
APPENDIX B. OPTION II: NAVY FORCE OBJECTIVES--SHIPS IN FLEET BY
1996 AND AUTHORIZED BY 1992

This appendix contains tables showing details of an illustrative shipbuilding program for Option II (see Table B-1) and a year-by-year breakdown of the force structure that would result from that building program (see Table B-2) taking into account the structure of the current fleet and assumed retirements through 1992. In this option, the objective is to achieve the Navy's force level goals by the end of 1996. In developing the force structure projections, assumptions about years of service until ship retirement (from commissioning date) and building time (from authorization to delivery) are as follows:

Retirement Assumptions

50 Years
Aircraft Carriers (CV/CVN)

40 Years
Destroyer Tenders (AD)
Submarine Tenders (AS)
Repair Ships (AR)
Fleet Oilers (AO/TAO)
Salvage Ship (ARS)
Submarine Rescue Ship (ASR)
Fleet Tug (ATF/TATF)

30 Years
All others

Building Time Assumptions

Aircraft Carriers (CVN)--8 years
Ballistic Missile Submarine
(SSBN)--6 Years
Nuclear Powered Guided Missile
Cruiser (CGN)--5 years
Nuclear Powered Attack
Submarine (SSN)--5 years
All others--4 years

Under these assumptions, ships actually in the fleet by 1996 must be authorized no later than 1992.

Certain types of reserve and support ships, which are not included in the Navy's current ship counting methodology, are not included in these listings.

TABLE B-1. ILLUSTRATIVE SHIPBUILDING PROGRAM FOR OPTION II: NAVY FORCE OBJECTIVES--SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year, costs in billions of fiscal year 1983 dollars)

| Ship Type | 1983 | | 1984 | | 1985 | | 1986 | | 1987 | |
|-----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ships | Cost |
| Strategic | | | | | | | | | | |
| SSBN (Poseidon) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SSBN (Trident) | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 |
| General Purpose | | | | | | | | | | |
| Combatants | | | | | | | | | | |
| Aircraft carrier (CVN) | -- | -- | 1 | 3.5 | -- | -- | 1 | 3.5 | -- | -- |
| Aircraft carrier (CV) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Battleship (BB) | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | -- | -- | -- | -- |
| Cruiser (CGN) | -- | -- | -- | -- | 1 | 2.15 | -- | -- | 3 | 5.25 |
| Cruiser (CG) | 4 | 4.55 | 4 | 4.55 | 4 | 4.55 | 8 | 9.1 | -- | -- |
| Destroyer (DDG) | -- | -- | 1 | 1.25 | -- | -- | -- | -- | 7 | 5.6 |
| Destroyer (DD) | 2 | 1.0 | 2 | 1.0 | 2 | 1.0 | -- | -- | -- | -- |
| Frigate (FFG) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Frigate (FF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Submarine (SSN) | 2 | 1.4 | 1 | 0.7 | 2 | 1.4 | 1 | 0.7 | 2 | 1.4 |
| Submarine (SS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Small combatant (PG/PHM) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Amphibious Ships | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | -- | -- | -- | -- | 1 | 1.3 | -- | -- | 1 | 1.0 |
| Dock transport (LPD) | -- | -- | -- | -- | -- | -- | -- | -- | 1 | 0.7 |
| Helo transport ship (LPH) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Landing ship dock (LSD) | 3 | 1.2 | 4 | 1.6 | 3 | 1.2 | 4 | 1.6 | -- | -- |
| Landing ship tank (LST) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Command ship (LCC) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Assault transport (LKA) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine Warfare Ships | | | | | | | | | | |
| Ocean minesweeper (MSO) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine warfare ship (MCM) | 6 | 0.6 | 6 | 0.6 | 5 | 0.5 | -- | -- | -- | -- |
| Mine warfare ship (MSH) | -- | -- | 1 | 0.1 | 3 | 0.18 | 3 | 0.18 | 3 | 0.18 |
| Replenishment Ships | | | | | | | | | | |
| Station ship (AOE) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Station ship (AOR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Oiler (AO/TAO) | 3 | 0.9 | 2 | 0.6 | 3 | 0.9 | 2 | 0.6 | 3 | 0.9 |
| Ammo. ship (AE/TAE) | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 |
| Stores ship (AFS/TAFS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Material Support Ships | | | | | | | | | | |
| Destroyer tender (AD) | 2 | 0.9 | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 |
| Submarine tender (AS) | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | -- | -- |
| Repair ship (AR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet Support Ships | | | | | | | | | | |
| Surveillance ship (AGOS) | -- | -- | -- | -- | -- | -- | 1 | 0.1 | 2 | 0.2 |
| Salvage ship (ARS) | 1 | 0.1 | 1 | 0.1 | -- | -- | -- | -- | -- | -- |
| Rescue ship (ASR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salvage/rescue ship (ATS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet tug (ATF/TATF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total, All Ships | 27 | 13.35 | 28 | 17.15 | 29 | 16.33 | 24 | 18.48 | 25 | 17.48 |

(continued)

TABLE B-1. (Continued)

| 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | Total Type | Total Type Cost | Percent of Total Cost, All Ships |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------|-----------------|----------------------------------|
| Ships | Cost | | | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 10 | 14.0 | 8 |
| 1 | 3.5 | -- | -- | 1 | 3.5 | -- | -- | 1 | 3.5 | 5 | 17.5 | 10 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 | 1.35 | |
| 2 | 3.5 | 3 | 5.25 | 2 | 3.5 | 3 | 5.25 | 2 | 3.5 | 16 | 28.4 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 20 | 22.75 | 53 |
| 6 | 4.8 | 8 | 6.4 | 6 | 4.8 | 8 | 6.4 | 6 | 4.8 | 42 | 34.05 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 6 | 3.0 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1 | 0.7 | 2 | 1.4 | 1 | 0.7 | 2 | 1.4 | 2 | 1.4 | 16 | 11.2 | 7 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 7 | 7.3 | |
| -- | -- | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 5 | 2.7 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 9 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 14 | 5.6 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 17 | 1.7 | 2 |
| 3 | 0.18 | -- | -- | -- | -- | -- | -- | -- | -- | 13 | 0.75 | |
| 1 | 0.7 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 5 | 2.7 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2 | 0.6 | 3 | 0.9 | 2 | 0.6 | 3 | 0.9 | -- | -- | 23 | 6.9 | 8 |
| 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | -- | -- | -- | -- | 8 | 3.2 | |
| -- | -- | -- | -- | 1 | 0.25 | -- | -- | 1 | 0.5 | 2 | 0.75 | |
| 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | -- | -- | -- | -- | 9 | 4.05 | 3 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4 | 1.8 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 | 0.3 | < 1 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2 | 0.2 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 20 | 17.23 | 22 | 18.20 | 19 | 17.60 | 20 | 17.35 | 16 | 17.10 | 230 | 170.27 | |

TABLE B-2. ILLUSTRATIVE FORCE STRUCTURE FOR OPTION II: NAVY FORCE OBJECTIVES--SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year)

| Ship Type | 1981 End | 1982 | | | 1983 | | | 1984 | | | 1985 | | |
|-------------------------------|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-------|-----|
| | | Re- tire | Add | End | Re- tire | Add | End | Re- tire | Add | End | Re- tire | Add | End |
| Strategic | | | | | | | | | | | | | |
| SSBN (Poseidon) | 34 | 3 | | 31 | | | 31 | | | 31 | | 31 | |
| SSBN (Trident) | 1 | | 1 | 2 | | 1 | 3 | | 1 | 4 | | 2 6 | |
| Total, Strategic | 35 | | | 33 | | | 34 | | | 35 | | 37 | |
| General Purpose | | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | | |
| Aircraft carrier (CVN) | 3 | 0 | 1 | 4 | | | 4 | | | 4 | | 4 | |
| Aircraft carrier (CV) | 9 | | | 9 | | | 9 | | | 9 | | 9 | |
| Battleship (BB) | 0 | | | 0 | | 1 | 1 | | 1 | 2 | | 1 3 | |
| Cruiser (CGN) | 9 | | | 9 | | | 9 | | | 9 | | 9 | |
| Cruiser (CG) | 18 | | | 18 | | 1 | 19 | | 1 | 20 | | 1 21 | |
| Destroyer (DDG) | 41 | | | 41 | | | 41 | | | 41 | | 41 | |
| Destroyer (DD) | 44 | | | 44 | | 1 | 45 | | | 45 | | 45 | |
| Frigate (FFG) | 22 | | 8 | 30 | | 10 | 40 | | 5 | 45 | | 5 50 | |
| Frigate (FF) | 59 | | | 59 | | | 59 | | | 59 | | 59 | |
| Submarine (SSN) | 86 | | 6 | 92 | | 5 | 97 | | 4 | 101 | | 2 103 | |
| Submarine (SS) | 5 | | | 5 | | | 5 | | | 5 | | 5 | |
| Small combat (PG/PHM) | 5 | 2 | 3 | 6 | | | 6 | | | 6 | | 6 | |
| Subtotal, Combatants | 301 | | | 317 | | | 335 | | | 346 | | 355 | |
| Amphibious Ships | | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | 5 | | | 5 | | | 5 | | | 5 | | 5 | |
| Dock transport (LPD) | 13 | | | 13 | | | 13 | | | 13 | | 13 | |
| Helo transport ship (LPH) | 7 | | | 7 | | | 7 | | | 7 | | 7 | |
| Landing ship dock (LSD) | 13 | | | 13 | | | 13 | 1 | 1 | 13 | 3 | 10 | |
| Landing ship tank (LST) | 20 | | | 20 | | | 20 | | | 20 | | 20 | |
| Command ship (LCC) | 2 | | | 2 | | | 2 | | | 2 | | 2 | |
| Assault transport (LKA) | 5 | | | 5 | | | 5 | | | 5 | | 5 | |
| Subtotal, Amphibious | 65 | | | 65 | | | 65 | | | 65 | | 62 | |
| Mine Warfare Ships | | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 25 | 4 | 0 | 21 | | | 21 | 11 | | 10 | 6 | 4 | |
| Mine warfare ship (MCM) | 0 | | | 0 | | | 0 | | | 0 | | 0 | |
| Mine warfare ship (MSH) | 0 | | | 0 | | | 0 | | | 0 | | 0 | |
| Subtotal, Mine Warfare | 25 | | | 21 | | | 21 | | | 10 | | 4 | |
| Replenishment Ships | | | | | | | | | | | | | |
| Station ship (AOE) | 4 | | | 4 | | | 4 | | | 4 | | 4 | |
| Station ship (AOR) | 7 | | | 7 | | | 7 | | | 7 | | 7 | |
| Oiler (AO/TAO) | 19 | 1 | 2 | 20 | | | 20 | 2 | | 18 | 3 | 15 | |
| Ammo. ship (AE/TAE) | 13 | | | 13 | | | 13 | | | 13 | | 13 | |
| Stores ship (AFS/TAFS) | 10 | | | 10 | | | 10 | | | 10 | 1 | 9 | |
| Subtotal, Replenishment | 53 | | | 54 | | | 54 | | | 52 | | 48 | |
| Material Support Ships | | | | | | | | | | | | | |
| Destroyer tender (AD) | 9 | 1 | 1 | 9 | 2 | 1 | 8 | 2 | | 6 | | 6 | |
| Submarine tender (AS) | 13 | | | 13 | 1 | | 12 | 1 | | 11 | 1 | 10 | |
| Repair ship (AR) | 4 | | | 4 | 1 | | 3 | 1 | | 2 | 2 | 0 | |
| Subtotal, Material Sup. | 26 | | | 26 | | | 23 | | | 19 | | 16 | |
| Fleet Support Ships | | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | 0 | | | 0 | | 3 | 3 | | 5 | 8 | | 4 12 | |
| Salvage ship (ARS) | 7 | | | 7 | | | 7 | | | 7 | | 1 8 | |
| Rescue ship (ASR) | 6 | | | 6 | 1 | | 5 | | | 5 | | 5 | |
| Salvage/rescue ship (ATS) | 3 | | | 3 | | | 3 | | | 3 | | 3 | |
| Fleet tug (ATF/TATF) | 14 | | | 14 | | | 14 | 4 | | 10 | 3 | 7 | |
| Subtotal, Fleet Sup. | 30 | | | 30 | | | 32 | | | 33 | | 35 | |
| Total, General Purpose | 500 | | | 513 | | | 530 | | | 525 | | 520 | |
| Total, All Ships | 535 | | | 546 | | | 564 | | | 560 | | 557 | |

