

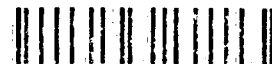
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**National Security and
International Affairs Division**

B-248615

July 30, 1992

**The Honorable Sam Nunn
Chairman, Committee on Armed Services
United States Senate****The Honorable Charles E. Bennett
Chairman, Subcommittee on Seapower and
Strategic and Critical Materials
Committee on Armed Services
House of Representatives**

This report provides information related to your recent requests for a review of the Department of Defense's Mobility Requirements Study. We are reporting now on the Navy's plans to acquire 20 additional strategic sealift ships proposed in the study so that the Defense Acquisition Board will consider our views prior to its review of the ship's design characteristics.

Background

Congress has been encouraging the Department of Defense to increase fast sealift capabilities—providing \$2.1 billion over the past three fiscal years. In fiscal year 1991, Congress required Defense to conduct a study to determine future mobility requirements and to develop an integrated plan to meet them. In April 1991, Defense published an interim report on the Mobility Requirements Study, and in January 1992, released volume I of the final report¹—outlining a plan to increase mobility capabilities over the next several years.

A major component of the sealift portion of the mobility plan is the acquisition (through either new construction or conversion) of additional sealift capacity equal to 20 large, medium-speed (24 knots) roll-on/roll-off ships. These ships would be maintained in a high state of readiness for rapid deployment of Army combat unit equipment, support unit equipment, and supplies. The mobility report states that the exact size and numbers of these new strategic ships will be determined during the Navy's acquisition process.

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¹Final study results will be released in three volumes. Vol. II will contain a detailed analysis supporting vol. I and additional data. Vol. III will report on intratheater and tanker portions of the study.

Results in Brief

The Navy has been considering both new construction and conversion of existing ships to obtain the additional sealift capacity discussed in the mobility study. Significant time and cost savings can be realized to the extent that the Navy buys and converts existing ships. If Defense lowered its speed requirement for a few of the 20 ships, more ships would be eligible for conversion, possibly saving additional time and money.

Navy Is Considering Various Ship Design Options

The Navy has been exploring the following four options to increase sealift capabilities:

- Option A: Buying or chartering existing roll-on/roll-off ships that meet desired military configurations (speed, cargo carrying capability, and size).
- Option B: Building less-capable but militarily useful ships and chartering them to commercial operators during peacetime.
- Option C: Designing and building completely new roll-on/roll-off ships.
- Option D: Buying existing ships and converting them to the desired configuration.

By April 1991, the Navy's Military Sealift Command had determined, through a market survey, that available U.S. and foreign-flagged roll-on/roll-off ships could not meet all of the proposed size and speed requirements. Therefore, the Navy dismissed option A.

While examining option B, the Navy requested the Maritime Administration to determine if militarily useful ships could be commercially viable. Private industry indicated very little interest in chartering the proposed new sealift ships because their speeds, sizes, cargo handling equipment, and deck heights would make them commercially uneconomical. Consequently, the Navy is considering designing ships that would be smaller and slower in speed than originally proposed, which could be built and chartered to replace aging Ready Reserve Force ships. Therefore, option B's "build and charter" ships are no longer considered part of the Navy's efforts to meet the stated requirement for 20 additional large, medium-speed roll-on/roll-off ships.

By July 1991, the Navy had developed a Circular of Requirements for the initial design of two new sealift ships (option C). A maximum length of 950 feet for one ship was proposed and 700 feet for the other. Both ships were to have sustained speeds of 24 knots and other design characteristics were also basically the same—utilizing commercial standards for common

configurations, cargo handling, cargo stowage, propulsion, and mechanical and electrical systems to the maximum extent.

In September 1991, the Navy awarded nine 90-day initial design contracts to U.S. shipyards for the two ships. The shipyards' initial work concentrated on designing ships that met the speed, size, and configuration requirements and maximized cargo carrying capability.

The Navy's draft Circular of Requirements document for new ship engineering design incorporates comments from the shipyards and includes more detailed performance capability criteria than the previous one did. The Navy has determined that the 950 foot ship's initial design could best meet all of the currently stated military performance requirements, and accordingly, the Navy anticipates awarding one or more engineering design contracts after Defense Acquisition Board approval. The Defense Acquisition Board program review is scheduled for the summer or early fall of 1992.

