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THE NATIONAL STRATEGIC AIRLIFT DILEMMA: AN APPROACH TO SOLUTION--ETC(U)
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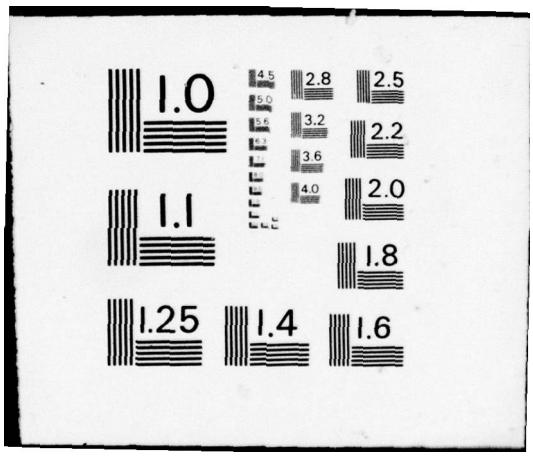
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THE NATIONAL STRATEGIC AIRLIFT DILEMMA: AN APPROACH TO SOLUTION.

Volume II

April 1976

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SD-321

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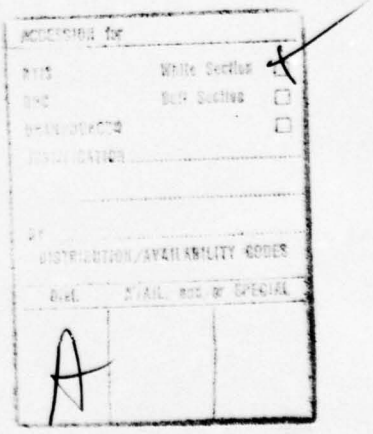
PREFACE

This document, Volume II of a two-volume report addressing the U. S. strategic airlift program, presents a number of approaches to solution, or at least amelioration, of the problems that beset the program.

A number of factors that influence the program and that must be understood before alternative solutions can be rationalized are discussed in Volume I.



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THE NATIONAL STRATEGIC AIRLIFT DILEMMA: AN APPROACH TO SOLUTION

BACKGROUND

Volume I of this report, The National Strategic Airlift Dilemma, concludes that although national war contingency plans currently depend heavily on strategic airlift, the existing combined capability of the Military Airlift Command (MAC) and the Civil Reserve Air Fleet (CRAF) is inadequate to meet the strategic airlift demands of those plans and that the readiness of MAC to respond to a war emergency is being jeopardized. Each of several interrelated factors which underly these strategic airlift deficiencies is examined in Volume I. This report, Volume II, examines approaches toward solution, or at least amelioration, of the problems cited in Volume I.

GENERAL

As will be shown later in this analysis, complete resolution of the strategic airlift dilemma, even with continuing full support of necessary actions by all decision makers involved, cannot be expected realistically except in the long term. There are, however, actions which could be implemented relatively immediately, which would in the near or mid-term timeframe, narrow the gap between strategic airlift capability and known wartime airlift requirements and improve MAC readiness posture. This analysis will therefore consider possible moves toward alleviation or solution of the dilemma in regard to timeframe, effect, and cost.

One obvious method of solving the requirement versus capability problem is to examine the requirement with a view toward deflating existing war plan dependence on strategic airlift. Clearly, if the requirement is suspect, then so too is the need to increase strategic airlift capability. Such an examination is outside the scope of this analysis and, therefore, the wartime airlift requirements stated in Volume I will be accepted in the following as the objectives to be attained by the improvements

considered. It is of importance to note, nonetheless, that support by the Congress of airlift enhancement programs will rest heavily on the credibility of testimony pertinent to war plan contingency requirements. Volume I presents some evidence of lack of Congressional understanding of or belief in previous statements of war plan strategic airlift requirements and assigns this as one cause of Congressional denial of funding for certain past enhancement proposals.

As has been mentioned previously, effective solution of the airlift deficiency can be achieved only through actions which will take a substantial number of years to complete. If there is to be a serious effort in this direction, it is essential that a DOD airlift enhancement program covering all of the several fiscal years involved be developed. The program should be based on war plan strategic airlift requirements as ultimate objectives to be met. An annual reexamination of these requirements should be conducted to insure continuing validity of program objectives. The program should spell out precisely the airlift enhancement actions to be taken each fiscal year, the progress toward total program objectives which each action will achieve and the cost of each action as a portion of total program costs. Further, the program should specify the agencies involved in each action, the agency which will provide leadership and the necessary interactions among the agencies, if any, which are essential to implementation. Congress is normally inclined to act more favorably on a given year's budget items that are clearly understood in their relation to an overall multi-year program than on requests presented in a program vacuum. Continuing Congressional support of the ballistic missile program and the national space program are cited as examples of multi-year programs having precisely stated annual elements toward understood ultimate objectives. There is evidence that the lack of this kind of total program treatment of airlift enhancement has been another of the reasons for unfavorable Congressional reaction to certain past enhancement proposals.

The Secretary of the Air Force, as the DOD Single Manager for Airlift Services, is the logical DOD point of control for detailed development of an overall airlift enhancement program. Nonetheless, as in any multi-year program, contention will arise at Office of the Secretary of Defense (OSD) levels as to the priority of the airlift enhancement program in relation to other programs and in the ensuing debates, an OSD airlift sponsor is necessary. Further, some knowledgeable OSD source of leadership is essential to the continuing year-to-year staffing within OSD and external to the DOD which such a program demands. It is therefore highly desirable that a single office within OSD be designated and announced as the point of OSD management supervision of any multi-year airlift enhancement program which may be adopted.

SHORT TERM ACTIONS

These are actions which can be expected to be finalized within approximately the next 12 months and those which could and should be initiated now but may require more than one year to complete. The main thrust of these short term actions is first, better organization and management of DOD efforts to improve strategic airlift posture and second, increased readiness of MAC to respond to war emergencies through resource augmentation and expansion of peacetime utlization.

a. Reassessment of War Plan Requirements for Strategic Airlift.

As stated in the GENERAL section of this analysis, war plan requirements should be reexamined. The product should be a restatement of these requirements which can be agreed upon by all levels of DOD civilian and military management, and which can be employed by senior management before the Congress as the end objective of an airlift enhancement program. To satisfy such purpose, the restatement should be sufficiently lucid and detailed to convince Congressional committees that there are no alternatives to providing the required strategic airlift and that doing so is essential to sucessful execution of the war plans.

The effect of this action would be to achieve credibility in the Congress of the requirements on which any airlift enhancement program is predicated.

The cost would be only that resulting from the manhours spent in conducting the reassessment.

The timing of this product should be as early as possible to permit presentation to the Congress during deliberations on the FY 77 budget.

b. Airlift Enhancement Program Development.

OSD should issue a directive at an early date to SECAF to produce a time phased, multi-fiscal year Airlift Enchancement Program, the ultimate objective of which should be to enhance MAC and CRAF capability to match the previously mentioned reassessed war plan strategic airlift requirements and to insure MAC readiness to respond to emergencies at the required sustained wartime flying hour rate. Considerations in the program should be, at minimum, those discussed in the GENERAL section of this analysis.

The effect of the availability of such a program would be, among other things, the ability to explain to the Congress the ultimate program objectives and the timing of their achievement as well as to display all of the year-by-year funding actions which comprise the total program. Such an explanation should reveal all the relationships among the various actions, as to each other, as to time, and as to the final program objectives. A more favorable reaction from the Congress should be expected from this total program approach than has been gained from the somewhat piecemeal presentation of the past. The effect on the ability of DOD to manage all of the activities involved through the availability of a total OSD approved program is obvious.

The cost of this action would be primarily in the personnel area.

The work to develop the program should be initiated as early as possible following OSD approval of the restatement of war plan airlift requirements. There are certain long-range aspects to an airlift enhancement program which would

probably prevent completion of program development any earlier than the time of airlift hearings in connection with presentation of the FY 79 budget. These aspects will be discussed later in this analysis.

c. OSD Airlift Program Sponsor.

The GENERAL section of this analysis argues in favor of designating and announcing an office within OSD which will serve as the OSD focal point for the discharge of OSD management and coordination responsibilities in behalf of a multi-year airlift enhancement program. There is no cost associated with this action. The effect is obvious. The timing should be now.

d. Airlift Services Industrial Fund (ASIF) Revision.

As is discussed in Volume I, a high rate of utilization of strategic airlift in peacetime logistic support is vital to MAC readiness and of continuing interest to the CRAF carriers. Perhaps the single short-term action of most importance to the achievement of this objective is the development of a competitive and stable MAC tariff. "Competitive" as used herein means a tariff which bears a reasonable relationship to standard commercial scheduled air cargo tariffs and is closer than at present to over-ocean container shipping rates. It is not probable that a fully compensatory MAC tariff could equal standard commerical scheduled air cargo tariffs because of the current very low flying hour rate for MAC aircraft. A commercial tariff level for MAC could be put into effect through arbitrary selection if the differential between the annual revenue from the arbitrary tariff and that which would have been produced by a break even tariff were justified in the USAF mission account. The justification would be as an additional cost of readiness training incurred by the directed low MAC flying hour rate. "Stable" means a tariff that remains in effect essentially unchanged over a period of three years or more.

The present high MAC tariff is a bar to increased peacetime utilization of MAC for logistic transportation. Both the Service airlift requirements planners and the several levels of transportation managers seek cheaper modes of

transportation than MAC regardless of the effects on their other distribution costs and of the consequences to MAC. Further, the Service airlift requirements planners are hampered in forecasting transportation costs by the tariff excursions which have occured annually as well as by the timing with which the tariffs are issued each year. Hence, a MAC tariff that is substantially lower than that now existing and which is stable over a period of several years would divert into the MAC system a significant annual tonnage of cargo that is now travelling by other modes of transportation.

A competitive and stable MAC tariff can be achieved through the following changes in current air transportation financial procedures: (see Charts 1 and 2 for a depiction of current and proposed ASIF funding procedures).

(1) Deletion from tariff computation of all costs not directly associated with fulfillment of annually stated requirements for airlift services. It is probable that this computation will not produce a tariff which will be low enough to be competitive and thus attact all air eligible cargo into the MAC system. A more effective approach would be selection of an arbitrary tariff at the level of standard commercial scheduled air cargo tariffs as previously suggested in this analysis.

