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I. THE DEPARTMENT'S POSTWAR PROGRAM FOR THE PROMOTION OF THE DOMESTIC AND FOREIGN COMMERCE OF THE UNITED STATES

The Secretary's memorandum of March 22 urges that the Department be prepared when peace comes.

"to use its resources most effectively in promoting and developing the foreign and domestic commerce of the United States".

The memorandum envisions a departmental program a principal objective of which will be

"to assist business and industry ... in attaining such levels of production and distribution ... through the optimum utilization of existing ... facilities and the creation of new and productive avenues of investment,1/ as will assure the maintenance of maximum employment on a basis which can be sustained during the postwar years, and the preservation and improvement of the American standard of living".

II. THE PLACE OF CIVIL AVIATION IN OUR NATIONAL ECONOMY

Civil aviation can play an extremely important part in the development of the domestic and foreign commerce of the United States.

Civil aviation's contribution will take two principal forms:

1) Its development into an important new industry which will make a major direct contribution to our national economy;
2) It's function in accelerating nationwide and worldwide transportation and communication which will increase the efficiency of all forms of industry and commerce and will make for improved human relationships.

1. Aviation's contribution as an industry

Civil aviation before the war was a very small industry with annual revenues (1939) of only $389 million.

There are few industries which offer more certain promise of growth than civil aviation, and there are also few whose rate of growth is more dependent on vigorous and sound governmental promotion. It therefore deserves special attention in the Department's program for assisting in the "creation of new and productive avenues of investment".

The degree and speed of growth which can be attained cannot of course be accurately forecast. We have prepared reasonably conservative estimates which conclude that, given an aggressive promotional program by government the civil aviation industry can within 8 to 10 years after V-J day employ 400,000 persons and produce annual revenues of some $1,700 million.

1/ Underlining supplied.

March 13, 1945

TABLE I

POTENTIAL REVENUE OF CIVIL AVIATION
TWO YEARS AND TEN YEARS AFTER THE JAPANESE WAR

Aircraft Manufacture	1939 (Dollars) (Millions)	1944 (Dollars) (Millions)	2nd year (Dollars) (Millions)	10th year (Dollars) (Millions)
Personal Aircraft	$24	0	$50	$350
Commercial Aircraft (Transport)	30	0	$80	90
Total Production	$50	0	$130	$440
Air Transportation				
Scheduled	$56	$160	$267	$550
Non-Scheduled	5	5	67	140
International	16	40	66	130
Total Air Transport	$77	$205	$400	$820
Service Industries	$20	$ 20	$ 40	$400
CAA-Weather Bureau	$12	$ 22	$ 30	$ 40
Grand Total	$163	$247	$600	$1700
MILITARY AIRCRAFT	$226	$20,000	$750	$750

TABLE II

March 13, 1945

POTENTIAL EMPLOYMENT OF CIVIL AVIATION
TWO YEARS AND TEN YEARS AFTER THE JAPANESE WAR

Aircraft Manufacture	1939 Employment (Thousands)	1944 Employment (Thousands)	2nd year Employment (Thousands)	10th year Employment (Thousands)
Personal Aircraft	4	0	6	44
Commercial Aircraft (Transport)	5	0	10	11
Total Direct	9	0	16	55
"Grass Roots"	6	0	20	67
	15	0	36	122
Air Transportation				
Scheduled	9	27	45	90
Non-Scheduled	1	1	11	23
International	3	7	11	22
Total Direct	13	35	67	135
"Grass Roots"	3	9	17	35
Total	16	44	84	170
Service industries	4	4	8	80
CAA-Weather Bureau	6	11	15	20
GRAND TOTAL	41	59	143	392
Military Aircraft (Direct and "Grass Roots")	63	5,500	210	210

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It is conceivable that these estimates may be greatly exceeded. If air travel captivates the American public as automotive travel captivated them in the 1914-29 period, a truly remarkable expansion is possible. Between 1900 and 1929 our per capita national income, adjusted to a standard 1926 price level, expanded from approximately $460 to $625; and the per capita expenditure on transportation expanded from $17 to $62. Based on these figures, 27% of the increase in income was devoted to the purchase of transportation.

