quantitative data. The figures included in this paper are preliminary and may be revised; however, the relationships and the ranges are firmly established and can be used with reasonable confidence.

anticipated traffic growth and to replace worn out, uneconomic aircraft (additional requirements resulting from Federal noise reduction policies not included). Several points central to the program should be noted here:

- The airlines are not expected to need a significant number of new aircraft before 1980 or 1981. Existing aircraft, combined with orders currently on the books and supplemented only slightly by additional purchases, should handle projected traffic increases until then. In addition, because of their poor financial condition, some carriers will find it difficult to obtain financing for new equipment. For this and other reasons, the carriers can be expected to postpone replacement orders until they become absolutely necessary.
- On the other hand, to meet the 1984 noise regulation with a new technology aircraft, the airlines would have to place firm orders for such aircraft in the next 12 to 18 months. Thus, there is a gap of from 2 to 3 years between the investment decision the airlines would make in the normal course of events--absent a noise regulation--and the accelerated decision they must make to comply with the noise reduction program.
- Many of the noisy four-engine aircraft currently in the fleet will be retired under the airlines' anticipated schedule. But more than half--between 275 and 350--are expected to be still in the fleet by the end of 1984 (as cargo and charter aircraft, if not in passenger scheduled service). Most of these planes are, or soon will be, fully depreciated. However, the expense of retrofitting them, with kits ranging from \$1.2 million to \$4.5 million, would make continued operation in most cases uneconomic.

The cost of a realistic and economic program to meet the noise reduction requirement by 1984 has been estimated as follows:

- \$400 to \$450 million (in 1976 dollars) for retrofit of approximately 950 two- and three-engine aircraft, 50 747's, and approximately 75 four-engines that may be economical to retrofit.
- From \$4.0 to \$5.5 billion (in 1976 dollars) for accelerated replacement of the other 200 to 275 noisy four-engines expected to be in the fleet after 1984.
- If the airlines choose to retrofit none of the narrow-bodied four-engine aircraft then the cost of replacement

increases to a range of from \$5.5 billion to \$7 billion (in 1976 dollars).

B. The Financial Situation of the Trunk Airline Industry* (Detail in Appendix A).

- Although the national interest quite clearly compels a noise reduction program, the financial condition of the trunk airline industry, and in particular of certain companies within the industry, calls into serious doubt the industry's ability to finance such a program through conventional means.
- In the normal course of events, the airline industry will have to raise on the order of \$25 billion to \$30 billion (in inflated dollars) between now and 1985 in order to purchase an estimated 700 new aircraft that will be made necessary by traffic growth and obsolescence of existing aircraft, to repay debt, and for other miscellaneous capital expenditures.
- As is well known, the air carriers have had almost 10 years of very lean earnings (since 1967 an average pre-tax profit margin of 2.5 percent and ROI of 5.7 percent). There seems little doubt that for the last year or so (principally as a result of the 1974-75 economic recession combined with rapidly escalating costs) the industry's collective ability to finance any major capital acquisitions has been at an extreme low point, both in terms of its own history and as compared to other industries.
- Fortunately, the resurging economy is bringing the industry out of its doldrums and positive earnings are in sight for the next several years. The size of the existing fleet, with the addition of current orders, is sufficient to make the need for new aircraft investments relatively low through the period from 1976 to 1979. By the time substantial new aircraft capacity is needed, it seems likely that the industry will have redeveloped adequate financial strength to fund it. (This assumes no extraordinary financing needs and the help of regulatory reform.)
- However, the realistic noise reduction program would add \$5.6 to \$7.7 billion (in inflated dollars) to the industry's capital requirement, which clearly constitutes an extraordinary financing

* The focus of attention in this paper is on the financial condition of the trunk air carrier industry because the majority of the noisy aircraft, and virtually all of the noisy four-engine aircraft which should be replaced, are concentrated therein. Any financing options considered by either the industry or the government must of course take into account the fact that there are noisy aircraft owned by companies outside the trunk airline industry.

need.* Capital needs would increase by 19 to 31 percent, from which the airlines would derive no direct traffic or revenue increases, and only slight capacity increases. An incremental requirement of this magnitude is beyond the near-term ability of the industry to finance in any normal fashion, since both the debt and equity markets have been foreclosed effectively for several years.**