(2) Programming in the USAF mission account of funds representing the differential between the revenue which would be derived from the selected arbitrary tariff and that which would otherwise have accrued from imposition of a fully compensatory tariff. Justification for these funds should be on the basis of the need to attract all possible air eligible cargo into the MAC system such that a maximum of the hours flown by MAC to maintain airlift system readiness may be productive.

(3) Programming in the USAF mission account of all funding for flying hours flown for system readiness and local training that are in excess of the hours forecast to be flown in customer support.

Note: To reduce the cost of such readiness hours, further experimentation should be conducted on special, low, commodity tariffs for cargo not

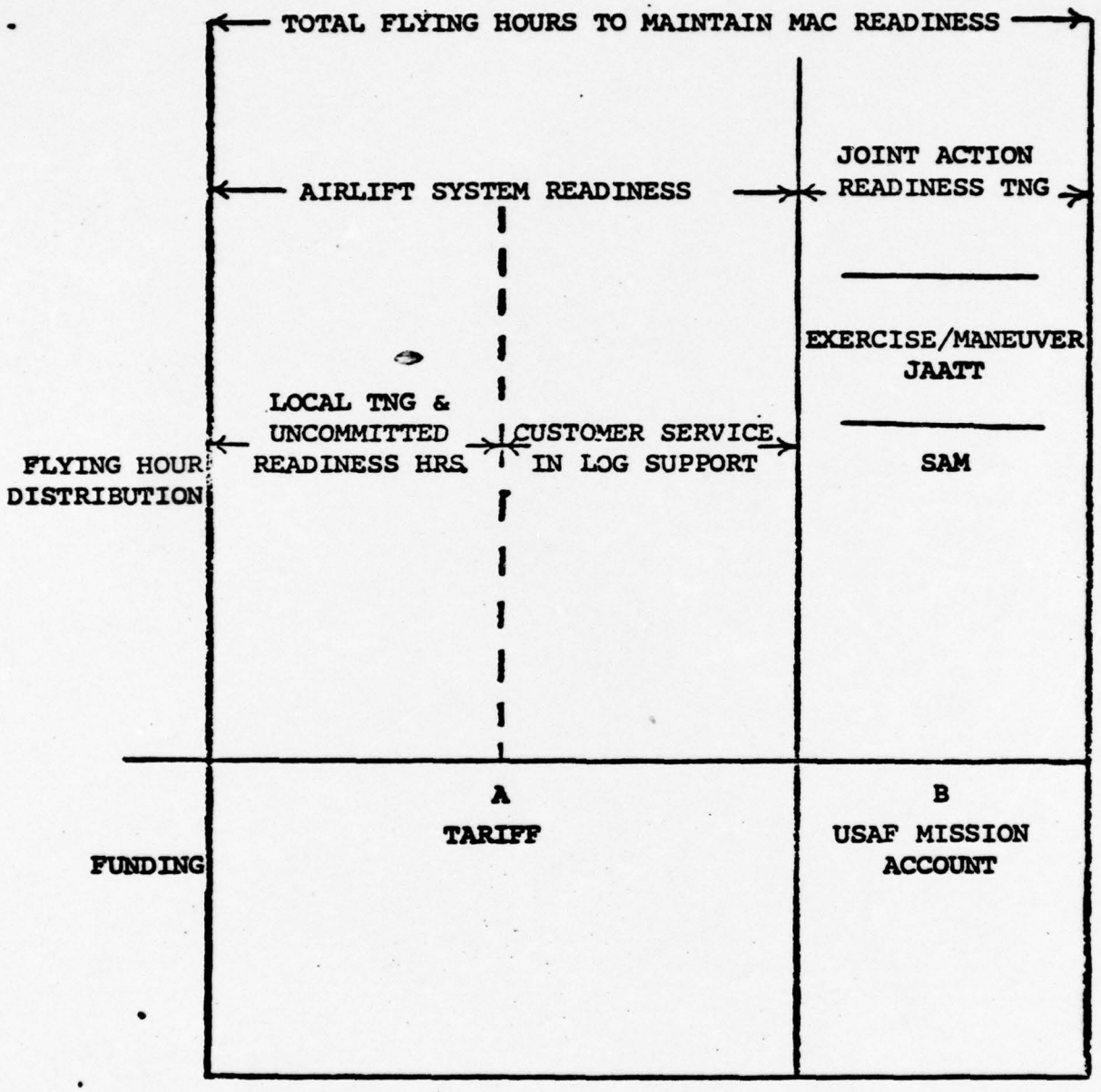


CHART 1

CURRENT PROCEDURES

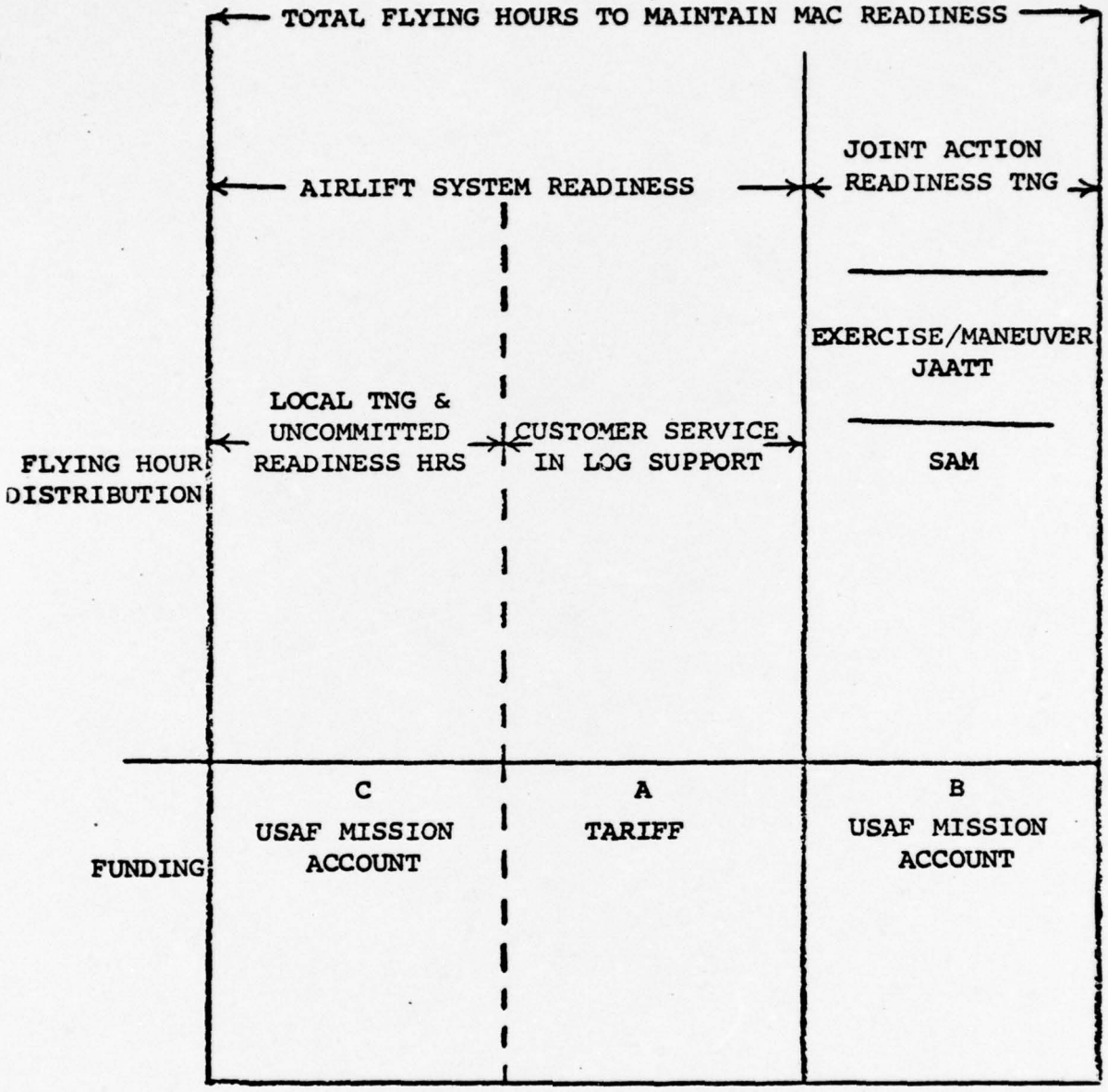


CHART 2

PROPOSED PROCEDURES

normally considered air eligible. Further, Congressional concern over uncommitted readiness hours would be lessened if such hours were "productive" even in the sense of carriage of this type of cargo rather than flown empty.

(4) "Fencing" of funds justified and appropriated for air transportation so that such funds will be applied only to the purpose for which appropriated. Chart 2 depicts the proposed distribution and funding of all annual flying hours for MAC readiness. If the budgeting of the flying hour program is to remain in balance during the operating year and if the stable tariff is to produce the computed revenue as a part of that balance, those funds justified and appropriated for air transportation must be so expended. Volume I mentions the frequent reprogramming of transportation funds to other unanticipated purposes. To prevent this diversion, air transportation funds should be "set aside" or "fenced".

(5) Balancing out annual ASIF profits or losses at OSD level within an overall industrial fund account rather than transferring them forward in the ASIF to the following year to be balanced out by adjustment of that year's tariff. It is not possible to arrive at tariff stability if the profits or losses in the ASIF in a given year are to be zeroed out by adjustment of the following year's tariff. There have been some indications within OSD that it may be possible to avoid this past practice by balancing out at OSD level all industrial fund profits and losses within an overall industrial fund account. If this is not feasible, a workable alternative would be to adjust the tariff every three years to balance the ASIF.

(6) Adoption of three year tariff stability with the tariff to be reviewed at the end of each year and changed only if an event has occured or is forecast to occur in the coming year which would have such a significant effect on costs as to demand a major change in the tariff. In the event of such a change, the three year stability period should be moved forward one year.

(7) Relating the Services annual statement of airlift requirements and the subsequent tariff computation timewise to the annual DOD budget year cycle. The timing of MAC receipt of annual statements of airlift requirements and of subsequent tariff computation is not adequately related to the annual DOD budget cycle. Thus, the Services cannot adjust transportation budgets as required by tariff fluctuations. A three year stable tariff would permit greater accuracy in budgeting for transportation funds. As has been pointed out, however, circumstances forecast for an upcoming year might be such as to demand a tariff change in spite of the stable tariff objective. The proposed adjustment in timing would eliminate even these infrequent sources of budgeting inaccuracy.

