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AN ANALYSIS OF THE MANPOWER COSTS ASSOCIATED WITH THE HELICOPTER AIR WING COMMANDER CONCEPT

by

Peter J. Brennan

March 1998

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This thesis presents an analysis and comparison of manpower costs of three options for the United States Navy Helicopter force structure through the year 2020. The first option, the basic plan, leaves the force structure as it is today. The second option assumes the mission to support the Military Sealift Command (MSC) is outsourced and combines the Helicopter Combat Support (HC) and Helicopter Antisubmarine Warfare (HS) communities into a community referred to as HSC. The third option realigns the force along missions performed by the SH-60R and CH-60 under a Helicopter Air Wing Commander (HAWC). All three options support the requirements set forth in the Helo Master Plan (HMP) and are based on the acquisition of the CH-60 helicopter along with the upgrade of all SH-60Bs and SH-60Fs to SH-60Rs. The analysis involved developing manning levels, by pay grade, for the three options and determining the differences in those manning levels. Manpower costs were allocated to the total personnel requirements, and differences in costs among the options were calculated. The manpower cost associated with the basic plan set forth in the HMP is projected to be $575 million per year. Because the HSC option does not support the MSC mission, it has the lowest annual projected manpower cost of $531 million. When a factor accounting for the MSC requirement is added to compare the three manning structures on a consistent basis, the annual HSC option cost is $579 million. The HAWC concept manpower cost is $568 million per year.

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AN ANALYSIS OF THE MANPOWER COSTS ASSOCIATED WITH THE HELICOPTER AIR WING COMMANDER CONCEPT

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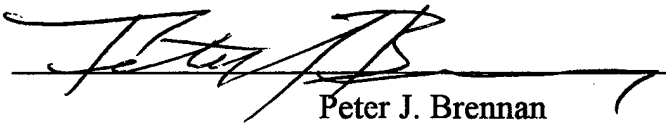
Author: 
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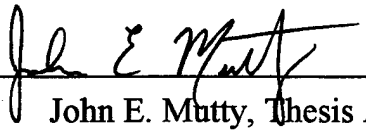
Approved by: 
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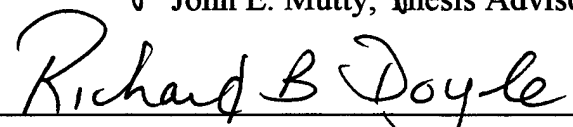
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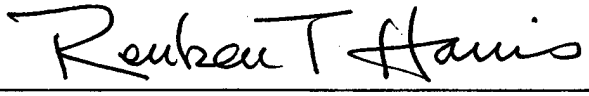
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ABSTRACT

This thesis presents an analysis and comparison of manpower costs of three options for the United States Navy Helicopter force structure through the year 2020. The first option, the basic plan, leaves the force structure as it is today. The second option assumes the mission to support the Military Sealift Command (MSC) is outsourced and combines the Helicopter Combat Support (HC) and Helicopter Antisubmarine Warfare (HS) communities into a community referred to as HSC. The third option realigns the force along missions performed by the SH-60R and CH-60 under a Helicopter Air Wing Commander (HAWC). All three options support the requirements set forth in the Helo Master Plan (HMP) and are based on the acquisition of the CH-60 helicopter along with the upgrade of all SH-60Bs and SH-60Fs to SH-60Rs. The analysis involved developing manning levels, by pay grade, for the three options and determining the differences in those manning levels. Manpower costs were allocated to the total personnel requirements, and differences in costs among the options were calculated. The manpower cost associated with the basic plan set forth in the HMP is projected to be $575 million per year. Because the HSC option does not support the MSC mission, it has the lowest annual projected manpower cost of $531 million. When a factor accounting for the MSC requirement is added to compare the three manning structures on a consistent basis, the annual HSC option cost is $579 million. The HAWC concept manpower cost is $568 million per year.

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I. INTRODUCTION

A. GENERAL DESCRIPTION

This thesis presents an analysis and comparison of three options for the future of the United States Navy Helicopter force structure through the year 2020. All three options work within the requirements set forth in the Helo Master Plan (HMP) and are based on the acquisition of the CH-60 helicopter along with the upgrade of all SH-60Bs and SH-60Fs to SH-60Rs. The options all offer manpower savings and a reduction of type/model/series aircraft. The first two options were presented in the Chief of Naval Operations' Helo Master Plan. The third option is a force realignment developed by the Commander, Helicopter Tactical Wing U.S. Pacific Fleet.