- Yet, to obtain delivery of new generation aircraft in time to comply with the regulation by 1984, the airline industry would have to accelerate its replacement schedule and make firm purchase commitments within the next 12 to 18 months. The industry very simply is not in adequate financial condition to make such commitments. It will begin to do so eventually, but too late to obtain the economically and environmentally efficient aircraft desired for the noise reduction program, to generate the jobs needed now in the aerospace industry, and to counter the competitive threat of new-technology foreign aircraft.***

- Compounding the problem greatly is the financial condition of certain individual carriers within the industry. The use of aggregate data to analyze the ability of an industry to meet a specific financial need is often misleading. Individual companies, possessing a specialized knowledge of their own situation, can find ways around financial barriers that seem insurmountable to the industry analyst. In this case, however, the reverse is true. Several of the financially weakest carriers in the industry are also the owners of large numbers of

* Assumes the combination of replacement and retrofit discussed earlier, with a 5 percent annual inflation rate and using 1982 prices. Excludes those four-engine aircraft possessed by other than the trunk airlines.

**In hearings on the Aviation Act, the heads of several banks and insurance companies, the industry's traditional institutional lenders, testified that they did not anticipate making further loans to any carriers, and advised that capital formation was, and would continue to be, a critical problem for the industry.

***An additional consideration is the potential impact of some approaches that have been proposed for dealing with the industry's re-equipment problem. Frank Borman, the CEO of Eastern Airlines, has recommended, for example, that the industry conduct a design competition, select a single new aircraft, and then agree to purchase that aircraft only. The consequences of such an approach for the competitive structure of the aerospace industry are serious.

noisy aircraft, and will face some of the largest requirements for funds with which to replace those aircraft.

- TWA, for example, has had an extremely difficult time remaining solvent over the past year and a half. In fact, having asked for and been refused Federal subsidy, it has avoided bankruptcy only through extraordinary efforts on the part of management and acquiescence on the part of its lenders. TWA's problems will not vanish overnight. Even though it will approach breakeven in 1976, and should see a return to profitability in 1977, the company is a few years away from being an effective competitor for funds in the capital marketplace.* Yet by 1985, TWA probably will require from \$2 to \$3 billion in capital (in inflated dollars) merely to stay competitive and remain in business. The added cost of achieving noise reduction goals (that is, of replacing before 1985 those aircraft that would otherwise remain in its fleet) could increase TWA's capital needs by as much as \$1.5 to 2.0 billion (in inflated dollars) between now and then. Present projections say it is highly unlikely that TWA could finance independently such a tremendously increased capital requirement.
- Two of the other carriers strongly impacted by the noise regulation, Pan Am and American, also have had financial difficulties recently and would face similar problems in financing the purchase of replacement aircraft. Pan Am's capital requirements in the 1976 to 1984 period could increase on the order of \$1 billion (from around \$2 billion to as much as \$3 billion), as would American's (from around \$3 billion to around \$4 billion).

C. The Need for a New-Generation Aircraft (Detail in Appendix B):

- No major new aircraft has been developed in the United States for almost 10 years. In that time important design and technological advances have been made -- many specifically to meet the new economic, operating, and environmental constraints dictated by rising labor costs, energy shortages, and changing market demands.

* TWA's recent announcement that it plans to sell 2 million shares of common stock should not be construed as a sign of ability to compete in the capital marketplace. The company quite clearly has been forced into the sale by financial exigencies and as a result will suffer a serious dilution to its equity base. The shares will sell at a current market price of around \$13 as compared to a book value of \$21. Something like 15 percent of the company will thus be sold for approximately \$25 million, or the price of one 747.