Note: A more detailed statement of the steps involved in funding and implementing the MAC flying hour program as proposed above will be found at Appendix A.

This proposed action is essentially a bookkeeping change and does not involve added costs. The effect would be to increase MAC productive peacetime utilization. The timing should be such as to allow full implementation in connection with the DOD FY 78 budget cycle. In this connection, it is to be noted that OASD (I&L) has tasked LMI to conduct a study of all transportation agency industrial fund procedures and effects. The completion date of the LMI analysis should fit the above stated timing.

e. MAC Airlift Channel Realignment

MAC has recently completed a study of customer air cargo flow requirements as against the existing airlift channel structure. The study reveals several possible changes in channel alignment and in customer service philosophy which, if implemented, would result in more efficient customer service at lower customer cost. These changes have been incorporated by MAC into a proposal which is currently under consideration within the Air Staff. It is not necessary to report here on the details of the proposal other than to note that implementation of all of its aspects would bring annual

DOD savings in excess of $11 million at the cargo flow rate assumed in the study. The effects of such savings on reduction of both air transportation expenditures and the MAC tariff indicate that early consideration and approval of the proposal at USAF and DOD are warranted.

This action would result in a substantial cost avoidance. The principal effects would be improved customer service and better MAC control of cargo movements both of which, in an era of a competitive and stable MAC tariff, should tend to encourage customers to increase their utilization of MAC. The timing should be as soon as possible.

f. Implementation of ALPS Recommendations

Under the sponsorship of OASD (I&L), a study group was convened in May 1975 for the purpose of identifying additional items of supply that lend themselves to a cost effective airlift system. The study, entitled Air Logistics Pipeline Study (ALPS) was completed with results being published and distributed to interested DOD management in January 1976.

The study recommended that the military departments employ certain criteria, developed during the course of the study, to identify airlift potential supply items. Among such items, the study identified Army repair parts (Class IX) as viable candidates for an economic airlift pipeline. The study also recommended issuance of OSD directives which would establish the item identification program, require military department reporting to OASD (I&L) on identification progress and provide for OASD (I&L) management oversight of the program. These recommendations should be approved and implemented at an early date.

While the tonnage volume which would be added to the MAC system through implementation of the study recommendations would probably not be large, the effects of implementation would nonetheless be to reduce the level of current uncommitted MAC readiness flying hours. The result of the action should be a cost

avoidance. As previously mentioned in this analysis, the existing high MAC tariff hampers what might otherwise be logical addition to the number of items declared air eligible. The timing of implementation should thus be related to the period of initiation of the competitive and stable MAC tariff discussed earlier in this analysis.

g. Reactivation of Army REAL Program

As a result of a directive from the Chief of Staff, U. S. Army in July 1969, a program entitled Routine Economic Air Lift (REAL) was developed. One of the major objectives of the program was to "effect savings by reducing the stocks required for pipeline and onhand inventories through use of airlift to resupply overseas theaters". For a number of reasons, the program was suspended in 1973.

Under date of 17 June 1974, the General Accounting Office (GAO) submitted a letter report to the Secretary of Defense regarding its survey of the REAL program. A quotation from the GAO letter follows:

"The problems discussed in this report had a crippling effect on the REAL program and contributed greatly to its failure. However, the REAL concept is valid and offers considerable potential for economy in the Army's total distribution system and improved management of its logistic resources. The concept also offers opportunities for better visibility, management and control of materiel because it eliminates the need for overseas field management of large physical inventories".

The Office of the Deputy Chief of Staff, Logistics, U. S. Army recently stated that the REAL program had again been started. As late as 25 February 1976, Headquarters MAC was not aware of this reactivation.

In addition to implementing the ALPS recommendations, OASD (I&L) should direct full scale reopening of the REAL program employing the recommendations of the aforementioned GAO letter and to the extent appropriate, those of ALPS. The main benefit of this action would be the reinitiation of dialogue between the Army and MAC on the economies offered to the Army through logistic utilization of strategic airlift. Reentry of GAO overview of the program should be sought.

The effect of this action would be an increase in tonnage of cargo entering the MAC system and a consequent reduction of uncommitted MAC readiness flying hours. This is a potential gain which is in addition to those cited in the above quoted excerpt from the GAO letter. Any costs incurred in pursuing the program would be offset by the cost avoidance realized as items are transferred to economic airlift from other transportation modes. The timing, to be most effective, should be related to the availability of a competitive and stable MAC tariff.

Note: As an alternative to the actions proposed in sub-paragraphs f and g above, OSD should evaluate the applicability of the Air Line of Communications (ALOC) study currently being conducted at the Army Logistics Center at Fort Lee. This study is examining all aspects of the interrelationship between Army storage and distribution and logistic air transportation. The Office of the Deputy Chief of Staff, Logistics, U. S. Army states that the ALOC study incorporates all desirable features of ALPS and REAL but is cast in a more practical approach than either ALPS or REAL. The ALOC study is scheduled for completion 1 May 1976.

If the OSD evaluation of ALOC supports the above stated DCS/Logistics opinion, OSD should accept ALOC in lieu of the above proposed actions concerning ALPS and REAL. OSD should insure, however, that the objectives of ALPS and REAL are fully met by ALOC and should also require that the results of ALOC be made available to DODMDS.

h. Assurance to Army of Logistic Airlift Availability

Volume I establishes as one cause of Army reservations regarding air logistics the concern that airlift devoted to logistic support in peacetime might be diverted to other purposes in time of emergency. One of the recommendations of ALPS, which is primarily a reflection of this Army concern, is stated as follows:

"OASD (I&L) in conjunction with MAC must establish the necessary framework to assure availability of airlift capability in time of mobilization for economic airlift items".

While this attitude continues to prevail within lower echelons of the Army, and may have existed within senior management in the past, discussion with the Chief of Staff, U. S. Army clearly reveals that it is not the current view of top Army management. The opinion expressed at that higher level is that strategic airlift offers the best available solution to many of the Army's current overseas logistic support problems and that a solid air logistics pipeline must be established in peacetime so that it will continue to operate effectively in the more difficult conditions of a wartime contingency. It is further the view of top Army management that since effective logistic support of forces deployed in combat is a paramount wartime consideration, airlift for that support will inevitably be made available as and to the extent required.

Supportive of this latter view are the figures as to the bulk (not oversize or outsize) lift capability of CRAF in excess of war contingency plan bulk airlift requirements. Those figures will not be stated here in order to preserve the unclassified security status of this section of the report. Suffice it to say that the excess is of a magnitude which will permit CRAF to pick up the entire peacetime air logistic pipeline even if the Army use of air logistics were approximately double that of the present.

It is suggested that an effective amelioration of the remnants of this problem would be the issuance of a firm OSD policy statement stating that modernization of DOD logistics demands maximum utilization of air transportation for all materiel that can be identified as air eligible and that established air pipelines will have priority support in war contingencies through CRAF employment.

i. Expansion of the Maneuver/Exercise Program

The annual MAC readiness flying hour program breaks down into two principal categories, the first being Joint Airborne and Air Transportability Training (JAATT) and joint exercises and maneuvers and the second, maintenance of airlift system readiness. To the extent that the first of these categories contains exercises that involve deployment of combat units from the United States to overseas destinations or over long

distances within an overseas theater, two readiness purposes are being served. Not only are MAC and the units that are being deployed receiving training in joint actions but also the overseas movement exercises that part of the MAC airlift system which is being traversed. It therefore follows that one method of reducing the uncommitted flying hours now flown for airlift system readiness lies in an expansion of overseas joint airlift maneuvers. An additional advantage would be thus accrued in that the competence of MAC and combat units in the conduct of joint actions would be improved. Any expansion of this program that compresses a large number of flying hours into a short time period would be counter-productive to the objective of maintaining airlift system readiness. Airlift system readiness demands a relatively constant flow of traffic through all parts of the system throughout the year. Thus, any attempt to reduce uncommitted readiness hours by expanding the maneuver program should be based on adding several small scale maneuvers to various overseas areas.

The costs of this alternative cannot be quantified since they will depend on the scope of the program expansion. There would be no increase in airlift costs since flying hours otherwise programmed for airlift system readiness would be traded for maneuver flying hours. The additive costs are therefore the difference between those funds expended for the combat units during the maneuver and those which would have been expended for them for local training during the same time period. The effect of implementing this alternative would be to reduce those hours flown non-productively by MAC in maintaining airlift system readiness. Should this alternative be adopted, the timing should be related to the planning of next year's joint exercise program.

j. Provision of Readiness Resources to MAC

In Volume I, LMI contends that existing MAC flying hour rates and resources are inadequate as a base from which to surge to the 12.5 hours per aircraft per day initial emergency rate or to sustain the 10 hours per aircraft per day continuing

wartime operating rate. MAC requested, in the FY 76 budget, posture improvement as follows:

- Increase C-141 flying hour rate from 3.38 to 3.49 hours per aircraft per day
- Increase C-5 flying hour rates from 1.5 to 2.34 hours per aircraft per day
- Increase C-141 aircrew ratio from 3.5 to 4 crews per aircraft
- Increase C-5 aircrew ratio from 3.25 to 4 crews per aircraft
- Increase maintenance personnel manning by 1811 manning spaces
- Provide funding of $198.7 million for war reserve spares

Congress denied funding of this request with the exception of $39.7 million for war reserve spares. OSD must provide to MAC the necessary support before the Congress in the FY 77 budget hearings to gain approval of these minimum resource requirements. Without them, it is not realistic to expect that MAC can meet the wartime flying hour objectives.

The costs for these readiness provisions, as computed by MAC are:

Annually

Increase C-141 flying hour rate $14.8 million

Increase C-5 flying hour rate $95.5 million

Increase aircrew ratio $7.10 million

Increase maintenance personnel manning $10.4 million

(There will be no cost to this requirement if a program is approved to transfer to MAC in a war emergency personnel assigned in peacetime to training and depot activities.)