(continued)

RETIREMENT ASSUMPTIONS: 50 years--CV/CVN; 40 years--AD, AS, AR, AO/TAO, ARS, ASR, ATF; 30 years--all others .

TABLE B-2. (Continued)

| Ship Type | 1986 | | | 1987 | | | 1988 | | | 1989 | | |
|-------------------------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| | Re- tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | | | 31 |
| SSBN (Trident) | | 1 | 7 | | 2 | 9 | | | 9 | | 1 | 10 |
| Total, Strategic | | | 38 | | | 40 | | | 40 | | | 41 |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 4 | | | 4 | | 1 | 5 | | | 5 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | 1 | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 9 | | | 9 | | | 9 | | | 9 |
| Cruiser (CG) | | 4 | 25 | | 4 | 29 | | 4 | 33 | | 4 | 37 |
| Destroyer (DDG) | 1 | | 40 | 1 | | 39 | | | 39 | 1 | | 39 |
| Destroyer (DD) | 2 | | 43 | 4 | 2 | 41 | 4 | 2 | 39 | 4 | 2 | 37 |
| Frigate (FFG) | | 4 | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | | | 59 | | | 59 | | | 59 | | | 59 |
| Submarine (SSN) | | 4 | 107 | 1 | 3 | 109 | 2 | 2 | 109 | 2 | 1 | 108 |
| Submarine (SS) | | | 5 | 1 | | 4 | 1 | | 3 | 2 | | 1 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | 365 | | | 367 | | | 369 | | | 368 |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | | 5 | | | 5 | | | 5 | | 1 | 6 |
| Dock transport (LPD) | | | 13 | | | 13 | | | 13 | | | 13 |
| Helo transport ship (LPH) | | | 7 | | | 7 | | | 7 | | | 7 |
| Landing ship dock (LSD) | 2 | 1 | 9 | 2 | 3 | 10 | | 4 | 14 | | 3 | 17 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | 61 | | | 62 | | | 66 | | | 70 |
| Mine Warfare Ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 2 | | 2 | 1 | | 1 | | | 1 | 1 | | 0 |
| Mine warfare ship (MCM) | | 1 | 1 | | 6 | 7 | | 6 | 13 | | 5 | 18 |
| Mine Warfare ship (MSH) | | | 0 | | | 0 | | 1 | 1 | | 3 | 4 |
| Subtotal, Mine Warfare | | | 3 | | | 8 | | | 15 | | | 22 |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 4 | 1 | 12 | | 3 | 15 | | 2 | 17 | | 3 | 20 |
| Ammo. ship (AE/TAE) | | | 13 | 2 | 1 | 12 | | 1 | 13 | 2 | 1 | 12 |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | 45 | | | 47 | | | 50 | | | 52 |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | | | 6 | | 2 | 8 | | 1 | 9 | | 1 | 10 |
| Submarine tender (AS) | 1 | | 9 | | 1 | 10 | | 1 | 11 | | 1 | 12 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | 15 | | | 18 | | | 20 | | | 22 |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | 3 | 2 | 7 | 3 | 1 | 5 | | 1 | 6 | | | 6 |
| Rescue ship (ASR) | 2 | | 3 | 1 | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | 32 | | | 29 | | | 30 | | | 30 |
| Total, General Purpose | | | 521 | | | 531 | | | 550 | | | 564 |
| Total, All Ships | | | 559 | | | 571 | | | 590 | | | 605 |

(continued)

BUILDING TIME ASSUMPTIONS: CVN--8 years; SSBN--6 years; CGN--5 years; SSN--5 years; all others--4 years .

TABLE B-2. (Continued)

| Ship Type | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|-------------------------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|
| | Re-tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | 6 | | 25 |
| SSBN (Trident) | | 1 | <u>11</u> | 1 | | <u>12</u> | | 1 | <u>13</u> | | 1 | <u>14</u> |
| Total, Strategic | | | <u>42</u> | | | <u>43</u> | | | <u>44</u> | | | <u>39</u> |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 5 | | | 5 | | 1 | 6 | | | 6 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 10 | 1 | | 9 | 1 | 3 | 11 | | 2 | 13 |
| Cruiser (CG) | | 8 | 45 | | | 45 | 1 | | 44 | 4 | | 40 |
| Destroyer (DDG) | 6 | | 33 | 9 | 7 | 31 | 9 | 6 | 28 | 5 | 8 | 31 |
| Destroyer (DD) | | | 37 | | | 37 | | | 37 | | | 37 |
| Frigate (FFG) | | | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | | | 59 | | | 59 | | | 59 | 1 | | 58 |
| Submarine (SSN) | 4 | 2 | 106 | 6 | 1 | 101 | 3 | 2 | 100 | 3 | 1 | 98 |
| Submarine (SS) | 1 | | 0 | | | 0 | | | 0 | | | 0 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | <u>368</u> | | | <u>360</u> | | | <u>358</u> | | | <u>356</u> |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | | 6 | | 1 | 7 | | 1 | 8 | | 1 | 9 |
| Dock transport (LPD) | | | 13 | | 1 | 14 | 1 | | 13 | 1 | 1 | 13 |
| Helo transport ship (LPH) | | | 7 | 1 | | 6 | 1 | | 5 | 1 | | 4 |
| Landing ship dock (LSD) | | 4 | 21 | | | 21 | | | 21 | | | 21 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | <u>74</u> | | | <u>75</u> | | | <u>74</u> | | | <u>74</u> |
| Mine Warfare Ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | | 18 | | | 18 | | | 18 | | | 18 |
| Mine warfare ship (MSH) | | 3 | 7 | | 3 | 10 | | 3 | 13 | | | 13 |
| Subtotal, Mine Warfare | | | <u>25</u> | | | <u>28</u> | | | <u>31</u> | | | <u>31</u> |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | 1 | 5 | | 1 | 6 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | | 2 | 22 | | 3 | 25 | | 2 | 27 | | 3 | 30 |
| Ammo. ship (AE/TAE) | 1 | 1 | 12 | | 1 | 13 | | 1 | 14 | | 1 | 15 |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | <u>54</u> | | | <u>58</u> | | | <u>62</u> | | | <u>67</u> |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | 1 | 1 | 10 | | 1 | 11 | | 1 | 12 | | 1 | 13 |
| Submarine tender (AS) | | | 13 | | | 13 | | | 13 | | | 13 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | <u>23</u> | | | <u>24</u> | | | <u>25</u> | | | <u>26</u> |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | 1 | 13 | | 2 | 15 | | | 15 | | | 15 |
| Salvage ship (ARS) | | | 6 | | | 6 | | | 6 | | | 6 |
| Sub, rescue ship (ASR) | | | 2 | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | <u>31</u> | | | <u>33</u> | | | <u>33</u> | | | <u>33</u> |
| Total, General Purpose | | | <u>575</u> | | | <u>578</u> | | | <u>583</u> | | | <u>587</u> |
| Total, All Ships | | | 617 | | | 621 | | | 627 | | | 626 |

(continued)

TABLE B-2. (Continued)

| Ship Type | 1994 | | | 1995 | | | 1996 | | |
|-------------------------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|
| | Re-tire | Add | End | Re-tire | Add | End | Re-tire | Add | End |
| Strategic | | | | | | | | | |
| SSBN (Poseidon) | 13 | | 12 | 4 | | 8 | 7 | | 1 |
| SSBN (Trident) | | 1 | <u>15</u> | | 1 | <u>16</u> | | 1 | <u>17</u> |
| Total, Strategic | | | <u>27</u> | | | <u>24</u> | | | <u>18</u> |
| General Purpose | | | | | | | | | |
| Combatants | | | | | | | | | |
| Aircraft carrier (CVN) | | 1 | 7 | | | 7 | | 1 | 8 |
| Aircraft carrier (CV) | | | 9 | 1 | | 8 | 1 | | 7 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | 3 | 16 | | 2 | 18 | | 3 | 21 |
| Cruiser (CG) | | | 36 | 2 | | 34 | 3 | | 31 |
| Destroyer (DDG) | 5 | 6 | 32 | | 8 | 40 | | 6 | 46 |
| Destroyer (DD) | | | 37 | | | 37 | | | 37 |
| Frigate (FFG) | | | 54 | | | 54 | 1 | | 53 |
| Frigate (FF) | 1 | | 57 | 4 | | 53 | 2 | | 51 |
| Submarine (SSN) | 2 | 2 | 98 | 2 | 1 | 97 | 1 | 2 | 98 |
| Submarine (SS) | | | 0 | | | 0 | | | 0 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | <u>356</u> | | | <u>358</u> | | | <u>362</u> |
| Amphibious Ships | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | 1 | 10 | | 1 | 11 | | 1 | 12 |
| Dock transport (LPD) | | 1 | 14 | 2 | 1 | 13 | 1 | 1 | 13 |
| Helo transport ship (LPH) | | | 4 | 1 | | 3 | 1 | | 2 |
| Landing ship dock (LSD) | | | 21 | | | 21 | | | 21 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | <u>76</u> | | | <u>75</u> | | | <u>75</u> |
| Mine Warfare Ships | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | | 18 | | | 18 | | | 18 |
| Mine warfare ship (MSH) | | | 13 | | | 13 | | | 13 |
| Subtotal, Mine Warfare | | | <u>31</u> | | | <u>31</u> | | | <u>31</u> |
| Replenishment Ships | | | | | | | | | |
| Station ship (AOE) | 1 | 1 | 6 | | 1 | 7 | | 1 | 8 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 1 | 2 | 31 | 3 | 3 | 31 | 2 | | 29 |
| Ammo. ship (AE/TAE) | | 1 | 16 | | | 16 | | | 16 |
| Stores ship (AFS/TAFS) | 2 | 1 | 8 | | | 8 | | 1 | 9 |
| Subtotal, Replenishment | | | <u>68</u> | | | <u>69</u> | | | <u>69</u> |
| Material Support Ships | | | | | | | | | |
| Destroyer tender (AD) | | 1 | 14 | | | 14 | | | 14 |
| Submarine tender (AS) | | | 13 | | | 13 | | | 13 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | <u>27</u> | | | <u>27</u> | | | <u>27</u> |
| Fleet Support Ships | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 15 | | | 15 | | | 15 |
| Salvage ship (ARS) | | | 6 | | | 6 | | | 6 |
| Rescue ship (ASR) | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | <u>33</u> | | | <u>33</u> | | | <u>33</u> |
| Total, General Purpose | | | <u>591</u> | | | <u>593</u> | | | <u>597</u> |
| Total, All Ships | | | 618 | | | 617 | | | 615 |