At the time the Navy awarded the initial design contracts, it also solicited comments from the shipyards for conversions of ships and input from commercial ship operators (option D). These sources identified six ships for possible conversion. The Navy subsequently determined that additional ships might be able to meet design specifications and, therefore, might be suitable for conversion. Accordingly, the Navy is also drafting a Circular of Requirements for the conversion of existing ships. If the Defense Acquisition Board approves this approach, the Navy hopes to proceed with some conversions.

Individual ships' availability, acquisition, conversion, and life-cycle costs cannot be determined until the Navy's conversion requirements document is issued and specific proposals are evaluated. But, on the basis of the Navy's preliminary review of limited proprietary data furnished by a few ship owners, it appears that conversions may save time and money in comparison to new construction. Converted ships could be available up to 18 months earlier, and acquisition cost savings could possibly reach \$50 million per ship.

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Lower Speed Requirement Would Result in an Increased Number of Conversion Candidates

The mobility study's integrated plan to improve strategic mobility capabilities calls for 20 additional sealift ships with speeds of 24 knots. The mobility study report, however, does not address why all 20 new ships must have 24-knot speeds—in contrast to similar, existing sealift ships that have speeds ranging from 16 to 27 knots.

Our ongoing analysis of the speed assumption indicates that having a few of the new ships with slightly lower speeds would still enable Defense to deliver the required cargo within the required time period. For example, ships with 23- or 22-knot speeds would take about 16 days to deliver cargo to Saudi Arabia compared to a 24-knot ship's 15 day one-way voyage. Allowing somewhat lower speed ships to be considered would provide a larger inventory of ships that may be suitable for conversion. For example, we identified 15 ships with 22- and 23-knot speeds that seemed to meet the general cargo size desired by the Navy.²

Recommendation

The Navy is currently considering converting a few ships with speeds in excess of 24 knots. However, the Navy should also consider a few ships with slightly lower speeds, which would increase the universe of potential conversion candidates. Therefore, we recommend that the Secretary of Defense direct the Secretary of the Navy to consider converting a few ships with speeds slightly lower than 24 knots.

Agency Comments

Although Defense generally agreed with the facts in the report, it did not agree that it should consider ships with less than 24-knot speeds. It stated that 24 knots is a firm operational requirement for ships acquired to meet the recommendations of the Mobility Requirement's Study and that the 24-knot speed was especially important for the second sailings of the new ships assigned to afloat prepositioning duty. In discussing our draft report, Defense officials were concerned that Congress might construe our report as justifying lowering the speed requirement for all of the new sealift ships.

We do not believe that Defense has demonstrated that 24-knot speeds are absolutely necessary to deliver cargo when needed. We are currently reviewing the impact of major assumptions made in its ongoing Mobility Requirements Study. For example, the study assumes that the nine new prepositioning ships would start their second sailings about a week later

²We considered data obtained from Fairplay Information Systems: Commercial Shipping Fleets, Oct. 1990.

than existing prepositioning ships. If Defense assumed that some of these new ships, with slightly lower speeds (requiring about 2 days additional round-trip transit times), would start their second sailings at the same time as the other prepositioning ships, they could match the cargo delivery profile in the study. Accordingly, we continue to believe that the new sealift ship's 24-knot speed should be considered more as a goal than a firm requirement and that Defense should also consider converting a few ships with slightly lower speeds.

Scope and Methodology

We reviewed the Department of Defense's Mobility Requirements Study as well as pertinent documentation, studies, and ship inventories pertaining to the acquisition of additional sealift ships. We also reviewed a number of private industry comments and proposals submitted to the Maritime Administration and the Navy. In addition, we interviewed Navy, Army, Department of Defense, and Maritime Administration officials at the headquarters level in the Washington, D.C., area.

We are sending copies of this report to the Chairmen, House Committees on Armed Services and on Merchant Marine and Fisheries and Senate and House Committees on Appropriations; the Secretaries of Defense, the Army, and the Navy; the Chairman of the Joint Chiefs of Staff; and other interested parties. We will also make copies available to others on request.