If postwar national income is estimated at about $140 billion at actual price levels, or about $970 per capita when adjusted to 1926 price levels, and one quarter of the increase over 1929 is again attracted to transportation, the amount available annually for transportation would be between 12 and 13 billion dollars. Of this amount air travel might possibly attract some 2 billion dollars, which would pay for 80 billion passenger-miles (with airline rates of 2 1/2 cents per mile), as compared to our conservative estimate of 11 billion passenger-miles in the tenth year after V-J day. Needless to say, this maximum estimate is offered merely as a possibility as many factors will enter into the determination of just what amount of increased income will go to transportation in general and to air travel in particular.

2. Aviation's contribution to commerce by increasing the efficiency of our national economy and the world economy

Between production and consumption - supply and demand - lies distribution, the function in which air transport will find its greatest usefulness. Allied to distribution is communication, also of vital importance to the efficient conduct of business.

The airplane is revolutionizing these relationships by its speed (4 to 7 times that of surface transport) and its independence of surface barriers - speed which will soon be available at rates comparable to surface transport, at least as far as passenger carriage is concerned.

a. Domestic. Domestic air transport four to six times as fast as the railroads will be available five years after the war at 3 cents a passenger-mile, as compared to the present Pullman rate of 5 cents. Air cargo rates will approximate 15-20 cents a ton-mile, or about the same as present rail express rates.

Air transport will thus enter the mass market for the first time and by auxiliary services such as taxi service, charter service, and private flying, will be available in more flexible form than ever before.

This vast increase in transport speed at a low enough cost to make it available to the mass of our people will greatly increase the efficiency of our industrial processes. The tempo of commerce and industry will be accelerated. Top management can be spread thinner. Inventories at outlying factories and shops can be decreased. Both factors will contribute to industrial decentralization.

Over the longer term (20-50 years) the population mobility made possible by the airplane will have a profound effect on municipal development and city planning. Rooftop landings may eliminate road congestion. Residentail areas can be placed far from metropolitan centers.

The social and cultural effects of increased travel and recreation made possbiel by the airplane will also be important.

b. Foreign. The comparative acceleration of international transport and communication (and thus international trade) by the airplane will be far greater than in the domestic field where existing surface transport is relatively rapid and efficient. Even as compared to the fastest steamships the airplane will be 7 times faster and little more expensive as far as first-class passenger transportation is concerned. As compared to surface transport in undeveloped areas the airplane will be ten to fifty times faster.

In merchandise transport the airplane can compete in cost against the mule or packtrain but will be infinitely (70-100 times) more expensive than the steamship.

A progressive and efficient civil aviation industry can obviously do much to foster our foreign trade. American airlines provided with adequate ground facilities can speed the contacts of American salesmen with foreign markets, permit the quick and easy transfer of samples, and the actual shipment of orders of lightweight valuable goods and emergency supplies.

The airplane should also make possible the expansion of the American tourist trade. It will enable those who traveled before to travel more; and those who were prevented from traveling by limited vacations will be able to travel for the first time. Every effort must be made to reduce the cost of international air travel and to promote its use. Eventually it may become a painless method of transferring really important dollar balances abroad where they may be used for the purchase of American goods.

The dissemination of American civil aviation techniques to other countries, particularly those with poorly developed surface transport facilities, will not only expand the market for American aeronautical products; it will help develop the economics of these countries and thus their part in world trade.

Over the long term air transport will help to ensure practical recognition of the true economic interdependence of nations in the machine age and will permit geographic division of labor. Ultimately of course political unity rests upon rapid means of transportation and communication.

III. THE BRIGHT PROSPECT FOR TECHNICAL IMPROVEMENTS ENSURES THE INCREASING UTILITY OF THE AIRPLANE

We are on the threshold of the greatest period of technical aeronautical improvement that has yet been witnessed. The progress that has been made in the last fifteen years was largely due to improvement in detailed design; there was very little in the way of major invention.