APPENDIX C. OPTION III: REDUCED FORCE OBJECTIVES--SHIPS IN FLEET
BY 1996 AND AUTHORIZED BY 1992

This appendix contains tables giving details of an illustrative shipbuilding program for Option III (see Table C-1) and a year-by-year breakdown of the force structure that would result from that building program (see Table C-2), taking into account the structure of the current fleet and assumed retirements through 1996. In this option, shipbuilding budgets are constrained to about the current level and a mix of ship types consistent with current planning is procured. This results in force levels significantly lower than Navy objectives. In developing the force structure projections, assumptions about years of service until ship retirement (from commissioning date) and building time (from authorization to delivery) are as follows:

Retirement Assumptions

50 Years
Aircraft Carriers (CV/CVN)

40 Years
Destroyer Tenders (AD)
Submarine Tenders (AS)
Repair Ships (AR)
Fleet Oilers (AO/TAO)
Salvage Ship (ARS)
Submarine Rescue Ship (ASR)
Fleet Tug (ATF/TATF)

30 Years
All others

Building Time Assumptions

Aircraft Carriers (CVN)--8 years
Ballistic Missile Submarine
(SSBN)--6 Years
Nuclear Powered Guided Missile
Cruiser (CGN)--5 years
Nuclear Powered Attack
Submarine (SSN)--5 years
All others--4 years

Under these assumptions, ships actually in the fleet by 1996 must be authorized no later than 1992.

Certain types of reserve and support ships, which are not included in the Navy's current ship counting methodology, are not included in these tables.

TABLE C-1. ILLUSTRATIVE SHIPBUILDING PROGRAM FOR OPTION III: REDUCED FORCE LEVEL OBJECTIVES-- SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year, costs in billions of fiscal year 1983 dollars)

| Ship Type | 1983 | | 1984 | | 1985 | | 1986 | | 1987 | |
|-------------------------------|-----------|-------------|-----------|--------------|-----------|--------------|-----------|-------------|-----------|--------------|
| | Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost |
| Strategic | | | | | | | | | | |
| SSBN (Poseidon) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SSBN (Trident) | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.40 |
| General Purpose | | | | | | | | | | |
| Combatants | | | | | | | | | | |
| Aircraft carrier (CVN) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Aircraft carrier (CV) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Battleship (BB) | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | -- | -- | -- | -- |
| Cruiser (CGN) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Cruiser (CG) | 4 | 4.56 | 4 | 4.56 | 4 | 4.56 | 4 | 4.56 | 2 | 2.28 |
| Destroyer (DDGX) | -- | -- | -- | -- | 1 | 1.25 | -- | -- | 5 | 4.00 |
| Destroyer (DD) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Frigate (FFG) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Frigate (FF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Submarine (SSN) | 1 | 0.7 | 1 | 0.7 | -- | -- | 1 | 0.7 | -- | -- |
| Submarine (SS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Small combatant (PG/PHM) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Amphibious Ships | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | -- | -- | 1 | 1.3 | -- | -- | 1 | 1.0 | -- | -- |
| Dock transport (LPD) | -- | -- | -- | -- | -- | -- | -- | -- | 1 | 1.00 |
| Helo transport ship (LPH) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Landing ship dock (LSD) | 2 | 0.8 | 1 | 0.4 | 2 | 0.8 | 1 | 0.4 | 1 | 0.4 |
| Landing ship tank (LST) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Command ship (LCC) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Assault transport (LKA) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine Warfare Ships | | | | | | | | | | |
| Ocean minesweeper (MSO) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine warfare ship (MCM) | -- | -- | 3 | 0.3 | 3 | 0.3 | 3 | 0.3 | 3 | 0.3 |
| Mine warfare ship (MSH) | -- | -- | -- | -- | 1 | 0.1 | -- | -- | 3 | 0.18 |
| Replenishment Ships | | | | | | | | | | |
| Station ship (AOE) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Station ship (AOR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Oiler (AO/TAO) | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 |
| Ammo. ship (AE/TAE) | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | -- | -- |
| Stores ship (AFS/TAFS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Material Support Ships | | | | | | | | | | |
| Destroyer tender (AD) | 1 | 0.45 | -- | -- | 1 | 0.45 | -- | -- | 1 | 0.45 |
| Submarine tender (AS) | -- | -- | 1 | 0.45 | -- | -- | 1 | 0.45 | -- | -- |
| Repair ship (AR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet Support Ships | | | | | | | | | | |
| Surveillance ship (AGOS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salvage ship (ARS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Sub, rescue ship (ASR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salvage/rescue ship (ATS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet tug (ATF/TATF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total, All Ships | 12 | 9.06 | 16 | 10.56 | 16 | 10.01 | 15 | 9.81 | 18 | 10.31 |

(continued)

TABLE C-1 (Continued)

| 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | Total Type | Total Type Cost | Percent of Total Cost, All Ships |
|-------|-------|-------|------|-------|------|-------|------|-------|------|------------|-----------------|----------------------------------|
| Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost | | | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 10 | 14.0 | 14 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 | 1.35 | -- |
| 2 | 2.28 | -- | -- | -- | -- | -- | -- | -- | -- | 20 | 22.8 | 57 |
| 6 | 4.80 | 6 | 4.80 | 7 | 5.6 | 7 | 5.6 | 7 | 5.6 | 39 | 31.6 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | 1 | 0.7 | 1 | 0.7 | 1 | 0.7 | -- | -- | 6 | 4.2 | 4 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1 | 1.0 | -- | -- | 1 | 1.0 | -- | -- | -- | -- | 4 | 4.3 | -- |
| -- | -- | 1 | 0.75 | -- | -- | 1 | 0.75 | 1 | 0.75 | 4 | 3.25 | 11 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1 | 0.4 | -- | -- | -- | -- | -- | -- | -- | -- | 8 | 3.2 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 12 | 1.20 | 2 |
| 2 | 0.12 | 3 | 0.18 | 3 | 0.18 | -- | -- | -- | -- | 12 | 0.76 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | 1 | 0.7 | 1 | 0.7 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2 | 0.6 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 2 | 0.6 | 15 | 4.5 | 7 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 4 | 1.6 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | 1 | 0.45 | -- | -- | -- | -- | -- | -- | 4 | 1.8 | 4 |
| 1 | 0.45 | -- | -- | 1 | 0.45 | -- | -- | -- | -- | 4 | 1.8 | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 16 | 11.05 | 14 | 8.58 | 16 | 9.93 | 11 | 8.75 | 12 | 9.05 | 146 | 97.11 | -- |

TABLE C-2. ILLUSTRATIVE FORCE STRUCTURE FOR OPTION III: REDUCED FORCE LEVEL OBJECTIVES--SHIPS
IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year)

| Ship Type | 1981 End | 1982 | | | 1983 | | | 1984 | | | 1985 | | |
|-------------------------------|-------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| | | Re- tire | Add | End |
| Strategic | | | | | | | | | | | | | |
| SSBN (Poseidon) | 34 | 3 | | 31 | | | 31 | | | 31 | | | 31 |
| SSBN (Trident) | 1 | | 1 | 2 | | 1 | 3 | | 1 | 4 | | 2 | 6 |
| Total, Strategic | 35 | | | 33 | | | 34 | | | 35 | | | 37 |
| General Purpose | | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | | |
| Aircraft carrier (CVN) | 3 | | 1 | 4 | | | 4 | | | 4 | | | 4 |
| Aircraft carrier (CV) | 9 | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | 0 | | | 0 | | 1 | 1 | | 1 | 2 | | 1 | 3 |
| Cruiser (CGN) | 9 | | | 9 | | | 9 | | | 9 | | | 9 |
| Cruiser (CG) | 18 | | | 18 | | 1 | 19 | | 1 | 20 | | 1 | 21 |
| Destroyer (DDG) | 41 | | | 41 | | | 41 | | | 41 | | | 41 |
| Destroyer (DD) | 44 | | | 44 | | 1 | 45 | | | 45 | | | 45 |
| Frigate (FFG) | 22 | | 8 | 30 | | 10 | 40 | | 5 | 45 | | 5 | 50 |
| Frigate (FF) | 59 | | | 59 | | | 59 | | | 59 | | | 59 |
| Submarine (SSN) | 86 | | 6 | 92 | | 5 | 97 | | 4 | 101 | | 2 | 103 |
| Submarine (SS) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Small combat (PG/PHM) | 5 | 2 | 3 | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, combatants | 301 | | | 317 | | | 335 | | | 346 | | | 355 |
| Amphibious Ships | | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Dock transport (LPD) | 13 | | | 13 | | | 13 | | | 13 | | | 13 |
| Helo transport ship (LPH) | 7 | | | 7 | | | 7 | | | 7 | | | 7 |
| Landing ship dock (LSD) | 13 | | | 13 | | | 13 | 1 | 1 | 13 | 3 | | 10 |
| Landing ship tank (LST) | 20 | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | 2 | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | 65 | | | 65 | | | 65 | | | 65 | | | 62 |
| Mine Warfare Ships | | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 25 | 4 | | 21 | | | 21 | 11 | | 10 | 6 | | 4 |
| Mine warfare ship (MCM) | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MSH) | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Mine Warfare | 25 | | | 21 | | | 21 | | | 10 | | | 4 |
| Replenishment Ships | | | | | | | | | | | | | |
| Station ship (AOE) | 4 | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | 7 | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 19 | 1 | 2 | 20 | | | 20 | 2 | | 18 | 3 | | 15 |
| Ammo. ship (AE/TAE) | 13 | | | 13 | | | 13 | | | 13 | | | 13 |
| Stores ship (AFS/TAFS) | 10 | | | 10 | | | 10 | | | 10 | 1 | | 9 |
| Subtotal, Replenishment | 53 | | | 54 | | | 54 | | | 52 | | | 48 |
| Material Support Ships | | | | | | | | | | | | | |
| Destroyer tender (AD) | 9 | 1 | 1 | 9 | 2 | 1 | 8 | 2 | | 6 | | | 6 |
| Submarine tender (AS) | 13 | | | 13 | 1 | | 12 | 1 | | 11 | 1 | | 10 |
| Repair ship (AR) | 4 | | | 4 | 1 | | 3 | 1 | | 2 | 2 | | 0 |
| Subtotal, Material Sup. | 26 | | | 26 | | | 23 | | | 19 | | | 16 |
| Fleet Support Ships | | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | 0 | | | 0 | | 3 | 3 | | 5 | 8 | | 4 | 12 |
| Salvage ship (ARS) | 7 | | | 7 | | | 7 | | | 7 | | 1 | 8 |
| Rescue ship (ASR) | 6 | | | 6 | 1 | | 5 | | | 5 | | | 5 |
| Salvage/rescue ship (ATS) | 3 | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | 14 | | | 14 | | | 14 | 4 | | 10 | 3 | | 7 |
| Subtotal, Fleet Sup. | 30 | | | 30 | | | 32 | | | 33 | | | 35 |
| Total, General Purpose | 500 | | | 513 | | | 532 | | | 525 | | | 520 |
| Total, All Ships | 535 | | | 546 | | | 564 | | | 560 | | | 557 |

(Continued)

RETIREMENT ASSUMPTIONS: 50 years--CV/CVN; 40 years--AD, AS, AR, AO/TAO, ARS, ASR, ATF; 30 years--all others.