The first option is the basic plan set forth in the HMP which would maintain the status quo with regard to the number of squadrons and their locations. Although there would be a neck down, and the force would only fly two primary aircraft, the number of squadrons and their locations would remain the same.

The second option, also contained in the HMP, would align the helicopter force into two major communities if outsourcing to civilian contractors of the vertical replenishment (VERTREP) mission aboard Military Sealift Command (MSC) ships was found to be economical. VERTREP is one of the Helicopter Combat Support (HC) community's primary missions. This option would combine the Helicopter Anti-Submarine (HS) and HC communities into one community, referred to as HSC, and leave the Helicopter Anti-Submarine Light (HSL) community as it is.

The third option would also combine the three primary communities into two

communities, but the two communities would be aligned by warfare specialty and type/model/series helicopter. The basic premise of this option is the Helicopter Air Wing Commander (HAWC) who would report directly to the Navy Battle Group (BG) commander and coordinate the activities of all BG rotary wing assets.

The three options will be referred to as HMP, HSC, and HAWC.

B. OBJECTIVE

The objective of this research was to determine and compare the differences in personnel costs among the HMP, the HSC realignment and the HAWC concept.

C. RESEARCH QUESTIONS

The research questions in this thesis step through the process of determining manpower cost differences among the three options.

1. Primary

What are the incremental manpower costs of the HAWC concept as compared to the HSC and the HMP?

2. Secondary

a. How many personnel are required under each option?

b. How many squadrons are required under each option and at what locations?

D. SCOPE

This thesis encompasses the following: first, based on the number and composition of the helicopter force, it determines the number of personnel and squadrons, by location, to support those helicopters under the HMP and HSC options and the HAWC concept. Second, it determines the difference in personnel costs among the options. Third, it compares those

results.

E. METHODOLOGY

The methodology used in this thesis consisted of the following steps:

1. Given the number and types of helicopters the Navy planned to have through the year 2020 and the force structure provided in the HAWC concept, the number and location of detachment-oriented squadrons were determined.

2. The number of personnel required to support those helicopters in detachment-type squadrons based on the activity manning documents (AMD) was determined for each community. The prospective squadron manning document (PSQMD) for a CH-60 helicopter squadron was used in determining manning for squadrons flying the CH-60.

3. The numbers of personnel and squadrons required in the HMP were determined.

4. The numbers of personnel and squadrons required in the HSC option were determined.

5. The different costs of personnel under each option were compared.

F. ORGANIZATION OF THE STUDY

This thesis is divided into five chapters. Following this introduction, Chapter II provides an overview of the current Navy helicopter force structure, the HMP, and the HSC and HAWC concepts. Chapter III details the methodology and assumptions used to determine the number of squadrons, personnel and differences in personnel under each option.

The fourth chapter presents the methodology and assumptions used in determining personnel costs, the differences in personnel costs under each option and a comparison of the options. The final chapter details the conclusions and recommendations. A list of acronyms is enclosed as Appendix D.

II. BACKGROUND

A. INTRODUCTION

Numerous helicopters are used to fulfill the Navy's required missions. The SH-60B helicopter extends the sensor range of frigates and destroyers, and performs anti-surface warfare, surface vessel surveillance and targeting [Ref. 1]. The SH-60F, also called the CV-Helo, operates from aircraft carriers to protect the inner zone of a carrier battle group from submarine attack. Secondary missions include search and rescue (SAR), and standby during launch and recovery of carriers' fixed wing aircraft to provide rescue services in case of ditching [Ref. 2]. The HH-60H serves a wide range of applications which include vertical replenishment (VERTREP), logistics, strike rescue, special warfare support and medical evacuations (MEDEVAC) [Ref. 3]. The CH-60, the aircraft being acquired to replace the H-46, has the capability for defensive systems, forward firing weapons, internal and external cargo, and passengers [Ref.4]. The H-53E is the Navy's heavy lift helicopter and flies missions which include military transport, SAR, VERTREP, vertical onboard delivery (VOD), airborne mine countermeasures (AMCM), advanced early warning, mine sweeping, humanitarian aid, and disaster relief [Ref. 5].