Although the technology exists, the present inability of the U.S. airline industry to finance a new generation of aircraft prevents the manufacturers from moving beyond the design stage. It is clearly in the national interest, however, and in the interest of the air traveler and the airline industry, to take advantage of such gains:

- Greater noise reduction: A new technology aircraft would sound about three times quieter than a nonretrofitted 707, and twice as quiet as a retrofitted 707.
- Greater fuel efficiency: In the period from 1981 (when the first new-technology aircraft would be introduced under the accelerated-replacement program) until 1986 (when all new-technology replacement aircraft would be delivered) the total savings in jet fuel is estimated to amount to about 2.5 billion gallons.
- Productivity: Measured against existing aircraft, a new-technology aircraft would offer greater payload for its size and weight, would be more reliable and more easily maintained, and would cost less to operate and less to acquire per unit of productivity.

D. The Declining Prospects of the U.S. Aerospace Industry (Detail in Appendix B).

The United States achieved its prominence in the world aerospace market because of its technical superiority; most important civil aviation advances historically have been made in U.S. products. But lack of orders for a new plane has virtually stalled technical development since the widebody jets were introduced. Newer foreign aircraft such as the A-300-B show the potential for meeting certain market demands which current U.S. products cannot (i.e. efficient operation over short-medium range routes). This, combined with declines in U.S. Government outlays for aircraft and engines, has already had serious consequences for U.S. airframe and engine manufacturers, a major source of employment and export sales. Since 1968:

- Real industry sales have declined 37 percent.
- Employment has declined 37 percent.
- Aerospace exports as a percent of GNP have declined 42 percent.
- Each \$30 million lost in sales translates into a loss of 1,000 full time jobs and \$15.5 million in payroll.

While the U.S. industry shrinks in real terms, foreign aerospace manufacturers -- spurred by Government subsidy -- are growing larger, more capable technologically, and more aggressive. It is conceded that the U.S. cannot continue to hold its present 80 percent market share (of world civil aircraft in operation). The question of how large a share European and other foreign manufacturers take will depend in part on how long U.S. production of a new aircraft is delayed. A 2- to 3-year acceleration of the present timetable could be very important in that it would allow U.S. manufacturers to produce a new generation of planes when U.S. airlines will need them and when new foreign products will be on the market.

APPENDIX A

FINANCIAL CONDITION OF THE TRUNK AIRLINE INDUSTRY

- The ability of the airline industry to finance equipment replacement depends, as it would in any other industry, on its ability to generate funds internally (through depreciation and earnings) and/or externally (from the equity market and/or debt market). Table 1, following, projects sources and uses for the 1977-1984 period, using the specified economic and traffic assumptions.

1. Internal Sources

- As the table shows, depreciation will yield a total of \$10.0 billion through 1984. Aircraft sales will yield only about \$400 million, leaving the airlines \$18.7 billion short of their total needs of \$29.1 billion. This amount must be met through earnings, new loans, leases, or new equity financing. The cost of a realistic noise reduction program would increase the total need for funds by the end of 1984 by around 23 percent, to \$36 billion and would increase the deficit by around 36 percent, to \$25 billion.*
- Industry earnings are projected to range from \$.3 to \$.5 billion in 1976-1977 to \$.6 to \$.7 billion toward the end of the period,** and could total about \$5 billion, which would leave a financing need of \$13.7 billion, or about \$21 billion when noise reduction costs are taken into account. This "gap" must be met through external sources -- the equity market and/or the debt market.

2. External Sources

- Because of the airlines' poor earnings record for the past 10 years (see Table 2) both the equity and debt markets have been effectively foreclosed to them for some time. Airline stocks have not been a recommended buy for much of this period, and are not being recommended as an investment for the future, except for possible short-term

* Assumes the cost of the replacement/retrofit program is in the middle of the \$5.6 to \$7.7 billion range.

** To earn \$.5 billion, the industry would have to achieve about 9 percent to 10 percent ROI at current investment levels. Since 1967, ROI for the domestic trunks plus Pan American has ranged from a high of 8.5 percent to a low of 2.1 percent, averaging only 5.7 percent.

2

gains in the next six months.* At present, airline stocks stand at approximately 60 percent of their 1967 value (versus 120 percent for the Dow-Jones Average).