TABLE C-2. (Continued)

| Ship Type | 1986 | | | 1987 | | | 1988 | | | 1989 | | |
|-------------------------------|---------|-----|-----|---------|-----|-----|---------|-----|-----|---------|-----|-----|
| | Re-tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | | | 31 |
| SSBN (Trident) | | 1 | 7 | | 2 | 9 | | | 9 | | 1 | 10 |
| Total, Strategic | | | 38 | | | 40 | | | 40 | | | 41 |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 4 | | | 4 | | 1 | 5 | | | 5 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | 1 | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 9 | | | 9 | | | 9 | | | 9 |
| Cruiser (CG) | | 4 | 25 | | 4 | 29 | | 4 | 33 | | 4 | 37 |
| Destroyer (DDG) | 1 | | 40 | 1 | | 39 | | | 39 | 1 | | 38 |
| Destroyer (DD) | 2 | | 43 | 4 | | 39 | 4 | | 35 | 4 | | 31 |
| Frigate (FFG) | | 4 | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | | | 59 | | | 59 | | | 59 | | | 59 |
| Submarine (SSN) | | 4 | 107 | 1 | 3 | 109 | 2 | 1 | 108 | 2 | 1 | 107 |
| Submarine (SS) | | | 5 | 1 | | 4 | 1 | | 3 | 2 | | 1 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | 365 | | | 365 | | | 364 | | | 360 |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | | 5 | | | 5 | | 1 | 6 | | | 6 |
| Dock transport (LPD) | | | 13 | | | 13 | | | 13 | | | 13 |
| Helo transport ship (LPH) | | | 7 | | | 7 | | | 7 | | | 7 |
| Landing ship dock (LSD) | 2 | 1 | 9 | 2 | 2 | 9 | | 1 | 10 | | 2 | 12 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | 61 | | | 61 | | | 63 | | | 65 |
| Mine Warfare Ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 2 | | 2 | 1 | | 1 | | | 1 | 1 | | 0 |
| Mine warfare ship (MCM) | | 1 | 1 | | | 1 | | 3 | 4 | | 3 | 7 |
| Mine warfare ship (MSH) | | | 0 | | | 0 | | | 0 | | 1 | 1 |
| Subtotal, Mine Warfare | | | 3 | | | 2 | | | 5 | | | 8 |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 4 | 1 | 12 | | 1 | 13 | | 2 | 15 | | 1 | 16 |
| Ammo. ship (AE/TAE) | | | 13 | 2 | 1 | 12 | | 1 | 13 | 2 | 1 | 12 |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | 45 | | | 45 | | | 48 | | | 48 |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | | | 6 | | 1 | 7 | | | 7 | | 1 | 8 |
| Submarine tender (AS) | 1 | | 9 | | | 9 | | 1 | 10 | | | 10 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | 15 | | | 16 | | | 17 | | | 18 |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | 3 | 2 | 7 | 3 | | 4 | | | 4 | | | 4 |
| Rescue ship (ASR) | 2 | | 3 | 1 | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | 32 | | | 28 | | | 28 | | | 28 |
| Total, General Purpose | | | 521 | | | 517 | | | 525 | | | 527 |
| Total, All Ships | | | 559 | | | 557 | | | 565 | | | 568 |

(continued)

BUILDING TIME ASSUMPTIONS: CVN--8 years, SSBN--6 years, CGN--5 years, SSN--5 years, all others--4 years.

TABLE C-2. (Continued)

| Ship Type | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|-------------------------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|
| | Re-tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | 6 | | 25 |
| SSBN (Trident) | | 1 | <u>11</u> | | 1 | <u>12</u> | | 1 | <u>13</u> | | 1 | <u>14</u> |
| Total, Strategic | | | <u>42</u> | | | <u>43</u> | | | <u>44</u> | | | <u>39</u> |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 5 | | | 5 | | | 5 | | | 6 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 9 | 1 | | 8 | 1 | | 7 | | | 7 |
| Cruiser (CG) | | 4 | 41 | | 2 | 43 | 1 | 2 | 44 | 4 | | 40 |
| Destroyer (DDG) | 6 | | 32 | 9 | 5 | 28 | 9 | 6 | 25 | 5 | 6 | 26 |
| Destroyer (DD) | | | 31 | | | 31 | | | 31 | | | 31 |
| Frigate (FFG) | | | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | | | 59 | | | 59 | | | 59 | 1 | | 58 |
| Submarine (SSN) | 4 | | 103 | 6 | 1 | 98 | 3 | | 95 | 3 | | 92 |
| Submarine (SS) | 1 | | 0 | | | 0 | | | 0 | | | 0 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | <u>353</u> | | | <u>345</u> | | | <u>339</u> | | | <u>332</u> |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | 1 | 7 | | | 7 | | 1 | 8 | | | 8 |
| Dock transport (LPD) | | | 13 | | 1 | 14 | 1 | | 13 | 1 | 1 | 13 |
| Helo transport Ship (LPH) | | | 7 | 1 | | 6 | 1 | | 5 | 1 | | 4 |
| Landing ship dock (LSD) | | 1 | 13 | | 1 | 14 | | 1 | 15 | | | 15 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | <u>67</u> | | | <u>68</u> | | | <u>68</u> | | | <u>67</u> |
| Mine Warfare Ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | 3 | 10 | | 3 | 13 | | | 13 | | | 13 |
| Mine warfare ship (MSH) | | | 1 | | 3 | 4 | | 2 | 6 | | 3 | 9 |
| Subtotal, Mine Warfare | | | <u>11</u> | | | <u>17</u> | | | <u>19</u> | | | <u>22</u> |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | | 2 | 18 | | 1 | 19 | | 2 | 21 | | 1 | 22 |
| Ammo. ship (AE/TAE) | 1 | 1 | 12 | | | 12 | | | 12 | | | 12 |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | <u>50</u> | | | <u>51</u> | | | <u>53</u> | | | <u>54</u> |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | 1 | | 7 | | 1 | 8 | | | 8 | | 1 | 9 |
| Submarine tender (AS) | | 1 | 11 | | | 11 | | 1 | 12 | | | 12 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | <u>18</u> | | | <u>19</u> | | | <u>20</u> | | | <u>21</u> |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | | | 4 | | | 4 | | | 4 | | | 4 |
| Rescue ship (ASR) | | | 2 | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | <u>28</u> | | | <u>28</u> | | | <u>28</u> | | | <u>28</u> |
| Total, General Purpose | | | <u>527</u> | | | <u>528</u> | | | <u>527</u> | | | <u>524</u> |
| Total, All Ships | | | 569 | | | 571 | | | 571 | | | 563 |

(continued)

TABLE C-2. (Continued)

| Ship Type | 1994 | | | 1995 | | | 1996 | | |
|-----------------------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| | Re- tire | Add | End | Re- tire | Add | End | Re- tire | Add | End |
| Strategic | | | | | | | | | |
| SSBN (Poseidon) | 13 | | 12 | 4 | | 8 | 7 | | 1 |
| SSBN (Trident) | | 1 | 15 | | 1 | 16 | | 1 | 17 |
| Total, Strategic | | | 27 | | | 24 | | | 18 |
| General Purpose | | | | | | | | | |
| Combatants | | | | | | | | | |
| Aircraft carrier (CVN) | | | 5 | | | 5 | | | 5 |
| Aircraft carrier (CV) | | | 9 | 1 | | 8 | 1 | | 7 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 7 | | | 7 | | | 7 |
| Cruiser (CG) | 4 | | 36 | 2 | | 34 | 3 | | 31 |
| Destroyer (DDG) | 5 | 7 | 28 | | 7 | 35 | | 7 | 42 |
| Destroyer (DD) | | | 31 | | | 31 | | | 31 |
| Frigate (FFG) | | | 54 | | | 54 | 1 | | 53 |
| Frigate (FF) | 1 | | 57 | 4 | | 53 | 2 | | 51 |
| Submarine (SSN) | 2 | 1 | 91 | 2 | 1 | 90 | 1 | 1 | 90 |
| Submarine (SS) | | | 0 | | | 0 | | | 0 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | 328 | | | 327 | | | 327 |
| Amphibious Ships | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | 1 | 9 | | | 9 | | | 9 |
| Dock transport (LPD) | | | 13 | 2 | 1 | 12 | 1 | 1 | 12 |
| Helo transport ship (LPH) | | | 4 | 1 | | 3 | 1 | | 2 |
| Landing ship dock (LSD) | | | 15 | | | 15 | | | 15 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | 68 | | | 66 | | | 65 |
| Mine Warfare Ships | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | | 13 | | | 13 | | | 13 |
| Mine warfare ship (MSH) | | 3 | 12 | | | 12 | | | 12 |
| Subtotal, Mine Warfare | | | 25 | | | 25 | | | 25 |
| Replenishment Ships | | | | | | | | | |
| Station ship (AOE) | 1 | | 3 | | | 3 | | 1 | 4 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 1 | 2 | 23 | 3 | 1 | 21 | 2 | 2 | 21 |
| Ammo. ship (AE/TAE) | | | 12 | | | 12 | | | 12 |
| Stores ship (AFS/TAFS) | 2 | | 7 | | | 7 | | | 7 |
| Subtotal, Replenishment | | | 52 | | | 50 | | | 51 |
| Material Support Ships | | | | | | | | | |
| Destroyer tender (AD) | | | 9 | | | 9 | | | 9 |
| Submarine tender (AS) | | 1 | 13 | | | 13 | | | 13 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | 22 | | | 22 | | | 22 |
| Fleet Support Ships | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | | | 4 | | | 4 | | | 4 |
| Rescue ship (ASR) | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | 28 | | | 28 | | | 28 |
| Total, General Purpose | | | 523 | | | 518 | | | 518 |
| Total, All Ships | | | 550 | | | 542 | | | 536 |

APPENDIX D. OPTION IV: MODIFIED FORCE MIX, EXPANDED FORCE
LEVELS--SHIPS IN FLEET BY 1996--AUTHORIZED BY 1992

This appendix contains tables presenting in detail an illustrative shipbuilding program for Option IV (see Table D-1) and a year-by-year breakdown of the force structure that would result from that building program (see Table D-2), taking into account the structure of the current fleet and assumed retirements through 1996. In this option, the objective is to achieve force level goals consistent with Navy objectives by the end of 1996, but to reduce costs by changing the mix of ship types procured. In developing the force structure projections, assumptions about years of service until ship retirement (from commissioning date) and building time (from authorization to delivery) are as follows:

Retirement Assumptions

50 Years
Aircraft Carriers (CV/CVN)

40 Years
Destroyer Tenders (AD)
Submarine Tenders (AS)
Repair Ships (AR)
Fleet Oilers (AO/TAO)
Salvage Ship (ARS)
Submarine Rescue Ship (ASR)
Fleet Tug (ATF/TATF)

30 Years
All others

Building Time Assumptions

Aircraft Carriers (CVN)--8 years
Ballistic Missile Submarine
(SSBN)--6 Years
Nuclear Powered Guided Missile
Cruiser (CGN)--5 years
Nuclear Powered Attack
Submarine (SSN)--5 years
All others--4 years

Under these assumptions, ships actually in the fleet by 1996 must be authorized no later than 1992.