In fiscal year 1995, the United States Navy's helicopter force consisted of eight different types of aircraft, including three variants of the H-60, the H-46D, the SH-2G, the H-3, the H-1 and the H-53E. At that time, the Navy planned to eliminate the SH-2G, H-3 and H-1 helicopters. The SH-60Bs and SH-60Fs were to be upgraded to SH-60Rs, and the remaining aircraft were to remain in service [Ref. 6]. At the time of this writing, the Navy

was planning to acquire 185 CH-60 helicopters to replace the H-46D, HH-60H, H-3 and H-1 helicopters [Refs. 7 and 8].

The primary communities in the Navy helicopter force structure are Helicopter Anti-Submarine Light (HSL), Helicopter Anti-Submarine (HS), Helicopter Combat Support (HC) and Helicopter Mine Countermeasures (HM). The HSL community flies the SH-60B, while the HS community flies both the SH-60F and the HH-60H. The HC community flies the H-46D, the H-3 and the MH-53E [Ref. 9]. The HM community flies the MH-53E. Table 1.1 presents the Naval helicopter communities and their related aircraft.

Naval Helicopter Communities and Aircraft

Community	Aircraft
HSL	SH-60B
HS	SH-60F, HH-60H
HC	H-46, H-3, MH-53E
HM	MH-53E

Table 1.1

B. NAVY HELO MASTER PLAN

The Navy Helo Master Plan (HMP) was developed by the Chief of Naval Operations, Air Warfare Directorate, to set forth a Navy helicopter force structure for present and future requirements through the year 2020. The HMP was designed to reduce costs and infrastructure, allow Naval Reserve forces to mirror active duty forces, and plan for the support of miscellaneous helicopter commitments. The HMP allows for an expanded war fighting capability, a more modernized force, and a consolidated force structure with a neck

down of type/model/series aircraft [Ref. 6].

The HMP is based on the premise that the Navy will procure the CH-60 to replace the H-46D, H-3 and H-1, and upgrade to the SH-60R to replace the SH-60 series helicopters as well as the SH-2G. The HH-60H will be reworked and replace some H-3 and H-1 helicopters at shore facilities. This would require the Navy to support only the H-60 and H-53 model aircraft. The elimination of the infrastructure and personnel which supported the replaced aircraft should provide a cost savings. If the technology can be developed to allow the H-60 to support airborne mine countermeasures, there is potential to also replace some H-53s with an H-60 variant. If no further changes or consolidations are made, the planned helicopter force would consist of HSL, flying the SH-60R, and HS, flying the SH-60R. The HM and HC communities would combine and fly both the MH-53E and the CH-60. [Refs. 6, 8 and 22]

1. HSC (Composite HS and HC Community)

One contingency in the HMP is the civilian outsourcing of the H-46 VERTREP mission on MSC ships. Should the outsourcing be found to be economical, the HMP calls for the merger of the HC and HS communities into one community (HSC), and the disestablishment of one HC squadron on each coast. The HSC community would primarily fly the SH-60R and the CH-60. The plan would add one CH-60 VERTREP detachment with two aircraft to each of the former HS squadrons to support VERTREP aboard AOE-class ships. Of the remaining former HC squadrons, two would support the amphibious SAR requirement, one would continue to provide shore-based logistical support, and the last would

continue to support the MH-53E vertical onboard delivery mission from Italy. [Ref. 6 and 8]

The SH-60R would fulfill the present HS mission, and the CH-60 would provide Naval Special Warfare support (NSW) as well as the VERTREP mission aboard AOE-class replenishment ships. The HSL community would essentially remain untouched [Ref. 6].

C. HELICOPTER AIR WING COMMANDER

The Helicopter Air Wing Commander (HAWC) concept was developed to work within the helicopter acquisition plan and helicopter force structure set forth in the HMP. The HAWC concept arose from an opportunity seen by Naval leadership to revamp the helicopter force structure into a potentially more efficient organization aligned by warfare specialty and by missions performed by the CH-60 and SH-60 aircraft. The HAWC concept calls for the merger of the three primary helicopter communities into two, and recognizes the battle group (BG) as the centerpiece of the Navy's force structure [Ref. 10].