- The major source of airline debt financing through the 1960's--traditionally the large insurance companies--has been closed for six years. Under New York law, New York insurance companies are forbidden to make further loans. In a statement submitted to the House Public Works and Transportation Committee George Jenkins, Chairman of Metropolitan Life Insurance, said: "... we feel confident that Metropolitan will lose no money on its current airline investments as they run off, but under present conditions, no new money will be loaned." Before lenders will commit new debt capital, Jenkins added, "(they) will require a sound equity base and good profits"
- The DOT is confident that the proposed Aviation Act of 1976 will return the Aviation industry to long-term profitability and eliminate the capital expenditure problem of the future. However, no remedy is seen for the problem of funding the capital decisions that must be made now in order to achieve a quieter and more fuel efficient fleet by the end of 1984. Airline earnings are the key to both internal and external funds generation, but as the foregoing data makes clear even a high level of earnings will not insure that the industry will be able to finance the \$5.6 to \$7.7 billion needed for the noise reduction program through normal means.

3. Problem Carriers

- The financing problems anticipated for the industry will be concentrated heavily in major carriers, which have the most four-engine aircraft in their fleet and consequently the greatest retrofit burden, particularly American, TWA, and Pan Am. As shown in Table 3, these three carriers have together accounted for a large portion of the industry's losses over the last five years and, with the possible exception of American, have relatively undesirable debt burdens. Further, as shown in Table 4, American and TWA, (presuming that they could obtain the debt financing they would need,) under the burden of the noise reduction program would have debt/equity ratios of 4 and 5.7 respectively, while Pan Am's would be near 2. These carriers are likely to have great difficulty in raising the capital that would be required by the noise regulation.

* A potential exception to this statement is the pending TWA issue of 2 million shares of stock. As explained in the text, the need for such an issue is created by TWA's poor financial situation and at the expected price of the sale will seriously dilute the company's equity base.

TABLE 1

PROJECTED USES AND SOURCES OF FUNDSU.S. TRUNK AIR CARRIERS1977, 1980 AND 1984(Current Dollars in Billions)

<u>Uses of Funds</u>	<u>1977</u>	<u>1980</u>	<u>1984</u>	<u>1977-1984</u>
Property & Equipment	\$1.2B	\$1.6B	\$5.7B	\$24.4B
Debt Repayment	.5	.5	.4	3.6
Dividends & Other	.3	.6	.1	1.1
<u>Total Uses</u>	<u>\$2.0B</u>	<u>\$2.7B</u>	<u>\$6.2B</u>	<u>\$29.1B</u>
<u>Sources of Funds</u>				
Depreciation	1.1	1.1	1.6	10.0
Sales of Aircraft	.1	.0	.1	.4
<u>Total Sources</u>	<u>1.2</u>	<u>1.1</u>	<u>1.7</u>	<u>10.4</u>
Uses Less Internal Sources	\$.8B	\$1.6B	\$4.5B	\$18.7B

NOTE: The following growth rates are assumed in the projections:

Real GNP	3.7%
Inflation	5.1%
RPM's	
Domestic	6.5%
International	5.3%
System	6.2%

TABLE 2

SELECTED FINANCIAL DATA FOR TRUNK CARRIER INDUSTRY
 (System Operations, Including Pan Am)
 1967-1975

(Dollars in millions)

	<u>Operating Revenue</u>	<u>Pre-Tax Profit</u>	<u>Pre-Tax Profit Margin</u>	<u>Return on Investment</u> ^{1/}
1967	\$6,117	\$638	10.4%	8.5%
1968	6,902	411	5.6	6.1
1969	7,765	247	3.2	4.6
1970	8,131	(154)	(1.9)	1.8
1971	8,811	55	0.6	3.7
1972	9,783	266	2.8	6.0
1973	10,905	287	2.6	5.6
1974	12,865	447	3.5	6.8
1975	<u>13,374</u>	<u>(121)</u>	<u>(-)</u>	<u>2.8</u>
9 Yr. Total	\$84,653	\$2,076	2.5%	NA

^{1/} Return element includes net income and interest on long term debt.