Certain types of reserve and support ships, which are not included in the Navy's current ship counting methodology, are not included in these tables.

TABLE D-1. ILLUSTRATIVE SHIPBUILDING PROGRAM FOR OPTION IV: MODIFIED FORCE MIX, EXPANDED FORCE LEVELS--SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year, costs in billions of fiscal year 1983 dollars)

| Ship Type | 1983 | | 1984 | | 1985 | | 1986 | | 1987 | |
|-------------------------------|-----------|-------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|
| | Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost | Ships | Cost |
| Strategic | | | | | | | | | | |
| SSBN (Poseidon) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SSBN (Trident) | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 |
| General Purpose | | | | | | | | | | |
| Combatants | | | | | | | | | | |
| Aircraft carrier (CVN) | -- | -- | 1 | 3.5 | -- | -- | -- | -- | 1 | 3.5 |
| Aircraft carrier (CV) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Battleship (BB) | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | -- | -- | -- | -- |
| V/STOL cruiser (CGV) | -- | -- | -- | -- | -- | -- | -- | -- | 1 | 1.0 |
| Cruiser (CG) | 3 | 3.42 | 2 | 2.28 | 3 | 3.42 | 3 | 3.42 | 3 | 3.42 |
| Destroyer (DDG) | -- | -- | -- | -- | -- | -- | 1 | 0.65 | -- | -- |
| Destroyer (DD) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Frigate (FFG) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Frigate (FF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Submarine (SSN) | 1 | 0.7 | -- | -- | 1 | 0.7 | -- | -- | -- | -- |
| Submarine (SS) | -- | -- | 1 | 0.25 | -- | -- | 2 | 0.3 | 2 | 0.3 |
| Small combatant (PG/PHM) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Amphibious Ships | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | -- | -- | -- | -- | 1 | 1.3 | -- | -- | 1 | 1.0 |
| Dock transport (LPD) | -- | -- | -- | -- | -- | -- | 1 | 0.7 | -- | -- |
| Helo transport ship (LPH) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Landing ship dock (LSD) | 4 | 1.9 | 3 | 1.4 | 3 | 1.4 | 4 | 1.8 | -- | -- |
| Landing ship tank (LST) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Command ship (LCC) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Assault transport (LKA) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine Warfare Ships | | | | | | | | | | |
| Ocean minesweeper (MSO) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Mine warfare ship (MCM) | 4 | 0.4 | 4 | 0.4 | 4 | 0.4 | 5 | 0.5 | -- | -- |
| Mine warfare ship (MSH) | -- | -- | -- | -- | 1 | 0.20 | -- | -- | 3 | 0.33 |
| Replenishment Ships | | | | | | | | | | |
| Station ship (AOE) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Station ship (AOR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Oiler (AO/TAO) | 2 | 0.6 | 2 | 0.6 | 2 | 0.6 | 3 | 0.9 | 2 | 0.6 |
| Ammo. ship (AE/TAE) | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | 1 | 0.4 | -- | -- |
| Stores ship (AFS/TAFS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Material Support Ships | | | | | | | | | | |
| Destroyer tender (AD) | 1 | 0.45 | -- | -- | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 |
| Submarine tender (AS) | -- | -- | -- | -- | 1 | 0.45 | 1 | 0.45 | -- | -- |
| Repair ship (AR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet Support Ships | | | | | | | | | | |
| Surveillance ship (AGOS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salvage ship (ARS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Rescue ship (ASR) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Salvage/rescue ship (ATS) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Fleet tug (ATF/TATF) | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Total, All Ships | 18 | 9.72 | 16 | 10.68 | 20 | 11.17 | 23 | 10.97 | 15 | 12.00 |

(Continued)

TABLE D-1. (Continued)

| 1988 | | 1989 | | 1990 | | 1991 | | 1992 | | Total Type | Total Type Cost | Percent of Total Cost, All Ships |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|-----------------------|---|
| Ships | Cost | | | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 12 |
| 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 1 | 1.4 | 10 | 14.0 | |
| -- | -- | -- | -- | 1 | 3.5 | -- | -- | -- | -- | 3 | 10.5 | 9 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 3 | 1.35 | |
| -- | -- | 2 | 1.5 | 3 | 2.25 | 3 | 2.25 | 3 | 2.25 | 12 | 9.25 | 42 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 14 | 15.96 | |
| 12 | 4.8 | 12 | 4.8 | 12 | 4.8 | 12 | 4.8 | 12 | 4.8 | 61 | 24.65 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1 | 0.7 | 1 | 0.7 | -- | -- | 1 | 0.7 | 1 | 0.7 | 6 | 4.2 | 5 |
| 2 | 0.3 | 3 | 0.45 | -- | -- | -- | -- | -- | -- | 10 | 1.6 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 7 | 7.3 | |
| 1 | 0.5 | 1 | 0.5 | -- | -- | 1 | 0.5 | 1 | 0.5 | 5 | 2.7 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 14 | 6.5 | 14 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3 | 0.33 | 3 | 0.33 | 3 | 0.33 | -- | -- | -- | -- | 17 | 1.7 | 3 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 13 | 1.52 | |
| 1 | 0.7 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 1 | 0.5 | 5 | 2.7 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 3 | 0.9 | 2 | 0.6 | 2 | 0.6 | 2 | 0.6 | 3 | 0.9 | 23 | 6.9 | |
| 1 | 0.4 | 1 | 0.4 | -- | -- | 1 | 0.4 | 1 | 0.4 | 8 | 3.2 | 11 |
| -- | -- | -- | -- | -- | -- | 1 | 0.25 | 1 | 0.25 | 2 | 0.5 | |
| 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | 1 | 0.45 | 9 | 4.05 | 5 |
| -- | -- | -- | -- | -- | -- | 1 | 0.45 | 1 | 0.45 | 4 | 1.8 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 2 | 0.20 | -- | -- | -- | -- | 3 | 0.30 | -- | -- | 3 | 0.30 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | 2 | 0.20 | |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | <1 |
| -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | |
| 29 | 11.68 | 29 | 12.63 | 25 | 14.83 | 29 | 13.60 | 27 | 13.60 | 231 | 120.88 | |

TABLE D-2. ILLUSTRATIVE FORCE STRUCTURE FOR OPTION IV: MODIFIED FORCE MIX, EXPANDED FORCE LEVELS--SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (By fiscal year)

| Ship Type | 1981 End | 1982 | | | 1983 | | | 1984 | | | 1985 | | |
|-------------------------------|-------------|-------------|-----|------------|-------------|-----|------------|-------------|-----|------------|-------------|-----|------------|
| | | Re- tire | Add | End |
| Strategic | | | | | | | | | | | | | |
| SSBN (Poseidon) | 34 | 3 | | 31 | | 31 | | 31 | | 31 | | 31 | |
| SSBN (Trident) | <u>1</u> | | 1 | <u>2</u> | | 1 | <u>3</u> | | 1 | <u>4</u> | | 2 | <u>6</u> |
| Total, Strategic | <u>35</u> | | | <u>33</u> | | | <u>34</u> | | | <u>35</u> | | | <u>37</u> |
| General Purpose | | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | | |
| Aircraft carrier (CVN) | 3 | | 1 | 4 | | | 4 | | | 4 | | | 4 |
| Aircraft carrier (CV) | 9 | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | 0 | | | 0 | | 1 | 1 | | 1 | 2 | | 1 | 3 |
| Cruiser (CGN) | 9 | | | 9 | | | 9 | | | 9 | | | 9 |
| Cruiser (CG) | 18 | | | 18 | | 1 | 19 | | 1 | 20 | | 1 | 21 |
| V/STOL cruiser (CGV) | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| Destroyer (DDG) | 41 | | | 41 | | | 41 | | | 41 | | | 41 |
| Destroyer (DD) | 44 | | | 44 | | 1 | 45 | | | 45 | | | 45 |
| Frigate (FFG) | 22 | | 8 | 30 | | 10 | 40 | | 5 | 45 | | 5 | 50 |
| Frigate (FF) | 59 | | | 59 | | | 59 | | | 59 | | | 59 |
| Submarine (SSN) | 86 | | 6 | 92 | | 5 | 97 | | 4 | 101 | | 2 | 103 |
| Submarine (SS) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Small combat (PG/PHM) | 5 | 2 | 3 | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | <u>301</u> | | | <u>317</u> | | | <u>335</u> | | | <u>346</u> | | | <u>355</u> |
| Amphibious Ships | | | | | | | | | | | | | |
| Helo assault hip (LHA/LHD) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Dock transport (LPD) | 13 | | | 13 | | | 13 | | | 13 | | | 13 |
| Helo transport ship (LPH) | 7 | | | 7 | | | 7 | | | 7 | | | 7 |
| Landing ship dock (LSD) | 13 | | | 13 | | | 13 | 1 | 1 | 13 | 3 | | 10 |
| Landing ship tank (LST) | 20 | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | 2 | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | 5 | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | <u>65</u> | | | <u>65</u> | | | <u>65</u> | | | <u>65</u> | | | <u>62</u> |
| Mine Warfare Ships | | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 25 | 4 | | 21 | | | 21 | 11 | | 10 | 6 | | 4 |
| Mine warfare ship (MCM) | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MSH) | 0 | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Mine Warfare | <u>25</u> | | | <u>21</u> | | | <u>21</u> | | | <u>10</u> | | | <u>4</u> |
| Replenishment Ships | | | | | | | | | | | | | |
| Station ship (AOE) | 4 | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | 7 | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 19 | 1 | 2 | 20 | | | 20 | 2 | | 18 | 3 | | 15 |
| Ammo. ship (AE/TAE) | 13 | | | 13 | | | 13 | | | 13 | | | 13 |
| Stores ship (AFS/TAFS) | 10 | | | 10 | | | 10 | | | 10 | 1 | | 9 |
| Subtotal, Replenishment | <u>53</u> | | | <u>54</u> | | | <u>54</u> | | | <u>52</u> | | | <u>48</u> |
| Material Support Ships | | | | | | | | | | | | | |
| Destroyer tender (AD) | 9 | 1 | 1 | 9 | 2 | 1 | 8 | 2 | | 6 | | | 6 |
| Submarine tender (AS) | 13 | | | 13 | 1 | | 12 | 1 | | 11 | 1 | | 10 |
| Repair ship (AR) | 4 | | | 4 | 1 | | 3 | 1 | | 2 | 2 | | 0 |
| Subtotal, Material Sup. | <u>26</u> | | | <u>26</u> | | | <u>23</u> | | | <u>19</u> | | | <u>16</u> |
| Fleet Support Ships | | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | 0 | | | 0 | | 3 | 3 | | 5 | 8 | | 4 | 12 |
| Salvage ship (ARS) | 7 | | | 7 | | | 7 | | | 7 | | 1 | 8 |
| Rescue ship (ASR) | 6 | | | 6 | 1 | | 5 | | | 5 | | | 5 |
| Salvage/rescue ship (ATS) | 3 | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | 14 | | | 14 | | | 14 | 4 | | 10 | 3 | | 7 |
| Subtotal, Fleet Sup. | <u>30</u> | | | <u>30</u> | | | <u>32</u> | | | <u>33</u> | | | <u>35</u> |
| Total, General Purpose | <u>500</u> | | | <u>513</u> | | | <u>530</u> | | | <u>525</u> | | | <u>520</u> |
| Total, All Ships | 535 | | | 546 | | | 564 | | | 560 | | | 557 |