In contrast, the last few years have seen a number of major inventions whose application and development over the next ten to twenty years hold out immense possibilities. The gas turbine and jet power plant will increase in efficiency as speeds go up, thus leaving only aerodynamic obstacles as the limiting factors to speed as distinct from the power plant limitations which

previously limited speeds to some 475 miles per hour. There is hope that laminar flow wings and perfection of the special structional designs necessary for very thin high-speed wings will overcome these aerodynamic obstacles and enable the aircraft of the next few years to transcend the speed of sound.

The helicopter, just now approaching the realm of practicability, opens up other fascinating possibilities for taxi and private flying.

The spectacular wartime electronic discoveries will be of vital importance to aviation and if aggressively developed will make all weather operations safe and practical not only for the airlines but for the private pilot.

And all these technical improvements will be available to an industry which in important phases (domestic air transport) was emerging from the subsidy stage before the war despite its technically adolescent condition.

Never was there a time when aggressive but intelligent promotion of civil aviation by government and industry combined promised more real and important results.

IV. NEED FOR GOVERNMENT PROMOTION AND FINANCIAL ASSISTANCE

Civil aviation, despite its promising future, has not yet reached the point where it can stand entirely on its own feet economically. Direct subsidies will be necessary for some time in certain fields of transport (local short-haul service, international service). Moreover, as the automotive industry is dependent on highways and the shipping industry on lighthouse service and docks, air transport and private flying are dependent on government-furnished facilities (airports and airways) and will be so permanently. The growth of all these forms of civil aviation is dependent to a large degree on the expansion and improvement of these ground facilities - all of which are the responsibility of CAA.

It is therefore certain that not even the more conservative growth estimates submitted at the beginning of this study can be achieved without a very substantial degree of government financial assistance and government promotion. The rate of growth will be largely influenced by the scope and excellence of government activities in these fields.

1. Promotion

Pure promotion includes such matters as encouraging the teaching of aviation subjects in the schools, making accurate information and statistics available to those interested in aviation, simplifying regulations to encourage more flying, and actively spreading American aviation techniques abroad through U. S. missions and through encouraging visits from foreign experts.

2. Financial aid

Financial aid should take several forms, including both direct subsidies and the provision of facilities.

a. Direct subsidies. While our domestic airline system is at present unsubsidized as far as air mail payments go, some subsidy will be necessary in the future if new and at present economically marginal forms of air transport are to be actively developed so that they may become important self-supporting contributors to employment as soon as possible. Short-haul and pick-up services, both of which have great long-term expansion possibilities, fall into this class. Our international airline system as a whole will require subsidy for some years to come.

b. Federal Airways System. As marine navigation is dependent on Federally-operated lighthouses and buoys, air transport and private flying could not operate, especially in bad weather, were it not for the Federal Airways System of radio aids, light beacons, and intermediate landing fields. This system must be expanded as the route mileage of our air transport system grows. Above all, it must be modernized if it is to handle increasing volumes of traffic with improved safety, reliability, and ease.

Airline reliability and safety in bad weather still leaves much to be desired. Safe bad weather flying is out of the question for the amateur pilot with present navigational methods. An aggressive program of research and development in the electronic field is therefore essential to the growth of civil aviation. The application of the results of that research in the form of the installation of new types of airway equipment will be an expensive process.

c. Airports. The growth of air transport and especially the expansion of private flying is dependent to a very large degree on the expansion of our airport system which plays a part in aviation analagous to the highways in the automotive field and docks and harbors in the shipping field. The provision of a basic national system of airports is a Federal function as far as planning and the provision of substantial financial aid is concerned.

d. Civil pilot training. Federally-assisted flight training in our schools and colleges has proved its worth as an aid to the development of civil flying. Its resumption in the near future is desirable.