Please contact me at (202) 275-6504 if you or your staff have any questions concerning this report. Major contributors to this report were Norman Rabkin, Associate Director; Robert Eurich, Assistant Director; Joseph Walsh, Evaluator-in-Charge, and David Rivera, Evaluator, Navy Issues, National Security and International Affairs Division, Washington, D.C.



Martin M Ferber
Director, Navy Issues

Comments From the Department of Defense

GAO comments supplementing those in the report text appear at the end of this appendix.



PRODUCTION AND LOGISTICS

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-8000

July 2, 1992

(L/TP)

Mr. Frank C. Conahan
Assistant Comptroller General
National Security and International
Affairs Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Conahan:

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, "SHIPBUILDING: Navy's Plan to Acquire Additional Strategic Sealift," dated May 19, 1992 (GAO Code 394453), OSD Case 9078.

While the DoD agrees with the GAO findings outlined in the draft report concerning the Mobility Requirements Study's basic methodology and conclusions, the DoD does not fully concur with the other findings. Until a Life Cycle Cost analysis is completed, the DoD cannot agree with the conclusion that conversions will save money when compared to new construction. Additionally, the 24-knot speed requirement has been validated by the Mobility Requirements Study and should not be changed at this time.

Detailed DoD comments on the GAO findings and recommendation are provided in the enclosure. The Department appreciates the opportunity to comment on the draft report.

Sincerely,


Colin McMillan

Enclosure

Appendix I
Comments From the Department of Defense

GAO DRAFT REPORT - DATED MAY 19, 1992
(GAO CODE 394453) OSD CASE 9078
"SHIPBUILDING: NAVY'S PLAN TO ACQUIRE ADDITIONAL STRATEGIC
SEALIFT"

DEPARTMENT OF DEFENSE COMMENTS

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FINDINGS

- **Finding A: Mobility Requirements Study.** The GAO reported that, in FY 1991, the Congress required the DoD to conduct a study to determine future mobility requirements. The GAO noted that, in April 1991, the DoD published an interim report on the Mobility Requirements Study, and in January 1992, released Volume I of the final report. The GAO found that a major component of the sealift portion of the mobility plan is the acquisition (either through new construction or conversion) of additional sealift capacity equal to 20 large, medium-speed (24-knots) roll-on/roll-off ships. The GAO noted that the exact number of such ships (to be maintained in a high state of readiness) is to be determined during the Navy acquisition process. The GAO further reported that a Defense Acquisition Board review is scheduled for June 1992. (pp. 1-2/GAO Draft Report)

DoD Response: Concur. The stated facts are accurate except that the Defense Acquisition Board review is scheduled for the Summer of 1992, vice June 1992. *CV or Early Fall*

- **Finding B: Navy Is Considering Various Ship Design Options.** The GAO reported that the Navy has been exploring four options to increase sealift capabilities. The GAO reported that, by April 1991, the Navy Military Sealift Command had determined, through a market survey, that U.S. and foreign roll-on/roll-off ships available for buying or chartering could not meet all of the military size and speed requirements. The GAO also reported that the Navy requested the Maritime Administration to determine if militarily useful, but less capable, ships could be built that would be commercially viable. The GAO noted that private industry indicated very little interest in chartering the proposed sealift ships, because their speed and size would make them commercially uneconomical. The GAO found that, as a result, the Navy is considering smaller and slower ships to replace aging Reserve Fleet Force ships.

The GAO reported that, in addition, the Navy developed a Circular of Requirements for two types of completely new roll-on/roll-off ships. The GAO found that one was to be 950 feet and the other 700 feet--both with 24-knot speed. The GAO further found that, in September 1991, the Navy awarded nine 90-day initial design contracts to U.S. shipyards for the two ships. The GAO reported that a new Navy Circular of

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Requirements document incorporates comments from the shipyards, and that the Navy has determined that the 950-foot ship initial design could best meet all the currently stated military performance requirements. The GAO observed that the Navy anticipated awarding one or more engineering design contracts after the Defense Acquisition Board review.