One Time

Provide war reserve spares $159.0 million

The effect of approval of this request would be to strengthen MAC peacetime posture to an extent which would insure MAC ability to meet war contingency operating objectives. The timing for action of this matter is now with the exception of the C-5 flying hour rate increase. The C-5 is currently restricted to 1.5 hours per aircraft per day as a management action to conserve wing life pending a decision to modify the wing structure. Once that decision has been made, the C-5 flying hour rate should be increased immediately.

k. Restatement of DOD/Civil Reserve Air Fleet (CRAF) Relationships

Volume I discusses at some length the serious effect on CRAF capability and the potential effects on MAC readiness stemming from failure to update the 1960 guidelines for DOD/CRAF relationships known as the Presidentially Approved Courses of Action. The Department of the Air Force and MAC have previously proposed versions of a redrafting of these guidelines but there is no evidence of detailed consideration of these proposals in OSD. The principal issues which should be addressed by the policy revision are stated in Volume I. The CRAF is an important part of the nation's resource in strategic airlift and it must not be allowed to deteriorate. An early statement of modernized DOD/CRAF policy will not only serve this purpose but also will provide the basis for other CRAF related actions which will be discussed later in this analysis.

OSD should task SECAF to produce at the earliest possible date a proposed policy restatement. Once approved by OSD, the new policy should receive the approval of the Administration and the concurrence of the Congress. As will be noted from the character of the issues stated in the LMI Report, effective solution of this problem will probably require legislation in addition to reissuance of policy. The OSD directive to SECAF should thus include a requirement to provide a proposed legislative package as may be viewed as essential to carry out the proposed new policy. This package should be introduced at the time Congressional concurrence in the new policy is sought.

1. Department of Defense Materiel Distribution Study (DODMDS)

Inadequacies in the interrelationships between the DOD logistics and transportation systems are discussed in Volume I. The thrust of the discussion is that the current peacetime underutilization of strategic airlift for logistic support is due principally to the lack of a comprehensive study of the DOD logistics system and of the mutually favorable interactions which might exist between a modernization of that system and the air transportation system.

In February 1975, the Joint Logistics Commanders of the DOD issued a directive initiating a broad and detailed study of the DOD storage and distribution system which is the heart of the total logistics system. The study objectives relate, in the main, to the development of a plan for modernization to provide improved effectiveness, efficiency and economy in all aspects of storage and distribution. The charter for the study directs that the results of all other on-going DOD logistics studies be fed into the DODMDS. Final products of the DODMDS are scheduled for March 1977.

Close observation of the composition of the study group, the organization of the study plan, the progress to date and the preparations for the remaining study effort indicate that the DODMDS is an in depth study of the critical aspects of the DOD logistics system and that the effort is well staffed and expertly organized. It has the potential, once completed, to serve as the base for several further studies of the total logistics system.

The principal shortfall in the DODMDS, however, is that the study objectives do not include a full examination of distribution system/transportation system interactions. The time constraint of study completion by March 1977 obviates inclusion of this important addition to the objectives. Discussions with the study group leader and principal members indicate that, with timely guidance, the study data base and modeling could be employed after March 1977 in a follow-on study of the effects of excursions of the existing transportation system on the then proposed modernized distribution system.

Depending on assumptions as to the scope of such a follow-on study, the study group leadership is of the opinion that completion could be expected in December 1977.

OASD(I&L) should exercise leadership in tasking the Joint Logistics Commanders to produce a supplement to the DODMDS charter which would not modify the existing March 1977 study objectives but would direct that a follow-on study be conducted after that date as outlined above. A principal objective of the charter supplement should be to determine the optimum relationship, in terms of system efficiency and economy between the DOD distribution system and the air transportation system. Guidance in the supplement should specify the excursions of the existing transportation system which are to be examined. Such guidance should be developed among the Joint Logistics Commanders and the Commanders of MAC, MSC, and MTMC.

The cost of this follow-on study would relate mainly to computer time, extension of present contracts for outside professional assistance, possible additional contracts for outside professional assistance skilled in transportation economics and analysis, expansion of the data base and pay of study group personnel. Study group leadership estimates these costs to be on the order of $500,000. The assumptions on which this cost estimate is based are included in Appendix A.

The effect of this follow-on study would be two fold. First, it is anticipated that results would show substantial dollar savings and improved logistic efficiency in recasting the DOD distribution system so as to take optimum advantage of airlift. This, in turn, should be of major assistance in solving the current peacetime underutilization of strategic airlift. Secondly, the Senate Appropriations Committee has requested the DOD to furnish certain reports on DOD transportation and management. The follow-on study would supply solid answers to these questions.

The timing of the action required is determined both by the March 1977 completion date of current DODMDS objectives, which should not be disturbed, and by study group leadership estimates of the necessary timing of the advance notice that a

follow-on study is to be undertaken. It should be noted that the effectivity dates of the air transportation system improvements mentioned earlier in this analysis, such as the revisions to the ASIF, should also be taken into account in considering the timing of action. On these bases, the supplemental charter should be issued not later than 1 September 1976. In order to allow time for preparation of the supplement, at an early date OASD (I&L) should task the Joint Logistics Commanders to produce it.

MID TERM ACTIONS

Mid-term actions are defined as those in which final objectives can be attained within the next five to ten years. Their principal effect is to increase the capability of strategic airlift toward that demanded by current war contingency plans. It is anticipated that the airlift requirements of future war contingency plans will tend, if anything, to be greater rather than less than those of present plans.

a. Actions Related to Previous Budget Items

There are a number of airlift enhancement proposals which have been included in FY 76 and/or prior year budgets which have either been denied by the Congress or have received only partial approval from that body to date. These proposals are included here as a reminder of the continuing follow up action that must be taken by OSD in the FY 77 budget hearings and in later years if favorable Congressional action is to be secured.

(1) C-141

In the FY 75/76 budgets, a total of $41.5 million was appropriated against a proposal to stretch the C-141 fuselage to accomodate 13 standard cargo pallets instead of the present 10 and to add an aerial refueling kit. The funds thus provided were to design, fabricate and test one prototype aircraft. The aircraft selected for this purpose was delivered to Lockheed on 9 December 1975.

Production funds for fleet modification (274) will be requested initially in the FY 78 budget. If the production is awarded sole source to Lockheed, appropriations will be required in each succeeding year through FY 82 for a total program

cost of $680.9 million and delivery of the final aircraft will occur in the last quarter of CY 82. If the production award is to be made competitively, funding will be required through FY 84 for a total program cost of $764.1 million and delivery of the final aircraft will occur in the first quarter of CY 85. Requirements for facility modification, simulators and aircraft painting add $25.3 million to either method of contract award.

This modification program will increase C-141 capacity by approximately 30%. It should be noted that the addition of the aerial refueling kit permits increased outbound payload, greater routing flexibility and if enough tankers are available, turnaround at an overseas destination without ground refueling. The effect of full fleet modification will be a reduction of approximately 25% in the oversize cargo shortfall.

Decisions are required on production go-ahead an on the method of production contract award in time consonance with the above mentioned budget years.

(2) C-5

In the FY 7T and prior budgets, a total of $40.5 million was appropriated toward the design, fabrication and test of a fatigue test article representing a new wing center section. A total of $105.9 million will be required in FY 77/78 to complete all manufacture and test of the proof article. Thereafter, in FY 79 through FY 86, assuming a sole source for production, a total of $945.5 million will be required to modify all aircraft (75) in the inventory with the last aircraft being delivered in the third quarter of CY 86.

The modification will extend C-5 wing life from the present 8750 hours to 30000 hours. The current high time inventory aircraft has accumulated 4862 hours. The effect of the modification will not be to reduce the war contingency airlift shortfall. It will, however, assure for many years to come that the C-5 will meet its assigned share of contingency airlift requirements and will continue in service the only aircraft in the nation's strategic airlift resource capable of carriage of outsize cargo.

(3) Conversion of Commerical Wide Body Passenger Aircraft

In an emergency, CRAF wide body passenger aircraft could transport bulk cargo in the belly compartment and through removal of seats and placing of plywood shoring on the main deck, could carry some additional light bulk cargo in the cabin. The limitations in cabin loading, in addition to those pertinent to floor strength, are the passenger door dimensions and the lack of cargo tie down provisions. These limitations are so severe that, in their present configuration, the CRAF wide body passenger aircraft are pratically useless in an emerency for other than passenger carriage. CRAF has total passenger carriage capability which is far in excess of the passenger movement requirements of current war contingency plans and hence, these aircraft are not essential to that purpose.

The wide body passenger aircraft do have a potential for cargo lift which can be exploited. A program through which this potential could be realized was included in the FY 76 budget but funding was denied by Congress. A revised program as shown in Table 1 was presented in the FY 77 budget. In both cases the program features proposed were:

- Modification of 58 Boeing 747 aircraft that would continue to be employed in commercial passenger service by inclusion of a nose loading door and minimal cabin floor reinforcement with a removable treadway kit for vehicle loading.
- Modification of 8 Boeing 747 aircraft that would continue to be employed in commercial passenger service by inclusion of a side cargo loading door, permanent cargo cabin floor and powered loading system.
- Operators of all 66 Boeing 747 aircraft being returned to commercial passenger service after modification to receive

annual compensation for increased carrier operating costs generated by the modification plus a per annum incentive payment of $50,000 per aircraft modified.

- Eleven Boeing 747 aircraft that would be employed in commercial cargo service to be modified by inclusion of a side cargo loading door, permanent cargo floor and powered loading system and four new Boeing 747 aircraft that would be employed in commercial cargo service to include nose and side cargo loading doors in construction with 50% of the modification costs to be paid by the government.
- For the aircraft which will be employed in commercial passenger service, costs of modification are borne by the government. For all aircraft in the program (81), the government pays for the costs of downtime, ferry to and from the modification site, crew requalification and aircraft recertification.

The five year cost of this program is $33.3 million in recurring cost and $459.1 million in one time cost for a total five year cost of $492.4 million. These costs are proposed to be spread over the period FY 77 to FY 82. The first aircraft would enter modification in early CY 80 and the last aircraft would be delivered from modification at the end of CY 82.

The effect of this program would be to reduce the wartime oversize cargo deficit by 55%. Further, C-5 capability that would otherwise be employed in oversize cargo lift would be available to concentrate on the movement of outsize cargo.