(Continued)

RETIREMENT ASSUMPTIONS: 50 years--CV/CVN; 40 years--AD, AS, AR, AO/TAO, ARS, ASR, ATF; 30 years--all others.

TABLE D-2. (Continued)

| Ship Type | 1986 | | | 1987 | | | 1988 | | | 1989 | | |
|-------------------------------|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|-------------|-----|-----|
| | Re- tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | | | 31 |
| SSBN (Trident) | | 1 | 7 | | 2 | 9 | | | 9 | | 1 | 10 |
| Total, Strategic | | | 38 | | | 40 | | | 40 | | | 41 |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 4 | | | 4 | | 1 | 5 | | | 5 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | 1 | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 9 | | | 9 | | | 9 | | | 9 |
| Cruiser (CG) | | 4 | 25 | | 3 | 28 | | 2 | 30 | | 3 | 33 |
| V/STOL cruiser (CGV) | | | 0 | | | 0 | | | 0 | | | 0 |
| Destroyer (DDG) | 1 | | 40 | 1 | | 39 | | | 39 | 1 | | 38 |
| Destroyer (DD) | 2 | | 43 | 4 | | 39 | 4 | | 35 | 4 | | 31 |
| Frigate (FFG) | | 4 | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | | | 59 | | | 59 | | | 59 | | | 59 |
| Submarine (SSN) | | 4 | 107 | 1 | 3 | 109 | 2 | 1 | 108 | 2 | | 106 |
| Submarine (SS) | | | 5 | 1 | | 4 | 1 | 1 | 4 | 2 | | 2 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | 365 | | | 364 | | | 362 | | | 356 |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | | 5 | | | 5 | | | 5 | | 1 | 6 |
| Dock transport (LPD) | | | 13 | | | 13 | | | 13 | | | 13 |
| Helo transport ship (LPH) | | | 7 | | | 7 | | | 7 | | | 7 |
| Landing ship dock (LSD) | 2 | 1 | 9 | 2 | 4 | 11 | | 3 | 14 | | 3 | 17 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | 61 | | | 63 | | | 66 | | | 70 |
| Mine warfare ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | 2 | | 2 | 1 | | 1 | | | 1 | 1 | | 0 |
| Mine warfare ship (MCM) | | 1 | 1 | | 4 | 5 | | 4 | 9 | | 4 | 13 |
| Mine warfare ship (MSH) | | | 0 | | | 0 | | | 0 | | 1 | 1 |
| Subtotal, Mine Warfare | | | 3 | | | 6 | | | 10 | | | 14 |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | | 4 | | | 4 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 4 | 1 | 12 | | 2 | 14 | | 2 | 16 | | 2 | 18 |
| Ammo. ship (AE/TAE) | | | 13 | 2 | 1 | 12 | | 1 | 13 | 2 | 1 | 12 |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | 45 | | | 46 | | | 49 | | | 50 |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | | | 6 | | 1 | 7 | | | 7 | | 1 | 8 |
| Submarine tender (AS) | 1 | | 9 | | | 9 | | | 9 | | 1 | 10 |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | 15 | | | 16 | | | 16 | | | 18 |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | 3 | 2 | 7 | 3 | | 4 | | | 4 | | | 4 |
| Rescue ship (ASR) | 2 | | 3 | 1 | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | 32 | | | 28 | | | 28 | | | 28 |
| Total, General Purpose | | | 521 | | | 523 | | | 531 | | | 536 |
| Total, All Ships | | | 559 | | | 563 | | | 571 | | | 577 |

(Continued)

TABLE D-2. (Continued)

| Ship Type | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|-------------------------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|---------|-----|------------|
| | Re-tire | Add | End |
| Strategic | | | | | | | | | | | | |
| SSBN (Poseidon) | | | 31 | | | 31 | | | 31 | 6 | | 25 |
| SSBN (Trident) | | 1 | <u>11</u> | | 1 | <u>12</u> | | 1 | <u>13</u> | | 1 | <u>14</u> |
| Total, Strategic | | | <u>42</u> | | | <u>43</u> | | | <u>44</u> | | | <u>39</u> |
| General Purpose | | | | | | | | | | | | |
| Combatants | | | | | | | | | | | | |
| Aircraft carrier (CVN) | | | 5 | | | 5 | | 1 | 6 | | | 6 |
| Aircraft carrier (CV) | | | 9 | | | 9 | | | 9 | | | 9 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 9 | 1 | | 8 | 1 | | 7 | | | 7 |
| Cruiser (CG) | | 3 | <u>36</u> | | 3 | <u>39</u> | 1 | | <u>38</u> | 4 | | <u>34</u> |
| V/STOL cruiser (CGV) | | | 0 | | 1 | 1 | | | 1 | | 2 | 3 |
| Destroyer (DDG) | 6 | 1 | <u>33</u> | 9 | | <u>24</u> | 9 | 12 | <u>27</u> | 5 | 12 | <u>34</u> |
| Destroyer (DD) | | | 31 | | | 31 | | | 31 | | | 31 |
| Frigate (FFG) | | | 54 | | | 54 | | | 54 | | | 54 |
| Frigate (FF) | 4 | 1 | <u>59</u> | | | <u>59</u> | | | <u>59</u> | 1 | | <u>58</u> |
| Submarine (SSN) | 1 | 2 | <u>103</u> | 6 | | <u>97</u> | 3 | | <u>94</u> | 3 | 1 | <u>92</u> |
| Submarine (SS) | | | 3 | | 2 | 5 | | 2 | 7 | | 3 | 10 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | <u>352</u> | | | <u>342</u> | | | <u>343</u> | | | <u>348</u> |
| Amphibious Ships | | | | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | | 6 | | 1 | 7 | | 1 | 8 | | 1 | 9 |
| Dock transport (LPD) | 1 | | <u>14</u> | | | <u>14</u> | 1 | 1 | <u>14</u> | 1 | 1 | <u>14</u> |
| Helo transport ship (LPH) | | | 7 | 1 | | 6 | 1 | | 5 | 1 | | 4 |
| Landing ship dock (LSD) | 4 | | <u>21</u> | | | <u>21</u> | | | <u>21</u> | | | <u>21</u> |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | <u>75</u> | | | <u>75</u> | | | <u>75</u> | | | <u>75</u> |
| Mine Warfare Ships | | | | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | 5 | <u>18</u> | | | <u>18</u> | | | <u>18</u> | | | <u>18</u> |
| Mine warfare ship (MSH) | | | 1 | | 3 | 4 | | 3 | 7 | | 3 | 10 |
| Subtotal, Mine Warfare | | | <u>19</u> | | | <u>22</u> | | | <u>25</u> | | | <u>28</u> |
| Replenishment Ships | | | | | | | | | | | | |
| Station ship (AOE) | | | 4 | | | 4 | | 1 | 5 | | 1 | 6 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | | 3 | <u>21</u> | | 2 | <u>23</u> | | 3 | <u>26</u> | | 2 | <u>28</u> |
| Ammo. ship (AE/TAE) | 1 | 1 | <u>12</u> | | | <u>12</u> | | 1 | <u>13</u> | | 1 | <u>14</u> |
| Stores ship (AFS/TAFS) | | | 9 | | | 9 | | | 9 | | | 9 |
| Subtotal, Replenishment | | | <u>53</u> | | | <u>55</u> | | | <u>60</u> | | | <u>64</u> |
| Material Support Ships | | | | | | | | | | | | |
| Destroyer tender (AD) | 1 | 1 | <u>8</u> | | 1 | <u>9</u> | | 1 | <u>10</u> | | 1 | <u>11</u> |
| Submarine tender (AS) | | 1 | <u>11</u> | | | <u>11</u> | | | <u>11</u> | | | <u>11</u> |
| Repair ship (AR) | | | 0 | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | <u>19</u> | | | <u>20</u> | | | <u>21</u> | | | <u>22</u> |
| Fleet Support Ships | | | | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | | 12 | | | 12 | | | 12 |
| Salvage ship (ARS) | | | 4 | | | 4 | | 2 | 6 | | | 6 |
| Rescue ship (ASR) | | | 2 | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | <u>28</u> | | | <u>28</u> | | | <u>30</u> | | | <u>30</u> |
| Total, General Purpose | | | <u>546</u> | | | <u>542</u> | | | <u>554</u> | | | <u>567</u> |
| Total, All ships | | | 588 | | | 585 | | | 598 | | | 606 |

(Continued)