Source: CAB Form 41/TPI-32 Reports

TABLE 3
SELECTED FINANCIAL DATA FOR TRUNK CARRIERS (Including Pan Am) 1971 TO 1975

<u>Carriers with Large Numbers of 4-Engine Aircraft</u>	<u>Operating Revenues (\$ Millions)</u>	<u>Net Income (Loss) (\$ Millions)</u>	<u>Profit (Loss) Margin (Percent)</u>	<u>Debt as a Proportion of Total Capitalizat (Percent)</u>
Trans World	\$ 7,679.9	\$ (24.5)	(0.3)%	73.0%
American	7,583.5	(39.5)	(0.5)	45.4
United	9,681.2	155.6	1.6	48.2
Pan American	7,169.1	(233.9)	(3.3)	75.9
<u>Others</u>				
Eastern	6,629.2	(65.1)	(1.0)	68.2
Delta	5,502.5	268.8	4.9	44.8
Braniff	2,281.3	93.1	4.1	57.7
Western	2,113.4	74.5	3.5	43.8
Northwest	2,984.8	203.5	6.8	28.3
Continental	2,081.4	21.3	1.0	71.7
National	1,821.1	82.3	4.5	46.7

1/ Trunk Air Carriers - System Operations, December 31, 1975

TABLE 4

**PROJECTIONS OF DEBT/EQUITY RATIOS,
SELECTED TRUNK CARRIERS, 1976, 1980, AND 1984**
(Dollars in Billions)

<u>AIRLINE</u>	ANTICIPATED CAPITAL EXPENDITURES (1977-1984)	LONG TERM DEBT/ EQUITY ^{1/}			ADDITIONAL REPLACEMENT CAPITAL REQUIRED BY 1984 ^{2/}	DEBT/EQUITY RATIO INCLUDING REPLACEMENT FINANCING (1984)
		<u>1976</u>	<u>1980</u>	<u>1984</u>		
American	\$3-3.5	.78	.47	2.3	\$1.2	4.4
Pan Am	1.8	3.0	1.7	.74	1.0	2.17
TWA	\$2-.3	3.0	2.2	2.8	1.5-2.0	5.77
United	4.2	1.1	.56	.34	2.0	1.52
Industry	\$27.1	1.3	.74	.98	5.6-7.7	1.78

SOURCE: Alliance One Institutional Services and TPI-32

1/ Assumes borrowings for capital needs without respect to carriers ability to obtain financing.

2/ Based on number of four-engine aircraft remaining in fleet after 1984, with replacements (including spares) valued at a 1982 cost of \$27 million each.