The timing of this program should be consistent with the above mentioned fiscal years. The capability addition to strategic airlift is sorely needed at the earliest feasible date.

TABLE 1. B747 AIRCRAFT OFFERED FOR MODIFICATION
(FY 77 Budget Proposals)

CARRIER	QTY OF A/C	TYPE MOD	MOD COST ($M) 1/	RECURRING COST ($M) 2/	TOTAL ($M) 3/
AMERICAN	2	M-2B	9.7		9.7
PAN AMERICAN	2	M-2B	6.7		6.7
FLYING TIGER	7	M-2B	30.5		30.5
SEABOARD WORLD	4	New	13.3		13.3
	15 4/	Freighters			60.2
AMERICAN	8	M-2B	63.1	4.0	67.1
PAN AMERICAN	30	M-4	158.4	15.1	173.5
TRANS WORLD	10	M-4	56.8	5.1	61.9
UNITED	18	M-4	120.6	9.1	129.7
	66 5/				432.2
TOTAL	81		459.1	33.3	492.4

1/ Includes all one-time charges: payments to manufacturer, downtime, ferry, crew requalification, and aircraft recertification.

2/ Includes recurring payments (5-yr basis) for increased carrier operating costs and per annum incentive of $50,000 per aircraft. These modified aircraft to be returned to pax service.

3/ Total program costs as requested in FY 77 budget-dollar figures are economically escalated to reflect fiscal year modification funding proposals.

4/ Fifteen cost-sharing aircraft consisting of 11 M-2B mods (side cargo door and permanent freighter floor with powered cargo loading system) and 4 new freighters with nose and side cargo doors. These aircraft will operate in cargo service. The government pays 50% of modification costs at time of entry into service or its equivalent for new freighters.

5/ These 66 aircraft (8 M-2Bs - side cargo door and permanent freighter floor, and 58 M-4 mods - nose door with minimal floor reinforcement and treadway kit for vehicle transport) will return to passenger service, earning incentives of $50,000 per annum per aircraft and recurring payments for increased weight associated operating costs.

LONG TERM ACTIONS

Implementation of the short- and mid-term actions previously discussed in this analysis would substantially improve MAC readiness posture and would narrow the gap between known wartime airlift requirements and current national strategic airlift capability. Complete satisfaction of the shortfall, however, is dependent on the production of capability which is neither existent nor potentially existent within the nation's present strategic airlift resource. Further, as those airlift resources which represent today's capability are retired, new resources must be acquired, if only to sustain current capability. History and reasoned projections both indicate that future requirements for strategic airlift in support of national objectives will increase and most probably increase significantly. What is needed, then, is an orderly, timely, economically feasible program to add to the strategic airlift inventory aircraft configured for efficient carriage of typical war emergency payloads. From a practical standpoint, any such program that is initiated now could not be expected to produce in being capability prior to the early-1990's. It is the purpose of this section of the analysis to discuss the alternatives which appear to be available in this regard.

If the trends in national priorities evident in the past few years continue unchanged over the next quarter century, it is probable that there will be constantly increasing pressure toward lower national defense budgets. The resultant defense funding limitations will produce defense policy considerations in which the elements are contradictory. On the one hand, the drive for economy in defense spending will demand severe reductions in levels of U. S. forces permanently deployed overseas. The consequence of these drawdowns will be an escalation in present strategic airlift requirements in order to assure our defense pact allies of our ability to respond effectively and swiftly to any need for return of the withdrawn forces. The concept of prepositioning of materiel and redeployment only of personnel is not an adequate answer to the reinforcement problem thus created. This is true since, over the long pull, we

cannot be certain as to the exact area in which our forces might be needed and because there is a limit to prepositioning beyond which vulnerability becomes an overriding consideration. On the other hand, the same efforts to curtail defense funds will militate against approval of multi-billion dollar development and procurement programs for new military aircraft including airlift aircraft.

Thus, while one alternative to solution of the strategic airlift capability problem of the future is to initiate now a DOD program for the successor to the C-5, that alternative runs serious risk. It would be a very expensive program with funding requirements stretching over a considerable number of fiscal years. Constant attack on the large annual dollar requests could be expected and without continuing solid support of the program, the attacks would succeed in either terminating or severely cutting back the program. Further, even if the program were successfully completed, in the face of a drastically reduced peacetime overseas troop strength, the problems being experienced today in peacetime utilization of strategic airlift would be magnified several fold. For these reasons, this does not appear to be a viable alternative.

Another alternative is to look to the commercial sector to furnish war emergency strategic airlift. Today, CRAF represents 41% of the nation's resource in strategic airlift. This figure is somewhat misleading in that while oversize and outsize cargo comprise 82% of the total tonnage to be lifted in the contingency plan cited in Volume I, CRAF can provide only 27% of the oversize airlift and none of the outsize. The rate of growth of the commercial air cargo market, particularly in most recent years, has not been such as to permit a confident prediction that CRAF cargo capability would expand by the early-1990's by more than double that of the present. Further, even if it were assumed that a capability growth of this magnitude might occur, it would be stretching imagination beyond all limits to believe that the additional cargo aircraft involved designed purely on commercial criteria would have the cabin dimensions, floor strength and other design characteristics which are essential to satisfaction of the war

contingency oversize and outsize cargo requirements. Finally, incentives offered by the current and projected level of total government augmentation airlift contracting are not sufficient, in themselves, to motivate the airline industry to procure additional cargo capable aircraft. It therefore does not seem reasonable to rely on the commercial sector alone to meet our future strategic airlift needs.

A third alternative is to visualize the future national resource in strategic airlift as being composed of a fleet of commercially owned and commercially operated but government sponsored cargo aircraft that were designed to meet wartime airlift requirements and a smaller military strategic airlift force tailored in size to satisfy only hard core military tasks in peace or war which CRAF could not be expected to perform. The key phrase in this statement is "government sponsored." It is intended to mean that an adequate number of commercial cargo aircraft in the right configuration to satisfy wartime requirements will never exist absent strong government financial incentives.

Some credit has been assigned to government incentives for the rapid growth in the number of turbine powered cargo capable aircraft in CRAF in the decade of the 1960's. It is indeed true that the prospect of receiving profitable government contracts encouraged the airline industry to procure these aircraft in the early part of the decade. Further, even though the rate of return on these contracts was reduced by joint action of the Civil Aeronautics Board and MAC in the mid-1960's, the escalated contract awards and the protracted length of the Vietnam conflict created an additional spur to such aircraft procurement. Nonetheless, the airline industry, looking forward to commercial use of these aircraft post-Vietnam and hedging against an inadequate growth in commercial air cargo, bought mainly convertible aircraft which could be employed commercially in either a cargo or a passenger configuration.

The airline industry was not then overly optimistic about the rate of growth of commercial air crago, even though the very high level of government air

shipping in the mid- and late-1960's was expected to have a favorable effect on that growth, because air cargo tariffs that would produce reasonable profits for the airlines were believed by the airline industry to be at a level which would cause shippers to continue to see air movement of their goods as a premium rather than a normal mode of transportation. There has been a year-by-year growth in commercial air cargo but this difference between what the airlines must charge for the service and what the shipper can afford to pay for it has set definite limits on the rate of that growth. One of the principal factors in this equation is the cost of operation of current air cargo systems. The aircraft in use, designed initially for fast, comfortable passenger carriage are far from optimum for cargo transportation. As an example, because current commercial cargo aircraft were not designed for efficient cargo operations, the cost of materials handling equipment to support them is alone substantially higher than it would be for a true cargo carrier. It has not been found possible to cut operating costs further with these aircraft and consequently, air cargo tariffs will tend to increase rather than decrease.

Thus, the commercial air cargo market is in a contradictory situation where its full potential for growth cannot be realized until tariffs are markedly reduced and tariffs cannot be reduced until the air cargo market expands to the point where design, development and procurement of a true cargo aircraft can be justified. Equally important in this situation is the cost of development of a desirable aircraft. Even should some unforeseen circumstance greatly escalate the demand for air cargo transportation, it is difficult to believe that the financial resources of the airline industry or of the aircraft manufacturers or of both combined could support the program costs. Neither of these industries is in a healthy fiscal condition and the financial community is already overextended in support of them. The financial experience to date in the development and production of existing wide body aircraft is such as to cause both the aerospace industry and the financial community to view adversely the risk in financing the development of a new, single purpose, large cargo aircraft for commercial use.

The only reasonable answer, then, to this third and most desirable alternative in solution of the deficiency in the nation's resource in strategic airlift is government sponsorship of the cost of development of an internationally capable, large payload cargo aircraft having characteristics which would satisfy military war emergency requirements without unduly compromising those characteristics desired in an optimum commercial air cargo transport. A subsidy of this type has a precedent in our national policy.

Direct federal aid to the US maritime industry has been provided since passage of the Merchant Marine act of 1936. That Act, as amended by the Merchant Marine Act of 1970, authorizes the Maritime Administration, Department of Commerce, to pay a Construction Differential Subsidy (CDS) directly to a shipyard to compensate for the difference in cost between building a ship in a US shipyard and a foreign yard. The 1970 Act authorized CDS payments equal to or less than 45 percent of overall ship construction or reconstruction costs in FY71, decending 2 percent per year until FY76 when it reached 35 percent. CDS can include a portion of the design cost. Recently, the House Merchant Marine and Fisheries Committee approved legislation which would return the CDS ceiling to 40 percent in FY76 to compensate for increased differential in construction costs. In addition, Maritime Administration pays the cost of incorporating national defense features into new or reconstructed ships following review and recommendation of the ship designs by Departments of Navy and Commerce and finances research and development projects which benefit the shipyards and the maritime industry. Other forms of direct federal aid to the maritime industry include Operating Differential Subsidy, tax incentives in the form of capital construction and reserve funds and federal ship loan and mortgage guarantees under Title XI of the Acts. The federal government also provides war risk insurance (Title XII) whenever adequate coverage cannot be obtained on reasonable terms. Under Title XI, Maritime Administration guarantees can extend to 87 1/2 percent of the actual cost of the ship.