Substantial expenditures in all these fields will be necessary. These expenditures will be necessary if we are to have the rapid civil aviation growth which we need, and it will be necessary to make them before it can be mathematically proved that they will be returned. The Department has a real job of salesmanship to do with the Budget and with Congress to obtain the "sinews of war" which will be necessary to ensure the maximum potential expansion in civil aviation.

e. Justification for government promotion of civil aviation. Fortunately a good case can be made for such expenditure on the part of the Federal government. Our past government expenditures on civil aviation have proved a good investment. The accumulated deficit on domestic air mail since 1917 (which at one time reached $200 million) has been wiped out and the Post Office Department is currently reaping an annual profit of $70 million on the service. It is believed that over the long term the necessary additional "seed corn" expenditure on civil aviation - for airports, airways, and civil pilot training - will be returned through taxation on the growing new industry. On the intangible side it is certain that the more rapid transportation will bring important if less

exactly measurable benefits to the country by quickening our channels of distribution and by facilitating the social intercourse and recreational activities of our citizens.

f. Relative role of government and industry. Government programs for the promotion of civil aviation by financial aid are unlikely to arouse any serious objection from industry on the ground that they will interfere with private enterprise. The role of government in civil aviation development is well established. The industry accepts CAA operation of the Federal Airways System (though some suggest that airways operation abroad should be by private companies). It is becoming increasingly recognized that the construction and operation of airports is the province of government - state, local, and municipal.

Possible minor friction may occur as to

1) the proper place of government in basic and applied research. The large aircraft manufacturers regard NACA as a competitor for the government's research dollar. All companies large and small resent suggestions from government that their product might be improved and particularly resent government-sponsored projects for design improvements. But sometimes projects of this nature are necessary to keep industry "on its toes".

2) competition between government-financed and privately-financed airports. As we do not propose to construct Federally-financed airports near good private airports and as the trend is clearly away from private ownership of airports, this is unlikely to be a serious problem.

g. Opposition to government expenditures on civil aviation on grounds of economy and from surface carriers. The most serious opposition to adequate government expenditures on civil aviation will come.

1) on the grounds of the necessity for economy in government. Civil aviation expenditures must of course bear a proper proportion to our national budget, and are limited by the size of that budget. However, because of the long-term economic return which expenditures in this field promise, they should withstand criticism from those who object to government spending merely because it is government spending.

2) from competing transport interests (particularly the railroads) which feel that air transport is being favored at their expense. For example, both the Bureau of the Budget and House and Senate Appropriations Committees have asked us to make recommendations as to how the users of the airways can pay for the operating costs of those airways. The problem must be carefully and honestly studied, but it should be noted that payments by users have proved impractical in the case of lighthouses and highways and will probably prove impractical in the case of the airways.

Elements in both the Budget and the Congress, impelled by a combination of motives 1) and 2), will also wish to hold the Airport Program to a minimum.

V. THE PLACE OF THE CIVIL AERONAUTICS ADMINISTRATION IN THE DEPARTMENT'S PROGRAM

It is evident from the foregoing that the promotion of civil aviation

must play a very important place in the Department's program for promoting and developing the foreign and domestic commerce of the United States and encouraging the creation of new and productive avenues of investment. In such a program the CAA can and should play a most important role.

The principal objectives of the CAA are defined in the Civil Aeronautics Act of 1938 as modified in Reorganization Orders III and IV. Reduced to their simplest form the fundamental projects, programs, and objectives of the CAA are

1) Control of civil aviation in the interest of promoting safety, largely by means of administering the Civil Air Regulations promulgated by the CAB.

2) Establishing, maintaining and operating aids to air navigation and services to the flying public, military and civil, in the interest of improving safety and efficiency.

3) Fostering the development and growth of civil aviation as a factor in the national economy.

1. Size and nature of appropriations necessary

The CAA's responsibility to promote and foster the growth of civil aviation is a serious and important one. It is the medium through which most of the government's promotional expenditures on civil aviation will be made. Direct subsidies to our airlines, domestic and international, will be determined by the CAB in setting air mail rates and, if the present system is continued, will be paid out of the Post Office Department budget.2/ However, such payments are likely to be a small portion of our Federal expenditures on civil aviation in the postwar decade.