The two communities presented under the HAWC concept will be referred to as HXX and HYY for the purposes of this paper. Both communities would be organized as detachment-type squadrons vice deploying squadrons [Ref. 10]. A squadron which supports detachments is shore-based and deploys small groups of people and aircraft to ships. A deploying squadron deploys as a unit.

The HXX community would fly the SH-60 and send detachments to carriers, destroyers, and frigates to perform anti-submarine warfare, anti-surface warfare, and support the armed helo program. The armed helo is an ongoing program which puts weapons and missiles aboard Naval helicopters. The HYY community, on the other hand, would fly the

CH-60 aboard carriers, resupply ships, amphibious warships and the mine countermeasures support ship (MCS). HYY aircraft would provide combat search and rescue, battle group logistics and NSW support [Ref. 10].

The HAWC would be a post-aviation command commander and would have operational control of all BG helicopters. He or she would be attached to the battle group commander's staff or report to the carrier air group commander (CAG). At the time of this writing, the reporting structure had not been decided upon. The HAWC's staff would consist of two operations officers (one for each community), one safety officer, one maintenance officer and an administrative support staff. [Ref. 10]

The HAWC's staff would also include a number of personnel to be sent for temporary additional duty (TAD) to the carrier to support helicopter detachments while aboard (CV Detachment). While aboard carriers, squadrons send a certain number of personnel TAD to the carrier to provide support functions for the increase in either personnel or aircraft aboard the carrier. A typical H-60 squadron with 220 people and eight aircraft would send 27 people to the ship for laundry, food service and other support. As the HAWC has the freedom to pick detachments with certain types of aircraft or capabilities from many squadrons, and the squadrons are not manned to support the CV Detachment, the HAWC's additional 16 personnel would support six aircraft, the rest of the HAWC staff and the three largest detachments possible [Refs. 10 and 12].

As the battle group commander's or CAG's representative, the HAWC would be deeply involved in work-up cycles by providing in-depth planning and helicopter force

tailoring. The HAWC would ensure that the BG had the helicopter force package, training, and equipment needed to meet projected tasking. The HAWC would coordinate with the squadron commanding officers to ensure that the helicopters and crews provided by the squadrons to the battle group were qualified for a particular set of missions. The HAWC would also provide battle group-level maintenance coordination for spare parts, repair or cross-decking of helicopters to complete missions. In essence, the HAWC would perform many of the tasks that the CAG does for the fixed wing squadrons [Ref. 10].

In order to not decrease command opportunity and ensure that enough post-command commanders are available for HAWC command, the HAWC concept designates fleet replacement squadrons (FRS) as initial commands. Under the other options, the FRS is considered a bonus command. Typically, the commanding officer of an FRS would act as the community leader in directing policy. Under the HAWC concept, this task would be performed at the wing level. [Ref. 11]

III. METHODOLOGY AND ASSUMPTIONS

A. INTRODUCTION

This chapter explains the process of deriving the numbers of personnel required to support the HMP helicopter force, the HSC option detailed in the HMP, and the HAWC concept. The analysis began with projected squadron and helicopter requirements in the present force structure. Should outsourcing be found to be not economical, the HMP calls for the present force structure to remain. The HSC plan reduces the number of CH-60s required, and disestablishes or downsizes some squadrons [Refs. 6 and 8]. The HAWC concept uses the same number of helicopters as the HMP, but builds a different force structure [Ref. 10].

This chapter also describes the process and assumptions used to determine the manning requirements for each squadron. Finally, the total number of people under the three helicopter force options was determined for each location. The total number of aircraft considered by this thesis is 241 for the HMP and HAWC options. Of the 241, 154 are SH-60Rs and 87 are CH-60s [Ref. 8]. The requirements for the HSC option are developed and presented in the next section.

B. PROJECTED HELICOPTER AND SQUADRON REQUIREMENTS BY GEOGRAPHIC LOCATION UNDER THE HMP

Both the SH-60Bs and SH-60Fs are to be replaced by the SH-60R and no significant changes in squadron manning or location are expected [Refs. 6 and 8]. Therefore, the manning requirements for and allocation of SH-60Bs and SH-60Fs at the time of this writing

were used to determine the future requirements for and allocation of the SH-60Rs.