The GAO further reported that, in September 1991, the Navy also solicited comments from the shipyards and input from commercial ship operators on ships that might be bought and converted. The GAO found that six ships were identified, but the Navy subsequently determined that additional ships might be suitable for conversion. The GAO noted that the Navy currently is drafting a Circular of Requirements for the conversion of existing ships. In addition, the GAO noted that, if the Defense Acquisition Board approves the described approach, the Navy hopes to proceed with some conversions. The GAO concluded that, even though acquisition and conversion costs cannot be determined for the individual ships until the Navy conversion requirements document is set and specific proposals evaluated--it appears conversions would save time and money. The GAO further concluded that converted ships could be available up to 1 to 1-1/2 years earlier, and costs savings could possibly reach \$50 million per ship. In summary, the GAO concluded that significant time and cost savings could be realized to the extent that the Navy buys and converts existing ships. (pp. 2-5/GAO Draft Report)

DoD Response: Partially concur. The Strategic Sealift Acquisition Decision Memorandum of September 10, 1991, designated the Navy the lead organization for Strategic Sealift and directed that the following alternatives be studied:

- New ships may be constructed in accordance with Navy baseline designs;
- Existing ships may be bought and converted to militarily-useful designs;
- Existing ships that are already militarily useful may be bought; and
- Militarily-useful ships may be chartered.

The GAO discussion of the options confuses the acquisition, through new construction or purchase and conversion, of large medium-speed roll-on/roll-off ships for surge and prepositioning, with the Ready Reserve Force expansion. The Mobility Requirements Study recommended only new or used and converted large medium-speed roll-on/roll-off ships to meet afloat prepositioning and surge sealift requirements. The Mobility Requirements Study did offer Build and Charter as one of several replacement alternatives for the Ready Reserve Force

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GAO comment 1.

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10/20 day ships. The Navy currently is studying such a Build and Charter program. The Mobility Requirements Study recommended the acquisition of 18 used medium-speed roll-on/roll-off ships as an expansion of the Ready Reserve Force. The Build and Charter option is not an alternative provided in the Strategic Sealift Acquisition Decision Memorandum and is not intended as an alternative for surge and repositioning ships.

See GAO comment 2.

The DoD agrees that conversions would save time; however, the DoD does not agree that conversions will necessarily save money. A Life Cycle Cost analysis of conversions and new constructions has not yet been completed. Such an analysis will be conducted in conjunction with the Navy Sealift Acquisition Plan. While the acquisition cost for converted ships may be slightly lower than for new construction ships, there are several factors that may mitigate any acquisition cost advantage. Conversions have several distinct disadvantages when compared to a new construction ship. The Life Cycle Cost for conversions may be higher than for new construction ships. For example, the strategic sealift ships have a 40-year life expectancy. Converted ships are projected to have a life expectancy of 15-20 years, which necessitates replacing them at least once during the same time frame that a new construction ship would be active. Additionally, maintenance and support costs traditionally increase with the age of a ship--which would indicate that older converted ships would require increased maintenance and support costs compared to new construction ships. One further point, conversions are restricted in the amount of space and cargo carrying capacity that can be used for the roll-on/roll-off mission because of existing ship structure and hull form. New construction ships will be more efficient in the use of space and carry more cargo.

- **Finding C: Lower Speed Requirements Could Result in an Increased Number of Conversions.** The GAO reported that the mobility study did not address why all of the ships must have 24-knot speed--in contrast to similar existing sealift ships with speeds ranging from 16 to 27 knots. The GAO observed that slightly slower speeds would not appreciably alter cargo delivery capabilities. The GAO found, for example, that ships with 23- or 22-knot speeds would take only 16 or 17 days to deliver cargo to Saudi Arabia compared to 15 days for the 24-knot ships. The GAO identified 15 ships with 22-23-knot speeds that seemed to meet the general cargo size desired by the Navy. The GAO concluded that, if the Navy lowered its speed requirement, more ships would be eligible for conversion, possibly saving additional time and money. (p. 2, p. 6/GAO Draft Report)

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DoD Response: Nonconcur. The Navy has identified sufficient 24 knot ships that the DoD does not see any likely benefit from a speed reduction. Moreover, the speed of 24 knots is a firm military requirement for new or converted ships acquired to meet

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the prepositioning and surge recommendations of the Mobility Requirements Study. The DoD believes that new ship construction and conversions can provide this speed capability in a cost effective manner.