All other expenditures on civil aviation will be made through the CAA. It is thus of vital importance that CAA receive adequate appropriations in the postwar period. The major items should include, if we are to do our job,

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2/ The Civil Aeronautics Board has recommended (I believe soundly), and the proposed Lea and McCarran bills provide, that the CAB should have its own budget for direct subsidy which would thus be separated from the Post Office payments for carrying the mail. The airlines are opposing this move because they wish any element of subsidy (at present there is none in domestic air mail payments but there may be later if the Board experiments with short-haul service) to remain concealed.

	Estimated annual cost for first five postwar years (millions of dollars
1) The Federal Airport Program, the Federal share of which may run from	65 - 100
2) Civilian pilot training	10 - 20
3) Expansion and modernization of our Airways System	50[3/]

Other CAA activities, such as its Safety Regulation Service, will expand but not in direct proportion to the growth of civil aviation, as we hope to delegate as much of our enforcement functions as possible to flying schools and their instructors and to the states.

Other promotional activities of great importance, such as the promotion of aviation education in the schools, the making of United States aviation techniques available to foreign nations, and the stimulation of aircraft exports, while of immense importance, will not require large Federal appropriations.

2. Philosophy of Administration

The philosophy according to which the CAA is administered, and its success in obtaining appropriations, will have a great influence on the rate of growth of civil aviation.

On the one hand, CAA can carry out its regulatory functions in routine fashion, relaxing regulation only when it is obviously completely safe to do so. Or it can, more boldly, relax regulations in cases where it believes that the growth of personal flying will be stimulated, recognizing that experience may prove the relaxation to have been wrong and being prepared to accept the accidents and resulting criticism that will come with a mistake however honest.

On the one hand, it can modernize the Federal Airways System at a slow rate, build airports only when the capacity of existing fields is strained to the breaking point, and rely on personal flying to build itself up without the air of a Civilian Pilot Training Program. It can avoid the foreign field entirely on the theory that the Civil Aeronautics Act gives it no clear mandate to enter it. This kind of a policy will avoid friction with Budget and with Congressional Committees, but it will not build civil aviation.

On the other hand, it can adopt a forward policy in regard to regulation and can fight for appropriations to keep our Airport and Airways Systems out ahead of the growth of the industry; it can develop a strong and active international division to carry United States techniques abroad and to stimulate exports. This does not mean wild or foolish expenditure; it does mean expenditure to promote, to develop the industry. Nothing can stop civil aviation, but experience in England and elsewhere has shown how seriously unenlightened government policies can hold it back.

3/ 3 years.

The Administration and this office believes a progressive course should be followed. If the Secretary concurs, a concerted effort must be made to convince the President and later the Budget that such a course is sound for the United States. Then the appropriate Congressional Committees and the Congress must be convinced. Time is of the essence - we must start now.

3. Relationship with other Bureaus of the Department

It is evident from the foregoing that the CAA can make an important contribution to the full employment objectives of the Department. In achieving these objectives, its work can be more fully implemented in the Department's integrated program. Continued close cooperation with the Weather Bureau in such fields as thunderstorm research, inflight weather reports, transoceanic weather observation, and a dozen other matters will of course be necessary. Similar cooperation with the Coast and Geodetic Survey in aeronautical chart development, both domestic and international, will be necessary. And there will be joint projects with the Bureau of Standards.

New fields of cooperation will be developed with the Bureau of Foreign and Domestic Commerce. The dissemination of information about foreign aeronautical markets to the aviation industry must be closely correlated with the foreign promotional activities of CAA. Basic information on air express and on passenger potentials can be collected by the Bureau of Foreign and Domestic Commerce for the CAB. CAA's airport division must work closely with the Bureau of the Census in the preparation of its plans for a national airport program.

VI. REORIENTATION AND REVISION OF EXISTING POLICIES TO IMPROVE CONTRIBUTION OF CAA TO THE BASIC OBJECTIVES OF THE DEPARTMENT

Major reorientation of CAA policies will not be necessary to assure their maximum contribution to the Department's program. However, there must be an intensification and expansion of activity in all the normal fields of CAA activity and certain activities must be broadened particularly in the international field. Three major matters deserve specific notice under this head.