The HSL community's future requirements are for 114 SH-60Rs and one CH-60 to be allocated to its ten squadrons as replacements for SH-60Bs and one H-3 [Refs. 7 and 8]. The four east coast squadrons require 13 SH-60Rs each, while the five west coast squadrons in North Island, CA. and Hawaii each require ten SH-60Rs [Ref. 13]. HSL 51 in Japan is not typical in that its future requirements will be for 12 SH-60Rs and a single CH-60 [Refs. 7 and 13].

The HS community's future requirements are for 40 SH-60Rs and 20 CH-60s as replacements for its SH-60Fs and HH-60Hs [Refs. 6 and 14]. At the time of this writing, the HS community had ten squadrons, each with a requirement for six helicopters. The five squadrons on the east coast had four SH-60Fs and two HH-60Hs, and the five west coast squadrons had three SH-60Fs and three HH-60Hs [Ref. 14]. The requirements for west coast squadrons were in the process of being rewritten and the force structure set forth in the HMP assumed four SH-60Rs and two CH-60s for future HS squadron requirements [Refs. 6 and 8].

The CH-60 allocation and manning levels were determined by the Commander, Naval Air Systems Command (NAVAIR), and presented in a Manning Estimate Report (MER) for the CH-60 acquisition project [Ref. 7]. In the MER, the future requirement for CH-60s to replace H-46s in the HC community is 66.

The helicopters are to be allocated to bases in Jacksonville, FL.; Norfolk, VA.; North Island, CA.; Hawaii; Guam and Japan. Although both SH-60Rs and CH-60s are to be

allocated to other geographic locations, those helicopters would not fall under the HAWC concept, and were not considered in this analysis.

1. Jacksonville, FL.

The allocation of SH-60Rs in Jacksonville, FL. was derived from the number of squadrons currently based there, and the required number and type of helicopters in each squadron as defined in the HMP. Jacksonville has four HSL squadrons and five HS squadrons. The HSL squadrons, are manned for 13 SH-60Bs while the HS squadrons are manned for four SH-60Fs and two HH-60Hs. [Refs. 13 and 14] Therefore, as depicted in Table 3.1, the future requirement for helicopters in Jacksonville was determined to be a total of 72 SH-60Rs and ten CH-60s.

Jacksonville, FL.

Squadron	SH-60R	CH-60
HSL 42	13	0
HSL 44	13	0
HSL 46	13	0
HSL 48	13	0
HS 3	4	2
HS 5	4	2
HS 7	4	2
HS 11	4	2
HS 15	4	2
Total	72	10

Table 3.1

2. Norfolk, VA.

The helicopter requirement for Norfolk, VA., was determined to be 32 CH-60s as set forth in the MER [Ref. 7]. Table 3.2 depicts the distribution of aircraft.

Norfolk, VA.

Squadron	SH-60R	CH-60
HC 6	0	16
HC 8	0	16
Total	0	32

Table 3.2

3. North Island, CA.

As was the case for Jacksonville and Norfolk, allocation of helicopters to North Island, CA., was determined by the existing SH-60B and SH-60F squadrons and the CH-60 MER. At the time of this writing, North Island had four HSL squadrons, four HS squadrons and one HC squadron. The four HSL squadrons were each manned to support ten SH-60Bs. The four HS squadrons had requirements similar to the east coast squadrons, with four SH-60Fs and two HH-60Hs. HC 11 has projected requirements for 20 CH-60s [Refs. 7, 13 and 14]. The total requirement for North Island, which was determined to be 56 SH-60Rs and 28 CH-60s, is presented in Table 3.3.

North Island, CA.

Squadron	SH-60R	CH-60
HSL 43	10	0
HSL 45	10	0
HSL 47	10	0
HSL 49	10	0
HS 2	4	2
HS 4	4	2
HS 6	4	2
HS 8	4	2
HC 11	0	20
Total	56	28

Table 3.3

4. Hawaii

Hawaii has one HSL squadron and the future requirement was determined to be ten SH-60Rs [Ref. 13]. The requirement for Hawaii is presented in Table 3.4.