The GAO orally indicated that its desire to lower the speed requirement was driven by the assumption that an insufficient pool of 24-knot ships existed and lowering the speed would increase the pool of available ships for conversions. However, the Navy has identified twenty-three 24-knot diesel ships in the world market that meet specific selection criteria. Based on the Navy analysis, the DoD agrees there is a sufficient pool of ships available to select four to eight 24-knot ships competitively for conversion to meet the Mobility Requirements Study recommendations. (All twenty-three ships are currently under foreign flags and would be subject to congressionally imposed limitations.)

The GAO also orally indicated that it intends for the 24-knot speed requirement to be reduced for only "1 or 2 ships." That distinction is not explicit in the draft report and must be clarified.

The analysis leading to the 24-knot speed requirement includes:

- Twenty-four knots is the minimum speed necessary for a combination of existing Fast Sealift Ships and new roll-on/roll-off ships to close the required reinforcing heavy combat forces in the early and middle delivery period. Speeds lower than 24 knots for surge roll-on/roll-off ships do not meet that operational requirement and will increase risk to earlier deploying forces.
- New prepositioning ships require a minimum of 24 knots to make a second sailing and deliver the decisive force required for the U.S. to prevail in a Major Regional Contingency within eight weeks. Reducing prepositioning ships speed will require additional new or used roll-on/roll-off ships in a reduced operating status on a one-for-one basis, assuming equivalent capacity, to compensate for this loss of second sailing capability.
- Slower prepositioning ships increase delivery times for critical early combat capability, provide less swing capability, and decrease siting options.

The DoD cannot agree with the GAO assertion that slightly slower speeds would not appreciably alter cargo delivery capabilities. Based on the Mobility Requirements Study analysis, the 24-knot speed requirement is critical for the 11 surge and 9 afloat prepositioning roll-on/roll-off ships to meet the cargo delivery profile.

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Finally, it was the Secretary of Defense and not the Navy that established the 24-knot speed requirement for the roll-on/roll-off ships to meet the surge and prepositioning recommendations of the Mobility Requirements Study.

* * * * *

RECOMMENDATION

- **RECOMMENDATION:** The GAO recommended that the Secretary of Defense direct the Secretary of the Navy to consider converting ships with speeds slightly lower than 24 knots. (p. 7/GAO Draft Report)

DoD Response: Nonconcur. Twenty-four knots is the minimum acceptable speed established as an operational requirement for the roll-on/roll-off ships--whether to be constructed or converted--to meet the surge and prepositioning recommendations of the Mobility Requirements Study. The DoD is pursuing a balanced approach of constructing and converting 24-knot surge and prepositioning roll-on/roll-off ships, along with the acquisition of slower roll-on/roll-off ships for the Ready Reserve Force, as the correct approach to meet the strategic sealift requirements. At the next Strategic Sealift Defense Acquisition Board, the cost and effectiveness of new construction ships (as well as ships purchased and converted for Military use) will be evaluated. The important parameters to be addressed in the equation include acquisition cost, operation and support costs, cargo capacity, ship delivery schedule, and the number of service years expected from the ship. In many cases, one ship may be less costly from an acquisition view, but its Life Cycle Cost may be much higher. The DoD will continue to look for militarily useful ships to convert where it is cost effective to do so. Conversion ships are certainly available in a shorter time than newly constructed ships.

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The following are GAO's comments on Defense's letter dated July 2, 1992.

GAO Comments

1. For clarity, our report discusses the different alternatives identified in the cited Defense Strategic Sealift Acquisition Decision Memorandum by calling them options. Our report states that the build and charter "option" is no longer being considered for the 20 sealift ships discussed in the report.
2. Our report was changed to clarify that potential cost savings are for acquisition costs. We did not mean to imply that such costs were final or that they represented life-cycle costs. Our report says that actual data will not be available until specific ship offers are received and examined.