1. Relationship between military and civil aviation

The extremely successful development of U. S. civil aviation up to the present can be attributed in a substantial measure to the fact that it has been kept entirely independent of the military both within our governmental structure and as far as operation is concerned.

The tremendous wartime expansion of military and naval aviation has strengthened the position of the War and Navy Departments in the aviation field and they have come in close contact with the CAA and CAB through the operation of their Air Transport Commands and their training operations within the United States. Joint Civil and Military Committees (such as the Interdepartmental Air Traffic Control Board and the Air Coordinating Committee) have been established to coordinate civil and military activity during the war.

The military will undoubtedly wish to remain in certain fields of aviation activity which should be purely civil in peacetime and will also wish to obtain a substantial voice in civil aviation policy. They have already indicated a desire to participate in international civil aviation policy, in the location and specifications of civil airports, and in the control of air traffic on the airways. The services are motivated in this policy partly by a desire to sustain their prestige which will wane in peacetime due in part to reduced budgets, and partly by an honest belief that increased "coordination" between military and civil aviation is desirable. This trend toward a military voice in civil affairs must be strenuously resisted if our civil aviation is to remain strong and healthy.

2. Increased emphasis on international activities

CAA's international activities must be greatly expanded if it is to

1) do its part in stimulating the export of American aeronautical equipment:
2) ensure our airlines the use of ground equipment built according to U. S. standards;
3) Salvage some of the worldwide communication network built by the Army Air Forces during the war;
4) Aid the U. S. in playing its part in the newly created International Civil Aviation Organization at Montreal;
5) Help aviation to play its part in developing the transportation systems and thus the economics of backward countries.

To accomplish this end it will be necessary to welvome foreign civil aviation missions in this country and send U. S. civil aviation missions abroad. Substantial numbers of foreigners will also have to be trained in U. S. aviation techniques in this country.

At present these activities are carried out on a very small scale with funds appropriated to the State Department. Direct appropriation to CAA is desirable.

An amendment of the Civil Aeronautics Act may also be desirable to emphasize CAA's responsibility in the international field. At present the Administrator is merely instructed to "promote the development of civil aviation in the United States and abroad".

3. Major organization problems - relation of CAA to CAB and to the Department

The present relationship of CAA to the Department is by no means permanent. A substantial element in Congress resents Reorganization Orders III and IV of 1940 and wishes to re-establish CAA and CAB together as an independent agency. The Lea (H. R. 674) and McCarran (S. 1) Bills on which hearings will begin shortly both provide for such a move. President Roosevelt strongly favored the existing organization. President Truman should be asked to take a position on the matter.

The relationship between CAA and CAb and the Assistant Secretary of Commerce also requires clarification.

The creation of a Department of Transportation perhaps 10 to 20 years hence should be considered.

If civil aviation is to remain in the Department, its importance should be recognized by the construction of a civil aviation building.

VII. ADDITIONAL PROJECTS WHICH WOULD MAKE A FURTHER SUBSTANTIAL CONTRIBUTION TO THE DEPARTMENT'S PROGRAM, BUT WHICH CANNOT BE UNDERTAKEN WITHIN PROSPECTIVE 1946 BUDGET.

The most important postwar peojects of CAA are detailed in Section V of Deputy Administrator Stanton's report. Almost all of them will require a very substantial increase in appropriations from the 1946 level.

They may be summarized as follows:

1) The inauguration of a major long range Federal-aid airport building program, combined with an expansion of CAA airport advisory service.
2) The rapid expansion and modernization of our Federal airways system, including transoceanic facilities.
3) An intensive research and development program aimed at developing new and better radio aids, making full use of wartime radar developments.
4) Expansion of CAA international activities, including the training of foreign nationals.
5) Reintroduction of a civilian pilot training program.
6) Expansion of program for introduction of aviation education in the school system.
7) Construction of a building to house civil aviation activities of the Government - CAA, CAB, and NACA.

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