Hawaii

Squadron	SH-60R	CH-60
HSL 37	10	0

Table 3.4

5. Guam

Guam has one HC squadron with a future requirement for 14 CH-60s as set forth in the MER [Ref. 7]. The requirement for Guam is presented in Table 3.5.

Guam

Squadron	SH-60R	CH-60
HC 5	0	14

Table 3.5

6. Japan

Japan has both an HSL and an HS squadron. HSL 51 has a requirement for 12 SH-60Bs and an H-3 to be replaced by a CH-60 [Refs. 7 and 13]. HS 14 has the same type and number of aircraft as the other HS squadrons [Ref. 14]. The total requirement for Japan was determined to be 16 SH-60Rs and three CH-60s and is depicted in Table 3.6.

Japan

Squadron	SH-60R	CH-60
HSL 51	12	1
HS 14	4	2
Total	16	3

Table 3.6

7. Total

The squadrons and allocation of aircraft under the HMP have been presented for each area. Table 3.7 summarizes the total number of squadrons and aircraft allocation by geographic location.

HMP Squadrons and Allocation of Aircraft by Location

Location	Number of Squadrons	SH-60R	CH-60
Jacksonville	9	72	10
Norfolk	2	0	32
North Island	9	56	28
Hawaii	1	10	0
Guam	1	0	14
Japan	2	16	3
Total	24	154	87

Table 3.7

C. PROJECTED HELICOPTER AND SQUADRON REQUIREMENTS BY GEOGRAPHIC LOCATION UNDER THE HSC CONCEPT

The HSC option developed in the HMP proposed adding two CH-60s to each HS squadron and establishing one CH-60 squadron on each coast to support local area operations and the amphibious SAR mission. The amphibious SAR requirement was ten helicopters on the west coast and 13 on the east coast. Support of operations in the local area required another two aircraft each in Norfolk and North Island. There was another requirement for two aircraft in Guam to cover SAR. The outcome, as compared to the HMP, would change only the distribution of CH-60s. The results would require disestablishing one squadron in Norfolk, thus reducing the aircraft requirement in Norfolk from 32 to 15. Disestablishing HC 5 in Guam and leaving only a SAR detachment would reduce the requirement from 14 to two. Allocating two more CH-60s to each HS squadron would change the requirement for CH-60s in Jacksonville from ten to 20. In North Island, downsizing HC 11 from 20

aircraft to 12 and allocating two CH-60s to the four HS squadrons would not change the total requirement for the locale. [Refs. 6, 8 and 15]

In Japan, the total requirement for CH-60s would change from three to five to reflect the two additional CH-60s for HS 14. The distribution of SH-60s would not change and the HSL community would remain untouched. [Ref. 15]

The HSC option requires the same number of SH-60Rs and a total of 17 fewer CH-60s. This option also has two less squadrons than the HMP option, for a total of 22.

Table 3.8 displays a comparison of the CH-60 allocations of aircraft in affected squadrons by geographic location and squadron for the HMP and HSC options. As the HSC option does not designate which Norfolk HC squadron would be disestablished, the author chose HC 8 only for the purposes of presentation.

CH-60 Allocation Under the HMP and HSC Options

		HMP	HSC
Location	Squadron	CH-60	CH-60
Jacksonville			
	HS 3	2	4
	HS 5	2	4
	HS 7	2	4
	HS 11	2	4
	HS 15	2	4
Subtotal		10	20
Norfolk			
	HC 6	16	15
	HC 8	16	***0***
Subtotal		32	15
North Island			
	HS 2	2	4
	HS 4	2	4
	HS 6	2	4
	HS 8	2	4
	HC 11	20	12
Subtotal		28	28
Guam	HC 5	14	***2***
Japan	HS 14	2	4
Total		87	70

Italics - Disestablished Squadrons

Table 3.8

D. PROJECTED HELICOPTER AND SQUADRON REQUIREMENTS BY GEOGRAPHIC LOCATION UNDER THE HAWC CONCEPT

The HAWC concept would restructure the entire helicopter force to include both SH-60Rs and CH-60s. Under this concept, squadrons with ten aircraft are typical, but in order to meet requirements in various geographic locations, some eight and 12 aircraft squadrons have been proposed. As in the HMP section covered earlier in this chapter, this section considers 241 helicopters, 154 of which are SH-60Rs and 87 of which are CH-60s.