TABLE D-2 (Continued)

| Ship Type | 1994 | | | 1995 | | | 1996 | | |
|-------------------------------|---------|-----|-----|---------|-----|-----|---------|-----|-----|
| | Re-tire | Add | End | Re-tire | Add | End | Re-tire | Add | End |
| Strategic | | | | | | | | | |
| SSBN (Poseidon) | 13 | | 12 | 4 | | 8 | 7 | | 1 |
| SSBN (Trident) | | 1 | 15 | | 1 | 16 | | 1 | 17 |
| Total, Strategic | | | 27 | | | 24 | | | 18 |
| General Purpose | | | | | | | | | |
| Combatants | | | | | | | | | |
| Aircraft carrier (CVN) | | | 6 | | 1 | 7 | | | 7 |
| Aircraft carrier (CV) | | | 9 | 1 | | 8 | 1 | | 7 |
| Battleship (BB) | | | 4 | | | 4 | | | 4 |
| Cruiser (CGN) | | | 7 | | | 7 | | | 7 |
| Cruiser (CG) | 4 | | 30 | 2 | | 28 | 3 | | 25 |
| V/STOL cruiser (CGV) | | 3 | 6 | | 3 | 9 | | 3 | 12 |
| Destroyer (DDG) | 5 | 12 | 41 | | 12 | 53 | | 12 | 65 |
| Destroyer (DD) | | | 31 | | | 31 | | | 31 |
| Frigate (FFG) | | | 54 | | | 54 | 1 | | 53 |
| Frigate (FF) | 1 | | 57 | 4 | | 53 | 2 | | 51 |
| Submarine (SSN) | 2 | 1 | 91 | 2 | | 89 | 1 | 1 | 89 |
| Submarine (SS) | | | 10 | | | 10 | | | 10 |
| Small combat (PG/PHM) | | | 6 | | | 6 | | | 6 |
| Subtotal, Combatants | | | 352 | | | 359 | | | 367 |
| Amphibious Ships | | | | | | | | | |
| Helo assault ship (LHA/LHD) | | 1 | 10 | | 1 | 11 | | 1 | 12 |
| Dock transport (LPD) | | | 14 | 2 | 1 | 13 | 1 | 1 | 13 |
| Helo transport ship (LPH) | | | 4 | 1 | | 3 | 1 | | 2 |
| Landing ship dock (LSD) | | | 21 | | | 21 | | | 21 |
| Landing ship tank (LST) | | | 20 | | | 20 | | | 20 |
| Command ship (LCC) | | | 2 | | | 2 | | | 2 |
| Assault transport (LKA) | | | 5 | | | 5 | | | 5 |
| Subtotal, Amphibious | | | 76 | | | 75 | | | 75 |
| Mine Warfare Ships | | | | | | | | | |
| Ocean minesweeper (MSO) | | | 0 | | | 0 | | | 0 |
| Mine warfare ship (MCM) | | | 18 | | | 18 | | | 18 |
| Mine warfare ship (MSH) | | 3 | 13 | | | 13 | | | 13 |
| Subtotal, Mine Warfare | | | 31 | | | 31 | | | 31 |
| Replenishment ships | | | | | | | | | |
| Station ship (AOE) | 1 | 1 | 6 | | 1 | 7 | | 1 | 8 |
| Station ship (AOR) | | | 7 | | | 7 | | | 7 |
| Oiler (AO/TAO) | 1 | 2 | 29 | 3 | 2 | 28 | 2 | 3 | 29 |
| Ammo. ship (AE/TAE) | | | 14 | | | 15 | | 1 | 16 |
| Stores ship (AFS/TAFS) | 2 | | 7 | | 1 | 8 | | 1 | 9 |
| Subtotal, Replenishment | | | 63 | | | 65 | | | 69 |
| Material Support Ships | | | | | | | | | |
| Destroyer tender (AD) | | 1 | 12 | | 1 | 13 | | 1 | 14 |
| Submarine tender (AS) | | | 11 | | 1 | 12 | | 1 | 13 |
| Repair Ship (AR) | | | 0 | | | 0 | | | 0 |
| Subtotal, Material Sup. | | | 23 | | | 25 | | | 27 |
| Fleet Support Ships | | | | | | | | | |
| Surveillance ship (TAGOS) | | | 12 | | 3 | 15 | | | 15 |
| Salvage ship (ARS) | | | 6 | | | 6 | | | 6 |
| Sub, rescue ship (ASR) | | | 2 | | | 2 | | | 2 |
| Salvage/rescue ship (ATS) | | | 3 | | | 3 | | | 3 |
| Fleet tug (ATF/TATF) | | | 7 | | | 7 | | | 7 |
| Subtotal, Fleet Sup. | | | 30 | | | 33 | | | 33 |
| Total, General Purpose | | | 575 | | | 588 | | | 602 |
| Total, All ships | | | 602 | | | 612 | | | 620 |

This appendix contains excerpts from the CBO study Naval Surface Combatants in the 1990s: Prospects and Possibilities, April 1981. These excerpts describe the DDGY and some other surface combatants referred to in this report.

The open-ocean destroyer, which for convenience is designated DDGY, is illustrative of a warship that would result from different choices on the design trade-off issues from those taken by the Navy for the DDGX. 1/ It would be an offensively oriented surface combatant capable of battle group operations, but optimized more for broad-ocean operations in the context of a worldwide naval war rather than for the intensive, frontal assault scenario used to derive the DDGX requirements.

The DDGY would carry the same vertical launching system and the same missiles, including cruise missiles, as the DDGX. It would be significantly smaller than the DDGX, however, because of the effect of the design trade-offs discussed below and because, unlike the DDGX, it would not have space and weight capacity for unspecified future growth.

In anti-air warfare (AAW), the DDGY would emphasize "back-end" technology and would use an advanced missile fire control system to achieve high firepower at shorter ranges. 2/ It would use the advanced SM-2 AAW missile, and would have the long-range area AAW capability of that missile. Although this system would probably be less capable, particularly in a jamming environment, than the one proposed for the DDGX or AEGIS, it should be considerably less expensive than AEGIS and much more

1/ DDGX is now referred to by the Navy as the DDG-51.

2/ The term "back-end" refers to the missile fire-control function of an AAW system as opposed to the search and detection functions.

capable than any of the pre-AEGIS AAW systems on existing cruisers and destroyers.

In antisubmarine warfare (ASW), the DDGY emphasizes long-range passive detection with a towed-array sonar whereas the DDGX emphasizes active detection using the SQS-53 sonar. The DDGY would also be fitted with an active sonar, but would utilize the smaller SQS-56 rather than the larger, more expensive SQS-53 used by the DDGX. The DDGY would carry two LAMPS III helicopters, which are essential to its long-range ASW orientation and would also provide it with an independent over-the-horizon surveillance and targeting capability.

The DDGY is assumed to have the same propulsion system as the DDGX; but being a smaller ship, it would be a bit faster. Its range, however, would be about 10 percent less than that of the DDGX.

Finally, the DDGY would be fitted with a gun and a relatively simple gun fire control system suitable for surface engagements and shore bombardment. Although a gun is unlikely to be useful in a modern battle group engagement, it could still be vital for independent patrol and presence operations and for support of amphibious landings.

Emphasizing long-range towed-array ASW rather than shorter-range active sonar, carrying its own helicopters rather than relying upon those from other ships, and mounting a large-caliber gun for antisurface and shore bombardment missions, the DDGY would be better equipped for independent operations outside of the battle group than would the DDGX.

In addition to carrier battle group operations, the DDGY could operate with surface action groups. In this role, its aircraft would provide over-the-horizon surveillance and its towed-array sonar would provide long-range detection of submarines. The DDGY could also operate in support of amphibious landings, providing AAW and ASW protection en route and gunfire support during the assault. It could also operate with frigates in escorting replenishment ships and convoys, substantially increasing the protection provided. Finally, the DDGY could operate independently in patrol and presence or ocean area control missions.

The characteristics of the DDGX and DDGY destroyers and CGN-42 (nuclear) and CG-47 (AEGIS) cruisers are shown in Table E-1, which reproduces Table 3 from the CBO study Naval Surface Combatants in the 1990s: Prospects and Possibilities. The characteristics shown for DDGX in the table represent those for the design baseline of the ship now designated DDG-51 as they were defined in April 1981. Figure E-1 presents simple drawings of these four types of ships. Table E-2 illustrates the derivation of DDGY displacement and cost, using the FFG7 as the baseline. This figure and table reproduce Figure 5 and Table D-2 in the April 1981 study.

TABLE E-1. CHARACTERISTICS OF ALTERNATIVE SHIP TYPES

| | Nuclear Cruiser (CGN-42) | AEGIS Cruiser (CG-47) | Battle Group Destroyer (DDGX) <u>a/</u> | Open Ocean Destroyer (DDGY) <u>b/</u> |
|---|--------------------------------|-----------------------------|---|---|
| Displacement (tons) | 12,000 | 9,100 | 6,000 | 5,000 |
| Maximum Speed (knots) | 30+ | 30 | 29 | 30 |
| Endurance Speed (knots) | -- | 20 | 18 | 20 |
| AAW Systems | | | | |
| Search radar | SPY-1 | SPY-1 | MFAR | 3-D <u>c/</u> |
| Fire control radar | 4 MK99 | 4 MK99 | 2 MK99 or 2 Agile Beam | 2 Agile Beam <u>d/</u> |
| Launcher system | VLS | VLS | VLS | VLS |
| Missile capacity | 122 | 122 | 90 | 90 |
| Missile type | SM-2 | SM-2 | SM-2 | SM-2 |
| ASW Systems | | | | |
| Towed-array sonar | SQR-19 | SQR-19 | None | SQR-19 |
| LAMPS-compatible | Yes | Yes | Yes | Yes |
| Number of aircraft | Two | Two | None | Two |
| Hull-mounted sonar | SQS-53 | SQS-53 | SQS-53 | SQS-56 |
| ASW weapons | ASROC/MK32 Tubes | ASROC/MK32 Tubes | ASROC/MK32 Tubes | ASROC/MK32 Tubes |
| ASuW Systems | | | | |
| Missiles | Tomahawk (TASM) | Tomahawk (TASM) | Tomahawk (TASM) | Tomahawk (TASM) |
| Guns | Two 5"/54 | Two 5"/54 | None | One 155mm (6") |
| Land Attack Systems | | | | |
| Missiles | Tomahawk (TLAM) | Tomahawk (TLAM) | Tomahawk (TLAM) | Tomahawk (TLAM) |
| Guns | Two 5"/54 | Two 5"/54 | None | One 155mm (6") |
| Estimated Cost (millions of fiscal year 1982 dollars) | | | | |
| | \$1,340 | \$1,018 | \$550 | \$375 |

a/ A final decision on the configuration of the DDGX has not yet been made. The characteristics listed above may be changed by the Navy as the design process progresses.

b/ For DDGY weight and cost rationale, see Table E-2.

c/ SPS-48E 3-D and SPS-49 2-D air radars as used on the latest U.S. ships supplemented by horizon and high-elevation search by agile beam fire control radars. Later units might have a new-generation air search radar.

d/ Agile beam is used here as a generic term that includes such specific concepts as the Terminal Engagement Radar (TER) or Flexible Adaptive Radar (FLEXAR). This system would be capable of simultaneously tracking and engaging multiple targets while supplementing the air search function in the horizon and zenith areas.