APPENDIX B

ADVANTAGES OF ACCELERATED DEVELOPMENT OF NEW TECHNOLOGY AIRCRAFT

1. Greater Noise Reduction

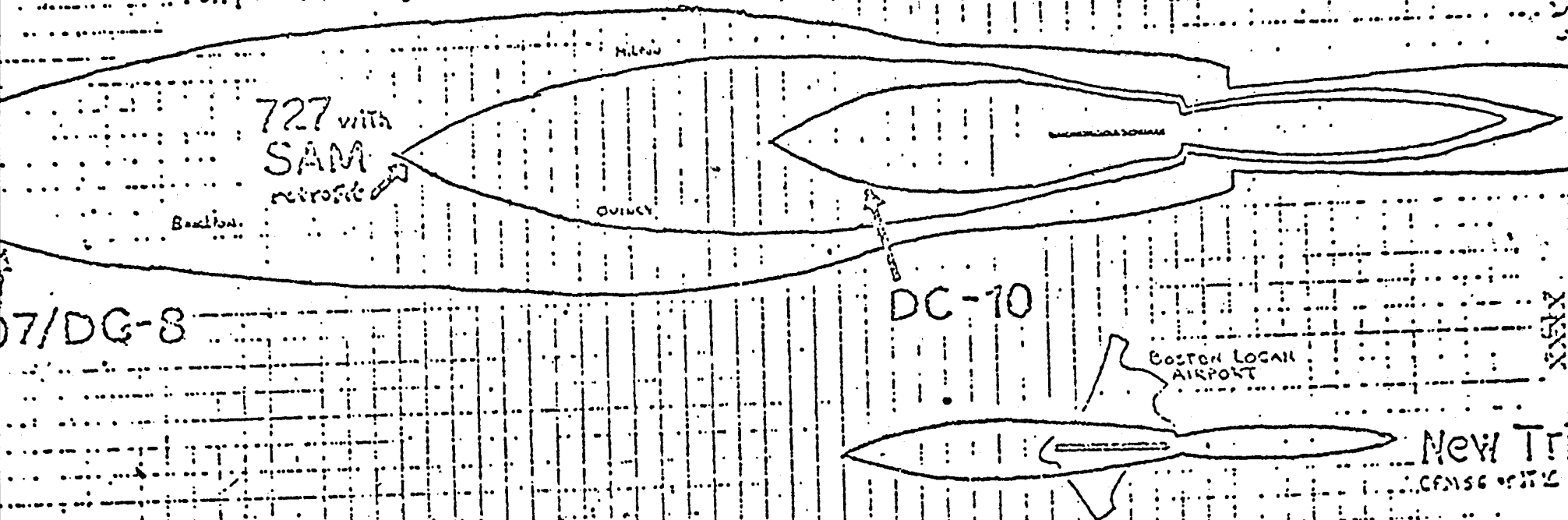
- A new-technology replacement aircraft would be far quieter than the quietest existing aircraft. The gain achievable is illustrated in Figure 1, which outlines the area exposed, on a single event, to a noise level equal to or greater than 90 EPNdB--roughly equivalent to the sound of a busy downtown street.
- The 90 EPNdB contour of the 707/DC-8 aircraft (technology of the 1950's) extends more than 20 miles beyond the brake release point of takeoff and roughly nine miles prior to the touchdown point on landing.
- The DC-10, employing the late 1960's technology CF-6 engine, is able to confine the 90 EPNdB contour to a much smaller area, equivalent to the over-water area south of Logan International. It is significantly quieter than a SAM retrofitted 727, which meets FAR 36 standards.
- Further important noise reduction advances are reflected in the noise contour of a new Tri-jet which has double layer acoustical linings, and the 1970's technology CFM-56 or JT10D engines with new design fan and turbine stages. Those engines are expected to be available for use in new aircraft.

2. Productivity, Operating and Safety Gains

- Technological advances possible today will result in a new aircraft with greater payload for its size and weight--an aircraft that is more reliable, more easily maintained, costs less to operate, and costs less to acquire per unit of productivity. These benefits accrue to the public, the air traveler, and the airlines.
- Greater efficiencies are achieved through such technological advances as:
 - Supercritical aerodynamics concepts in wing airfoil and body design, which can yield a lighter and more efficient aircraft.
 - Lighter, more aerodynamic propulsion system and more efficient engines and nacelles.
 - Digital electronics for avionics systems and in-flight control to avoid engine abuse, improve navigation and approach precision, provide increased reliability, maintainability, safety and fuel efficiencies.

Area Exposed To More Than 90 EPNdB

Full power takeoff; conventional flap approach.



07/DG-8

- New structural concepts, new materials, and computer-aided designs which will result in a lighter aircraft made up of fewer, less complex parts.
- The new aircraft will be safer for the air traveler, through improvements in inflight control, and new interior materials of much improved flammability/smoke/toxicity characteristics.
- The new aircraft will comply with the more rigorous engine pollutant standards set for 1979.
- The new aircraft, by virtue of improvements in systems and avionics, will be certified with a two-man flight deck crew--an important contribution to control of airline costs and hence ticket prices.
- In terms of seats, range and operational characteristics, the new aircraft will be more closely attuned to marketing requirements of the late 1970's and mid 1980's. On many routes today the aircraft used are smaller than optimal, making additional flights necessary; on other routes aircraft of longer range than necessary are used, which incurs both weight and efficiency penalties. A market-matched aircraft would convert into increased airline efficiencies.
- The new aircraft will use computer-aided flight profile management, which increases aircraft, airport and airways system productivity.
- The new aircraft will accept the standardized interline cargo container (LD-3). This would allow much improved efficiency in the high growth air cargo industry, by avoiding much of the labor and handling costs, while interfacing efficiently with all-cargo and interline air cargo services.