There are obvious differences between the situation of our merchant marine and our national airlines in international competition. The precedent established by government subsidy for the merchant marine cannot, therefore, except in one critical aspect, be applied directly to this cargo aircraft proposal. The exception is that the subsidies in both instances have their roots in national defense. There is also a similarity in regard to the stimulation of both industry and the national economy. The total effects of subsidy for development, construction and procurement of a cargo aircraft should parallel those experienced as a result of subsidy of the merchant marine. In this connection, an excerpt from a 1972 report of the Secretary of Commerce to the Congress in which the Secretary refers to the President's 1969 proposal which led to the 1970 amendment of the Merchant Marine Act of 1936 states as follows:

"The President's program has invigorated all segments of the maritime industry. It has instituted the largest commercial shipbuilding program ever undertaken in this country in peacetime. The new, highly productive ships being built under the program will greatly enhance the competitive position of American flag lines. . . ."

Properly presented, a program for development of an optimum aircraft might be expected to generate attitudes in the sectors and agencies involved generally as follows:

- The Congress would surely look favorably on any DOD proposed solution to the strategic airlift deficit problem which envisioned a small military force and dependence for principal strength on the commercial sector. The effects on the national economy of a rapid acceleration in the growth of the air cargo industry and of the jobs that would be created in a new aircraft program would be welcomed. A similar reaction could be anticipated to the benefits that would accrue to the international balance of payments from the sale of the new aircraft to foreign airlines. Appropriation of funds solely for

development of the aircraft, particularily if a sharing arrangement with industry is proposed, might be seen as a very substantial government saving over what would otherwise be the much larger costs of a development and procurement program for a follow-on military aircraft.

- Government sponsorship of development of a commercial cargo aircraft, possibly accompanied by the offer of low interest government loans or government guaranteed loans for procurement, would be viewed by the airline industry as an incentive strong enough to warrant their procurement of the aircraft. An aircraft design that promised economical direct air cargo system operating costs would be seen as permitting the setting of air cargo tariffs that would break the deadlock between current charges for air cargo transportation and customer payment offers for the service.
- The aircraft manufacturers, with a present rather gloomy outlook on future business, would obviously support the program enthusiastically. This enthusiasm would probably carry over into an agreement to some level of cost sharing for development.
- Shippers, particularly those of large volume, would welcome the opportunity to take advantage of inventory, storage, packing and other distribution cost savings inherent in air shipment but not now fully available due to high air shipment costs.
- From the DOD standpoint, assuming binding commitment from the airlines for immediate delivery of all aircraft and aircrews, above those deemed essential to the War Air Service Program, in the event of an airlift emergency and also assuming legislative enactment of a quasi military status for the commercial aircrews involved, the

program should be fully acceptable. The long history of DOD association with CRAF has proved the validity of the DOD/CRAF arrangements both in responsiveness and in performance. DOD requires strategic airlift capable of fulfilling all wartime emergency demands and the source of that airlift should make little difference so long as responsiveness to emergency needs is assured.

An approach to initiation of a cargo aircraft program as discussed above is outlined in the following steps:

Step 1. The potential gains in national security, in the national economy and in the future commerical health of the national aerospace and airline industries which could flow from this project, are of such magnitude as to warrant careful organizational structuring of the efforts to prepare a workable and acceptable proposal. In recognition of the importance of successful realization of this potential, it is suggested that the overall project be guided by a Presidential Commission similar to the Finletter Commission of 1947-48. A charter for the Commission should be prepared for Presidential approval jointly by the DOD and the DOT and coordinated with other interested government agencies.

It has been almost thirty years since the outstanding work of the Finletter Commission (President's Air Policy Commission) was completed. The dramatic changes which have occurred in all aspects of aviation since 1948 and the urgency of the current situation as discussed above both argue strongly in favor of repeating the mechanism of a Presidential Commission to undertake a policy evaluation. The charter for the Commission should be broad in scope with examination of the instant national defense problem being included in the context of the overall study. As an example, the charter of the Finletter Commission included this passage as to scope:

> "The Air Policy Commission should study, among other pertinent aspects of the problem, such questions as the current and future needs of American aviation, including commercial air transportation and the utilization of

aircraft by the armed services; the nature, type and extent of aircraft and air transportation industries that are desirable or essential to our national security and welfare; methods of encouraging needed developments in the aviation and air transportation industry; and improved organization and procedures of the Government that will assist it in handling aviation matters efficiently and in the public interest."

It is interesting to note that among its recommendations the Finletter Commission suggested that direct Government financing to commercial airlines is fully justified on grounds of national security and economic welfare and also suggested a means by which an all cargo transport aircraft, useful to the military but designed to economic commercial operation could be developed. A review of these recommendations in a modern context by a new Commission might prove illuminating.

Step 2. USAF has prepared a document which specifies, for a commericial cargo aircraft oriented to emergency military use, the required and the desired characteristics which should be incorporated in the design. OSD should review this document and should insure its full coordination within DOD, particularly with the Department of the Army. Considerable care must be exercised in this review to insure that those military characteristics in the required category are not so stringent or so rigidly specified as to inhibit design of an aircraft that is optimum for commercial cargo use. This objective can be achieved if a high degree of flexibility is permitted in selecting the ways in which the essential military features are incorporated into the final design. Following this review and coordination, each characteristic in the required and desired categories should be weighted in relation to all other characteristics in the respective categories in order that the document may supply the most definitive possible guidance on DOD inputs to the aircraft design.

Step 3. Concurrent with the appointment of the Presidential Commission, OSD should convene a conference of the appropriate senior representatives from DOT, the military departments, the airline industry to include the trade association agencies Air Transport Association and National Air Carrier Association, the traditional manufacturers of large transport aircraft, the leading firms in the aviation supporting

financial community and known major shippers. Benefits may also be obtained by including members of the USAF Scientific Advisory Board, known specialists in transportation economics and representatives of the so called "Husky" program initiated by Mr. Edward Cole. Members of the Presidential Commission would participate in the conference. The conference should be briefed at minimum on the following:

- The background that has led to the current strategic airlift deficiency problem.
- The future outlook as to demand for strategic airlift capability.
- The outlines of a joint government/industry development program for a true commercial cargo aircraft that might be proposed to satisfy the future airlift demand, generally as suggested in this analysis.
- The content of the DOD approved document on military design input.
- The need to establish a working group chaired by OSD with a DOT representative as Vice Chairman to develop joint specifications for such an aircraft and to prepare a proposal through which the aircraft would be developed in a government/industry cost sharing arrangement, subsequently procured by industry and committed by industry to emergency military use.
- A proposed charter for the working group, approved by the Presidential Commission, and financial arrangements for support of its endeavors. The financing would include at least the costs of working space, office equipment, secretarial assistance, computer time and any requirements for outside assistance in modeling, air transportation economics or other essential working group technical support not otherwise available from the participating industries.

Subsequent to the briefings, the purposes of the conference should be to solicit comments from the attendees and assuming favorable reaction of the conferees, to agree on the composition and charter of the working group.

Step 4. As early as possible following this initial conference, the working group should be assembed and begin its deliberations. The working group would be responsive to the Presidential Commission for guidance and responsible to it for product.

Step 5. When a preliminary draft of the proposal has been prepared by the working group, OSD and DOT should undertake initial discussions with selected members and committee staff representatiaves of the Congress in order to generate early understanding of the proposal and the rationale underlying it. Congressional comment obtained in these sessions may be beneficial to final drafting of the proposal.

Step 6. The final proposal should be presented to the Congress in the FY79 budget of the DOD, the DOT or in a combination of both budgets.

The government costs of this proposed program cannot now be estimated. They depend on such factors as the selected aircraft design, the degree to which that design pushes the state of the art in aerodynamic, propulsion and airframe construction technology, the level of government participation in cost sharing arrangements for design and development and the scope of any other direct or indirect government aid which might be offered as incentive to the airlines to procure the product. It is assumed that careful study of and preparation of a detailed estimate of these costs would be one of the features of the working group charter.

Implementation of the proposal would have multiple effects. The most important of these would be a long term and continuing solution of the deficit in the nation's strategic airlift resource with resultant solidification of one of the underpinnings of national defense policy. Side effects on stimulation of the air cargo industry, on international trade, on the international balance of payments and on the national economy would at the least be highly rewarding.

In an earlier section of this Volume, under SHORT TERM ACTIONS, subparagraph b., Airlift Enhancement Program Development, it was noted that certain aspects of that program might delay completion of its development. The thought here was that the Airlift Enhancement Program should include the proposal just discussed. This proposal would be the ultimate action in the Airlift Enhancement Program with all other program elements being interim actions designed to achieve such improvements in strategic airlift readiness and capability as are feasible, timely, reasonable, and cost effective. It seems improbable, however, that study of this proposal would be completed, even on an urgent basis, in time for presentation in the FY78 budget. A decision is required therefore as to whether to present with the FY78 budget a DOD approved Airlift Enhancement Program, in the detail suggested in this analysis, that is only partially complete or to await such presentation until the preparation of a proposal for government sponsorship of a commercial cargo aircraft has been finalized and approved. In the opinion of this analyst, the latter course of action should be adopted in order that the initial presentation to the Congress of the DOD Airlift Enhancement Program may detail the program in its full scope. Hopefully, the timing of this could allow presentation in the FY79 budget.

SUMMARY

There are a number of actions which can be taken over the next three years which will improve the peacetime posture of the military strategic airlift force to the extent that the achievement of wartime operating rates can be expected realistically in an emergency and which will enhance the capability of the total national resource in strategic airlift to a degree which will substantially reduce the current capability versus requirement deficit. Considering the heavy dependence of current war contingency plans on the readiness and capability of the strategic airlift resource, these actions must be taken if that dependence is to be met by reality rather than by hope.

Trends today indicate that as the century draws to a close, it is highly probable that demands for strategic airlift capability will escalate rather than diminish. Several options are presently open for selection of a course of action through which strategic airlift can be strengthened to the degree that overall capability will satisfy completely both the current deficit and the future demand. The most promising of these alternatives is government sponsorship of the design and development of an optimum commercial cargo aircraft having features essential to use for military purposes in wartime. That this alternative holds greater promise than others is due not only to the fact that it is the course of action most likely to succeed in solving an important national defense problem, but also because it is the only alternative which will, in implementation, produce markedly favorable benefits to the national economy.

DOD should fully verify and document the current strategic airlift capability versus requirement deficit and should incorporate the available remedial actions into a DOD approved Airlift Enhancement Program for presentation to the Congress at the earliest feasible date.