Figure E-1.
Four Alternative Ship Types

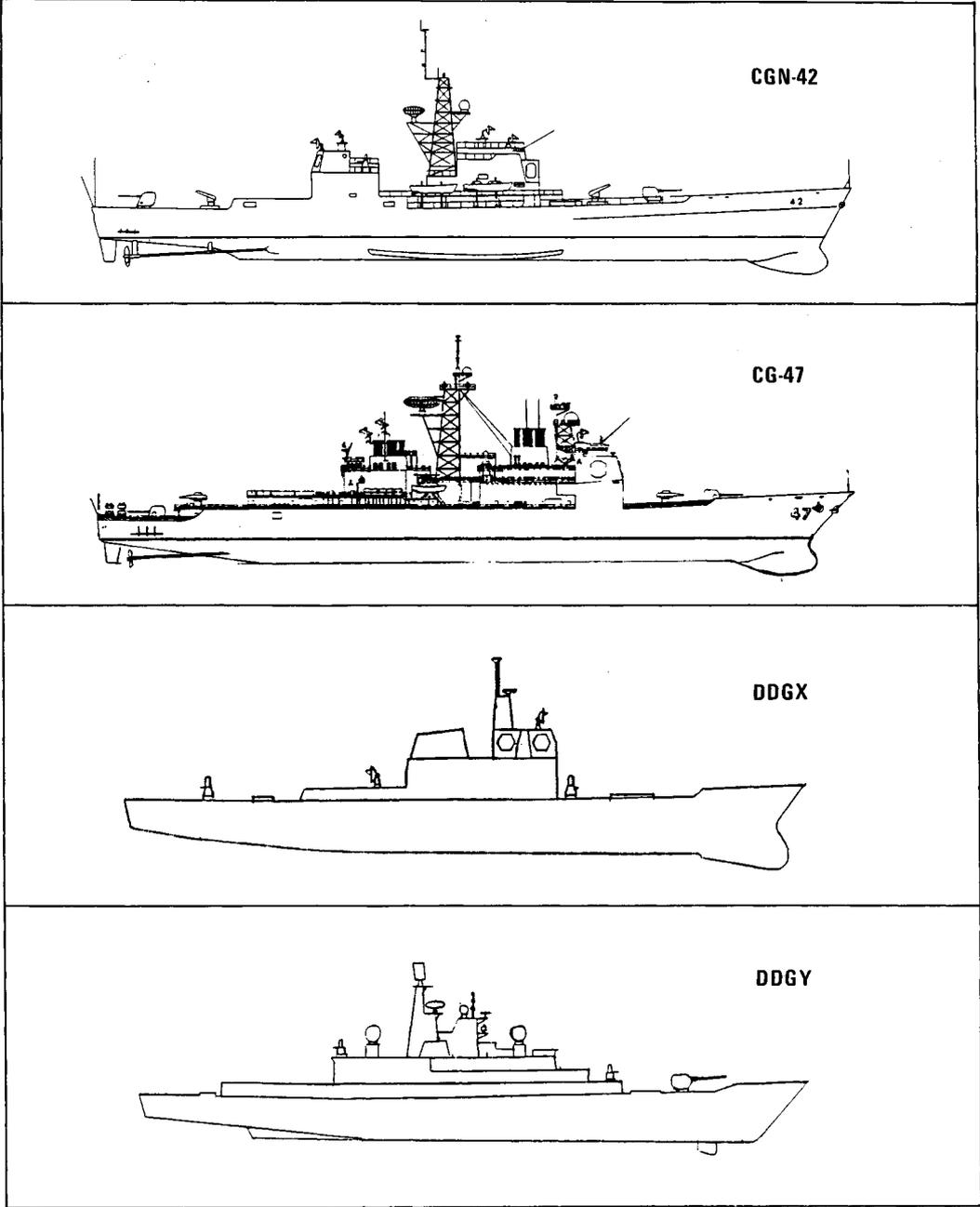


TABLE E-2. DERIVATION OF DDGY DISPLACEMENT AND COST USING FFG-7 AS BASELINE

| Feature | Differences | | Displacement Effect (Tons) | Cost Effect (Millions of 1982 dollars) |
|------------------------|--------------------------|------------------|-------------------------------|--|
| | DDGY | vs. FFG-7 | | |
| AAW System | New Agile Beam System | MK92/STIR | +75 | +10.0 |
| | SPS-48E | No 3-D Radar | +75 | +10.0 |
| Missile Launcher | 90-cell VLS | MK13 Launcher | +350 | +16.0 |
| Speed | 30 knots | 28 knots | +400 | +6.6 |
| Gun | 155mm | 76mm | +20 | +5.0 |
| Range | 10 percent higher | -- | +130 | +0.7 |
| Overpressure | 7 psi | 3 psi | +100 | +3.3 |
| Fragment Protection | Level I | Inherent | <u>+160</u> | <u>+5.5</u> |
| Total Difference | | | +1,310 | +57.1 |

Resulting Displacement and Cost Estimate

| | |
|------------------------------------|---------------|
| Displacement (Tons) | |
| FFG-7 | 3,600 |
| Difference | <u>+1,310</u> |
| DDGY Displacement | 4,910 |
| Cost (Millions of 1982 Dollars) | |
| FFG-7 | 280 |
| Difference | <u>+57</u> |
| DDGY Cost | 337 |

APPENDIX F. BASIS FOR BUDGET AUTHORITY ESTIMATES FOR OPTIONS I
THROUGH IV

DEFENSE RESOURCES MODEL

With the exception of certain procurement and manpower estimates, annual budget authority requirements cited for Options I through IV of this paper were generated by the CBO Defense Resources Model (DRM). Designed to provide an unclassified estimate of defense costs in the current fiscal year, plus the Defense Department's most recent Five-Year Defense Plan (FYDP), the DRM spans a six-year period. Initial input to the DRM is program element data for the first year of the FYDP, reaggregated into declassified form. This input is then updated to reflect final budget decisions as reflected in Congressional appropriations bills. DRM estimates are generally made in constant dollars based on the first year of the six-year period covered by the model. The base year for Options I through IV was fiscal year 1982; all figures were converted to fiscal year 1983 budget dollars, using CBO inflation estimates of January 1982.

OUT-YEAR FORCES

The DRM is structured so that the addition or deletion of any one force element will not only produce changes in direct accounts of that force element, such as manpower and operations and maintenance, but also the appropriate support tail. These automatic adjustments are derived from the relationships which exist in the base year, various factors manuals, and, in the case of such new weapons systems as the F/A-18 aircraft, specific service-generated information. As a result of this process, only certain procurement data needs to be manually produced.

Assumptions

The most significant assumption made for Options I through IV was that the relationships that existed among elements in the fiscal year 1982 program would continue into the out-years. Since Department of Defense (DoD) policy with regard to manning levels,

operations and maintenance requirements, and support functions could change, out-year estimates could easily vary over time. It was assumed that Navy Research and Development (R&D) would continue at a constant level after 1987. Procurement schedules for aircraft and weapons were based on those used in the March 1981 Congressional Data Sheets and September 1981 Selected Acquisition Reports (SAR), if they were different from the former.

Navy/Marine Corps Overlap

Navy and Marine Corps dollars were aggregated to reflect force interactions; that is, certain Marine Corps expenditures were included in Navy budget authority for fleet activity and support forces. About \$0.5 billion fell into this category in 1982. Likewise, certain Navy expenditures vary with Marine Corps force levels. These variable elements, such as aircraft operations and maintenance and medical personnel, were over \$2 billion in 1982. Total Department of the Navy budget authority includes both Navy and Marine Corps related budget authority.

Procurement

Certain procurement costs were generated by the DRM. Among these are cost growth, inflation, and other miscellaneous elements of the Weapons Procurement, Navy, and Aircraft Procurement, Navy (WPN and APN) accounts, which occur routinely and often vary with force size. The ratios of these elements to investment costs that existed in fiscal year 1982 were assumed to hold for every year of every option.

The remaining procurement data was manually derived:

- o Figures for Shipbuilding and Conversion, Navy (SCN) were those presented in detail for each option in Appendixes A through D. New construction was assumed to account for 80 percent of total SCN. No DRM estimates were used.
- o APN requirements varied with the maximum number of carriers for each option. Existing procurement rates in the March 1981 Congressional Data Sheets were assumed adequate to sustain existing force levels, with additional aircraft added to the end of present total programs in most cases. Fifteen-year service life was used for all aircraft.

- o WPN requirements were assumed to be a function of force changes. For example, a one-quarter increase in carrier air wings or combatant ships, would generate a one-quarter increase in all appropriate WPN systems beyond the total programs to be procured in the September 1981 SARs or March 1981 Congressional Data Sheets. Ballistic missiles requirements were determined separately.



GLOSSARY



GLOSSARY

AAW: Anti-air warfare.

AE: Ammunition ship.

AEGIS: New anti-air warfare system developed by the Navy.

AFS: Stores ship.

AGOS: Surveillance ship.

AO: Fleet oiler.

AOE: Fast combat support ship.

AOR: Replenishment oiler.

ARS: Salvage ship.

ASuW: Antisurface warfare.

ASW: Antisubmarine warfare.

BB: Battleship.

CG: Guided missile cruiser.

CGN: Nuclear-powered guided missile cruiser.

CGV: Aviation guided missile cruiser.

CIWS: Close-In Weapon System; also known as "Phalanx".

CV: Conventionally-powered aircraft carrier.

CVN: Nuclear-powered aircraft carrier.

DD: Destroyer.

DDG: Guided missile destroyer.

GLOSSARY (Continued)

ECM: Electronic countermeasures.

ECCM: Electronic counter-countermeasures.

FF: Frigate designation.

FFG: Guided missile frigate.

FLEXAR: Flexible adaptive radar.

HARPOON: Intermediate-range antiship cruise missile.

ICW: Interrupted continuous-wave illumination.

LAMPS: Light airborne multipurpose system; specially outfitted helicopters deployed on surface combatants.

LHA: Amphibious assault ship.

LHD: New-design amphibious assault ship.

LPD: Amphibious transport, dock.

LSD: Landing ship, dock.

LST: Landing ship, tank

MCM: Mine countermeasure ship.

MFAR: Multi-function array radar.

MK32 Tubes: Torpedo tubes for launching antisubmarine torpedoes.

MK99 Fire Control System: Missile fire control system used with the AEGIS anti-air warfare system.

MSH: Small minehunting ship.

OTH: Over-the-horizon.

GLOSSARY (Continued)

PCW: Pulsed continuous-wave illumination.

SAG: Surface action group.

SM-1: Basic version of the Navy's Standard anti-air missile.

SM-2: Advanced version of the Navy's Standard anti-air missile.

SPY-1: Phased-array air search radar used in the AEGIS anti-air warfare system.

SQR-19: Designation for a tactical towed-array sonar system deployed on surface combatants.

SQS-53: Large, hull-mounted active sonar.

SQS-56: Small, hull-mounted active sonar.

SS: Conventionally-powered attack submarine.

SSN: Nuclear-powered attack submarine.

SSBN: Nuclear-powered ballistic missile submarine.

TACTAS: Tactical towed-array sonar.

TAE: Civilian manned ammunition ship.

TAGOS: Civilian manned surveillance ship.

TASM: Tactical antiship missile.

TER: Terminal engagement radar.

TERCOM: Terrain comparison guidance.

TLAM: Tactical land attack missile.

TOMAHAWK: Long-range cruise missile used against ships (TASM) and land targets (TLAM).

GLOSSARY (Continued)

TWS: Track while scan.

VLS: Vertical launching system.

V/STOL: Vertical/short takeoff and landing aircraft.