3. Energy Savings

- Replacement of 707/DC-8 aircraft with new, high-technology aircraft would result in reduced energy consumption per seat mile flown. 1/ The estimated magnitudes of the savings from various noise reduction programs are shown below:
 - A program resulting in the retrofit of about 100 of the 707/DC-8 aircraft and replacement of the rest with new, high-technology aircraft would provide an energy saving of about 2.5 billion gallons of jet fuel--an energy cost saving of about \$900 million over the period of the program (1981-1986) at today's price.

1/ This is based on comparison of the fleet mix that was estimated to result from implementation of the proposed programs with the fleet mix estimated to result in the event that no program were undertaken. The new, high-technology aircraft is estimated to be 30% more fuel efficient than a 707/DC-8 on a seat mile per gallon basis.

- A program resulting in the replacement of all 707/DC-8 aircraft with new, high-technology aircraft would provide an energy saving of about 2.8 billion gallons--a cost saving of over \$1 billion over the program period.
- A program resulting in the retrofit of all 707/DC-8 aircraft would impose an additional energy requirement of about 220 million gallons over the program period.
- It should also be noted that retrofit of the 727/737/DC-9 aircraft would not cause a measurable change in the energy requirement of the commercial aircraft fleet.
- The annual energy saving of the program would in 1986 amount to about 8% of the total jet fuel consumption of the commercial aircraft fleet.

4. Positive Impact on the U.S. Aerospace Industry

- The 2- to 3-year gap between expected development and accelerated development of a new-generation aircraft is significant for the national interest in general, but could be crucial for the U.S. aerospace industry. Lacking a market for a new plane -- and thus the opportunity to put their drawing-board technology to work -- the U.S. manufacturers already have lost some of the technological advantage they have always enjoyed over foreign competition.
- A potentially more critical loss is U.S. share of the world aerospace market. If delivery of a new aircraft is delayed to 1985, as appears likely absent the spur of a realistic noise reduction program, foreign competition -- with newer products to offer -- may secure their hold on a major share of the world market, and the U.S. industry may decline to a level from which it cannot easily recover.*
- The economic impact on the aerospace industry and on the U.S. economy in general would be enormous. With sales of \$28 billion, and employment of around 950 thousand, the industry has been a major factor in the U.S. economy for nearly the last quarter century. Since 1968, however -- as a result of the problems of its client industry, the U.S. airlines, and a reduction in military purchases -- aerospace has experienced a very sharp decline:
 - Direct employment has declined 37 percent.
 - Industry payroll as a percent of all manufacturing payroll has declined 30 percent.

* The domestic market is also at issue. In the absence of a new U.S. 180-to-200 passenger aircraft, U.S. airlines are looking at such foreign aircraft as the French-made A-300-B, which already developed is substantially cheaper -- though less efficient -- than a new generation U.S. aircraft would be.

- As a percent of GNP, aerospace industry sales have declined 42 percent.
- Real aerospace industry sales have declined 37 percent.
- As the real domestic and military markets have declined, U.S. manufacturers have grown heavily dependent on foreign markets for sales of civil aircraft. Since 1968 civil aircraft exports as a percentage of total civil aircraft sales have almost doubled. U.S. airframe and engine manufacturers have turned more and more to consortiums with European firms, both to share developmental costs and to ensure continued access to European markets. However, the consequent sharing of production will further erode U.S. aerospace employment.*
- Anxious to reduce U.S. dominance of the lucrative aerospace market, foreign governments have become increasingly protective of their own aerospace industries and markets, and increasingly aggressive about penetrating other markets, forming alliances where necessary to do so (the French and German combined forces to produce the successful A-300-B). Thus, while the U.S. aerospace industry has been declining in real terms, European and other foreign governments have been subsidizing expansion of their own aerospace industries, and threaten to encroach on both the U.S. and world markets. A loss of only 5 percent of present U.S. sales to foreign competition would result in a loss of 47,000 jobs and \$729 million in payroll.
- Assuming that past relationships hold true, the proposed program would accelerate by 2 to 3 years the rehiring of about 25,000 aerospace workers at a payroll of about \$400 million a year.

* An important consideration here is the effect erosion would have on the structure of the U.S. aerospace industry. The competition between the three major manufacturers has helped to establish and maintain U.S. technological superiority. If a sizable share of the world market is lost to foreign competition, one and possibly two manufacturers could suffer seriously.