APPENDIX A

CONTENTS

PROPOSED PROCEDURE FOR TARIFF ANNOUNCEMENT AND FUNDING OF THE MAC ANNUAL FLYING HOUR PROGRAM

Chart 1 of Appendix A depicts three hypothetical calendar and fiscal years and shows the chronology within that time period of certain major events in the DoD budget cycle as well as the relationship to the budget cycle of current and proposed ASIF procedures. It will be noted from this chart that under ASIF procedures now in use, the military departments are not notified as to the final MAC tariff schedule for a given fiscal year until after the departmental budgets for that year have been finalized and submitted to OSD. One of the objectives of the proposed ASIF procedures is to gear tariff announcement to the budget cycle so that all departmental air transportation budgets can be computed on the basis of the final tariff to be used in the fiscal year.

Under the SHORT TERM ACTIONS section of the text of this analysis, the discussion pertaining to the ASIF argues in favor of selecting arbitrary MAC tariffs based on existing commercial scheduled air cargo tariffs. In the revised ASIF procedures shown on Chart 1, an arbitrary MAC tariff schedule is announced within the DoD budget cycle as an element of the OSD Planning and Programming Guidance Memorandum. Tariff announcement is thus properly geared to air transportation budget preparation.

To provide MAC and USAF adequate planning time, the annual initial statement of user airlift requirements is advanced by six weeks in the revised ASIF procedures as compared to today's procedures. On receipt of these requirements statements, MAC computes the following:

a. Fully compensatory tariffs for the service to be rendered in response to the requirements statements.

b. The differential in revenue between that which would be received from the fully compensatory tariffs and that which will accrue from the DoD announced arbitrary tariff.

c. The differential between the total hours to be flown to maintain airlift system readiness and those which will be flown in customer logistic support. This differential is translated into a dollar requirement by application of standard cost per flying hour criteria.

The dollar amounts computed under b and c above are transmitted to USAF as tentative figures to be included in the USAF budget.

The final statement of user airlift requirements has been advanced 4½ months in the revised ASIF procedures as compared to present procedures. In the annual budget cycle, OSD Program Decision Memoranda (PDM) are issued in late July. It would thus appear that the military departments should be able by mid-August to finalize their statements of air transportation requirements in support of their programs. On receipt of these final statements, MAC reaccomplishes the computations shown in a, b and c above. In September, MAC informs USAF of the results in order that USAF may finalize its mission account budget. MAC also provides to USAF at this time a final ASIF budget.

With the above explanation of Chart 1, the following can be more clearly understood as the sequential procedures in the proposed ASIF revision:

a. On or about 1 August, MAC confers with the Civil Aeronautics Board to determine commercial scheduled air cargo tariffs between city pairs comparable to MAC routes. MAC also identifies any known or forecast circumstances internal or external to DoD which would have a significant impact during the budget year on MAC tariff determination. This information is furnished to OSD not later than 1 September.

b. On 1 October, as a part of the OSD Tentative Planning and Programming Guidance, OSD preliminarily announces the MAC tariffs for the budget year and specifies the period of effectivity of these tariffs (ideally 3 years). The final tariff announcement is issued on 1 February as a part of the OSD Planning and Programming Memorandum.

c. On the basis of their proposed budget year programs which require airlift support, the military departments prepare their tentative statements of airlift

requirements. Using the OSD announced tariffs and their tentative airlift requirements, they also compute their air transportation budgets.

d. On 15 May, the military departments forward their statements of tentative airlift requirements to MAC.

e. Through JCS guidance and through interservice conference, the annual maneuver/exercise, Joint Airborne and Air Transportability Training and Special Air Missions program for the budget year will have been prepared and supplied to MAC on or before 15 May. By that date, MAC will have computed the total flying hours required to maintain readiness consisting of those for the above mentioned joint program and those for airlift system readiness.

f. With the tentative statement of airlift requirements in hand, MAC then computes:

(1) A tariff schedule that would be fully compensatory for the services provided in response to the tentative statement of airlift requirements and the revenue that would be received therefrom.

(2) The differential between the revenue which would be produced by the fully compensatory tariffs and that which will accrue from the OSD announced tariffs.

(3) The differential in flying hours, if any, between those which must be flown to maintain airlift system readiness and those which will be flown to satisfy the stated tentative departmental airlift requirements. This differential is translated, by applying standard cost per flying hour criteria, into a dollar amount.

g. Not later than 15 June, MAC informs HQ USAF as to the dollar amounts computed in f (2) and (3) above. In the tentative mission account budget, in addition to the cost of the joint exercise and training program, these amounts are incorporated as requirements for airlift system readiness.

h. In the latter part of July, the military departments are provided the OSD decisions on their programs. These decisions form the basis for the departments to adjust

as necessary their previous tentative statements of airlift requirements.

i. Not later than 15 August, the departments furnish to MAC their finalized statement of airlift requirements.

j. MAC reaccomplishes the computations noted under sub-paragraph f above using this finalized data and by 1 September informs HQ USAF as to the dollar amounts involved. On the same date, MAC also furnishes to HQ USAF the completed ASIF budget.

k. In the Congressional budget hearings, each department justifies the amounts included for airlift services in their transportation budgets.

l. After Congress has appropriated funds for the President's budget, those amounts related to air transportation service to be provided by MAC are transferred by OSD to the USAF mission account. Each military department is issued "drawing rights" by OSD against these transferred funds consistent with the dollar amount respectively transferred from each department. For airlift activities, the USAF mission account therefore includes the following funds to complete the approved MAC annual flying hour program:

(1) The joint exercise and training program and the Special Air Missions program

(2) The revenue differential between that from a fully compensatory tariff and that from the OSD announced tariff

(3) The dollar amount derived from the differential between flying hours required to maintain airlift system readiness and flying hours to be flown in support of customers, should such differential exist

(4) The amounts appropriated for each department for MAC airlift services.

m. During the operating year, as the departments utilize MAC services, the ASIF bills the USAF mission account for reimbursement and provides a duplicate copy to the department to which the service was rendered so that each department maintains an

up to date accounting as to the status of its "drawing rights."

n. The flexibility which is achieved by holding all airlift service funding in the USAF mission account is seen by the following:

(1) If any department underutilizes its "drawing rights," the residual amount is used by USAF to fund a comparable number of "uncommitted flying hours" in order to insure that all hours required to be flown to maintain system readiness are flown.

(2) If any department, because of previously unforeseen circumstances, overutilizes its "drawing rights," USAF adds funds as necessary to the "drawing rights" of that department from the funds represented by the previously computed "uncommitted flying hours" differential. It may appear to be inequitable to thus increase the amount available to a given department for MAC services in that the affected department is thereby receiving a certain level of "free" air transportation. The fact is, however, that from a DoD financial standpoint, since a total sum for airlift system readiness consisting of amounts for requested services and amounts for "uncommitted hours" has been made available, it makes little difference if some or all of the "uncommitted hours" funds are expended in support of increased customer requirements. The objective is to reach a situation in which all MAC flying hours for system readiness are flown productively and any movement in that direction is all to the good.

(3) Should the "drawing rights" of any department be entirely depleted and should the "uncommitted hours" funds in the USAF mission account also be fully expended, any additional requirements by that department for MAC services would be billed by the ASIF directly to that department. It would be necessary for that department to reprogram from other funds available to it to meet such billings. This is not different from today's practice when the transportation requirements of a department exceed the funds in its transportation account.

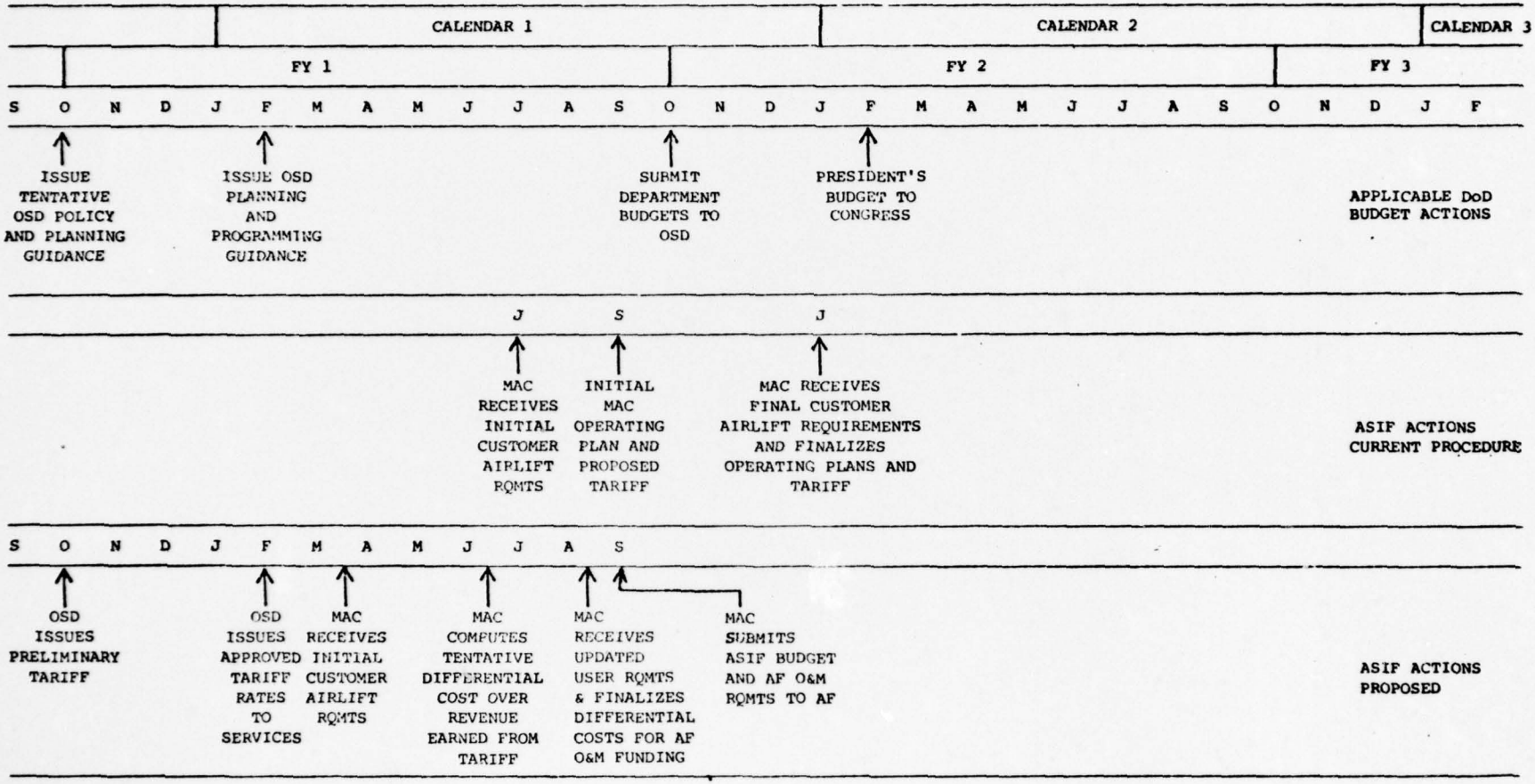
(4) Should some large, non-department oriented requirement arise for MAC services (as, for example, the 1973 Israeli airlift) the ASIF would accrue all costs in a separate account. These costs would be billed to a customer (as to the State Department

in the Israeli case) or met by a Congressional supplemental appropriation.

o. The computations on which the ASIF budget is based as stated in the above proposed revisions to ASIF procedures should preclude significant annual profits or losses in the ASIF. Should the fund not balance at year's end, however, any discrepancy should be zeroed out within an overall industrial fund account at OSD level. This will eliminate the previous bias in MAC tariffs created annually by balancing out prior year profits or losses in current year tariffs.

APPENDIX A

CHART 1. OSD BUDGET AND ASIF ACTIONS FOR FY 3



APPENDIX A - TABLE 1

SUMMARY OF ACTIONS, KNOWN OR ESTIMATED COSTS AND EFFECTIVITY

	COST ($ in millions)	EFFECTIVITY
SHORT-TERM ACTIONS		
1. Reassess war plan requirements for strategic airlift	N/A	w/i 6 mos.
2. Initiate and complete development of DoD Airlift Enhancement Program	N/A	Dec. 1977[a]
3. Establish OSD Airlift Program focal point	N/A	Now
4. Revise ASIF	N/A	Sept. 1976[c]
5. Realign MAC airlift channels	N/A	Oct. 1977[b]
6. Implement ALPS recommendations	N/A	Jan. 1977
7. Reactivate Army REAL program	N/A	Now
Alternate to 6 and 7 above	N/A	1 May 1976
8. Firm up commitment of wartime logistic airlift	N/A	Now
9. Expand overseas maneuver program	Minor, if any	Oct. 1976[d]
10. Provide readiness resources to MAC	$ 159.0 (O) $ 127.8 (A)	Oct. 1976[d] Oct. 1976[d]
11. Restate policy on DoD/Craf relationships	N/A	Dec. 1977[a]
12. Implement DoDMDS follow-on study	$ 0.5	1 Dec. 1977
MID-TERM ACTIONS		
1. Modify C-141 fleet	$ 706.2 (P)[e] $ 789.4 (P)[f]	CY77 - CY82 CY77 - CY84
2. Modify C-5 fleet	$ 105.9[g] $ 945.5 (P)[h]	 CY82 - CY86
3. Convert commercial wide body passenger aircraft	$ 492.4[i]	
LONG-TERM ACTIONS		
1. Implement Government-sponsored design and development of commercial cargo aircraft	Undetermined	1990's

[a] After receipt of recommendations of Presidential Commission

[b] After completion of DoDMDS follow-on study

[c] In time for inclusion of tariff announcement in OSD Tentative Planning and Programming Guidance

[d] In time for submittal of USAF FY78 budget to OSD

[e] Option I - sole source

[f] Option II - competitive source selection

[g] Completion of manufacture and test of fix

[h] Cost of manufacture and modification

[i] Five-year cost

Legend: (A) Annual cost
(O) One-time cost
(P) Program cost

APPENDIX A - TABLE 2

ANNUAL COST OF INCREASED CREW RATIOS AND MAINTENANCE MANNING

1. INCREASE OF CREW RATIOS FROM 3.5 TO 4 ON THE C-141 AND FROM 3.25 TO 4 ON THE C-5 USING RESERVE FORCES

C-141

Requested FY 76	Approved FY 76	Objective
2.0 Active	2.0 Active	
1.5 Reserve	1.5 Reserve	.5 Reserve
.5 ACF	0 ACF	

.5 x 234 UE = 117 crews of which 90% are "pure" associate and 10% are ARTs. Thus, 105 crews are "pure" associate and 12 are ART.

105 x $31,652.55* (cost per crew per year) = $ 3,323,518
12 x $117,975 ** (cost per crew per year) = $ 1,415,700
$ 4,739,219

*$6,663.05 (annual cost for a Reserve Captain over 10) x 3 (officers per crew) = $19,989.15

$3,332.40 (annual cost for a Reserve Technical Sergeant over 12) x 3.5 (EMs per crew) = $11,663.40

$19,989.15
+11,663.40
$31,652.55

**$18,150 (per ART) x 6.5 crew members = $117,975

C-5

Requested FY 76	Approved FY 76	Objective
2.25 Active	2.0 Active	
1.25 Reserve	1.25 Reserve	.75 Reserve
.5 ACF	0 ACF	

.75 x 70 UE = 53 crews of which 90% are "pure" associate and 10% are ARTs. Thus, 48 crews are "pure" associate and 5 are ART.

48 x $34,984.95* (cost per crew per year) = $1,679,278
5 x $136,125 ** (cost per crew per year) = $ 680,625
$2,359,903

*$6,663.05 (annual cost for a Reserve Captain over 10) x 3 (officers per crew) = $19,989.15

$3,332.40 (annual cost for a Reserve Technical Sergeant over 12) x 4.5 (EMs per crew) = $14,995.80

$19,989.15
$14,995.80
$34,984.95

**$18,150 (per ART) x 7.5 crew members = $136,125

Cost C-141	$4.74 million
C-5	$2.36 million
Total Cost (crew ratio)	$7.10 million

2. INCREASE IN MAINTENANCE MANNING

C-141 Requirements

	C-141	C-5 Home Station	C-5 En route
Total Required	4,749	2,344	305
Present	-3,799	-1,582	-206
Required	950	762	99

950 + 762 + 99 = 1,811 Manpower Spaces

25% of the force is ART.
75% is "pure" associate assuming all required forces will be Reserve.

1,811 x .25 = 453 ART
1,811 x .75 = 1,358 "pure" associate

For cost purposes, all are considered EM.

453 x $18,150 (per ART) = $ 8,221,950
1,358 x $ 1,604 (per "pure" associate) = $ 2,178,232
$10,400,182

Cost (Mx Manning) $10.4 million

APPENDIX A

ASSUMPTIONS FOR COST ESTIMATE OF DODMDS FOLLOW-ON STUDY

COPY

23 March 1976

Capt. S. Ruth, USN
DODMDS Study Group
200 Stovall Street
Alexandria, Va. 22332

Dear Capt. Ruth,

As mentioned in our recent telephone discussion, I cannot furnish you a sophisticated set of guidelines for a proposed follow-on study to be undertaken after completion of the DODMDS March 1977 objectives. Such guidance can only come from careful evaluation of what is feasible, timely and worthwhile in the joint opinion of study group leadership, the JLC and representatives of other agencies involved. An outline of the principal features of the follow-on study I would hope to see conducted, however, is:

a. Purpose - to examine the interactions between a restructured DOD storage and distribution system and several excursions of the DOD transportation system in order to identify an optimum match of the two systems.

b. An "optimum match" as used in a above would mean a relationship in which either or both systems are so restructured as to maximize efficiency and economy in storage and distribution of DOD materiel through best utilization of the several available modes of transportation.

c. Critical aspects - it would be expected that the follow-on study would concentrate more heavily on air transportation than on other modes since air transportation appears currently to be underutilized and also appears to hold the greatest potential for logistic improvement if properly meshed into the storage and distribution system.

d. It should be assumed that the excursions of the air transportation system would include, in addition to the system as presently structured, a set proposed rearrangement of the domestic and overseas bases, routes and tariffs and a free flowing version of the system in which the simulation model would select system features which best interact with storage and distribution requirements. It is also assumed that MSC would offer at least one set proposed rearrangement of sea lift and that MTMC might include some restructuring of domestic or overseas ground transportation.

e. Current study group personnel would be retained, as necessary, for the follow-on study. Any specialists in air transportation methodology, economics or systems analysis who may be required to round out the study team, whether from within or outside the DOD would be provided as requested.

f. The follow-on study will employ the data bank and the modeling developed for the DODMDS. Any addition to the data bank or revisions of the modeling deemed necessary to effective completion of the follow-on study will be funded.

g. The DODMDS charter amendment directing the follow-on study and providing the guidelines for it will be issued not later than 1 September 1976.

h. It would be anticipated that the follow-on study would be completed by end July 1977.

As early as you can prepare an estimate, I need a ball park cost figure for this additional study work. The text of my paper will make clear that the cost figure is only a rough estimate based on assumptions which may or may not reflect the actual guidelines once issued. It would also be helpful if you could indicate whether or not the proposed completion date, based on the above outline, seems realistic.

Best regards and many thanks for your assistance.

Sincerely,

Howell M. Estes, Jr.
Gen., USAF (Retd)

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The report is in two volumes. Volume I attempts to put the strategic airlift problem in perspective. The intent is to provide a basis for better understanding the complex factors that influence the program. This volume concludes that although national war contingency plans currently depend heavily on strategic airlift, the existing combined capability of the Military Airlift Command (MAC) and the Civil Reserve Air Fleet (CRAF) is inadequate to meet the strategic airlift demands of those plans and that the readiness of MAC to respond to a war emergency is being jeopardized. Each of several

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interrelated factors which underlay these strategic airlift deficiencies is examined.

This Volume II examines approaches toward solution, or at least amelioration, of the problems cited in Volume I. Complete resolution of the strategic airlift dilemna, even with continuing full support of necessary actions by all decision makers involved, cannot be expected realistically except in the long term. There are, however, actions which can be implemented immediately, which would in the near or mid-term timeframe, narrow the gap between strategic airlift capability and known wartime airlift requirements and improve MAC readiness posture. Recommendations are included in this volume for correcting many of the perceived deficiencies.

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