1. Jacksonville, FL.

The total Jacksonville requirement was determined to be 72 SH-60Rs and ten CH-60s. The HAWC concept would build six SH-60R squadrons, designated as HXX, of ten aircraft each and one HXX squadron of 12 SH-60Rs to meet the SH-60R requirement. The ten CH-60s would all be in one HYY squadron. [Refs. 10 and 11] The allocation of aircraft in Jacksonville is presented in Table 3.9.

Jacksonville, FL., HAWC Allocation

Squadron	SH-60R	CH-60
HXX 2	10	0
HXX 4	10	0
HXX 6	10	0
HXX 8	10	0
HXX 10	10	0
HXX 12	10	0
HXX 14	12	0
HYY 8	0	10
Total	72	10

Table 3.9

2. Norfolk, VA.

The 32 CH-60s in Norfolk would be divided into three HYY squadrons. Two squadrons would have ten aircraft each and the third would have 12. [Refs. 10 and 11] The allocation for Norfolk is depicted in Table 3.10.

Norfolk, VA., HAWC Allocation

Squadron	SH-60R	CH-60
HYY 2	0	10
HYY 4	0	10
HYY 6	0	12
Total	0	32

Table 3.10

3. North Island, CA.

North Island would have eight squadrons, five HXX squadrons and three HYY squadrons. Two of the HXX squadrons would have ten aircraft and three squadrons would have 12 to meet the requirement of 56 SH-60Rs. Two of the HYY squadrons would be made up of 10 aircraft each while the third squadron would be made up of eight to meet the requirement of 28 CH-60s. [Ref. 11] The allocation for North Island is presented in Table 3.11.

North Island, CA., HAWC Allocation

Squadron	SH-60R	CH-60
HXX 1	10	0
HXX 3	10	0
HXX 5	12	0
HXX 7	12	0
HXX 9	12	0
HYY 1	0	10
HYY 3	0	10
HYY 5	0	8
Total	56	28

Table 3.11

4. Hawaii

The requirement in Hawaii would not change, in that one HXX squadron would support 10 SH-60Rs. [Ref. 11]

5. Guam

Similarly, the requirement in Guam would also not change, with one HYY squadron supporting 14 CH-60s. [Ref. 11]

6. Japan

The total requirement in Japan was determined to be 16 SH-60Rs and three CH-60s. As the requirements are in different locations, the squadron-level requirements would remain essentially unchanged as compared to the HMP and result in one 13-aircraft HXX squadron consisting of 12 SH-60Rs and one CH-60. The other squadron would have four SH-60Rs and two CH-60s. [Ref. 11] The requirement for Japan is presented in Table 3.12.

Japan HAWC Allocation

Squadron	SH-60R	CH-60
HXX 13	12	1
HXX 15	4	2
Total	16	3

Table 3.12

7. Total

The total number of aircraft considered under the HAWC option is the same as that considered by the HMP option presented earlier in this chapter. The HAWC option supports those aircraft with one less squadron. Table 3.13 displays a comparison of the number of squadrons in each location under the HMP and HAWC options.

Number of Squadrons by Location
Under the HMP and HAWC Options

Location	HMP	HAWC
Jacksonville	9	8
Norfolk	2	3
North Island	9	8
Hawaii	1	1
Guam	1	1
Japan	2	2
Total	24	23

Table 3.13

E. SQUADRON MODELS AND APPROXIMATIONS

Actual squadron structures existing at the time of writing were used to build the manning levels for squadrons supporting the two types of aircraft. A squadron "model" was

based directly on an existing activity manning document (AMD) or a prospective squadron manning document (PSQMD). An "approximation" is a manning structure derived by the author for unit configurations for which no AMD or PSQMD existed. The approximations were developed from existing AMDs or PSQMDs and were used to adjust squadron manning levels for different numbers of supported aircraft or detachments. All wing-level manning was based on existing AMDs.

An AMD defines activity manning levels by job, rates or designators, and pay grade for each job. A PSQMD is a draft version of an AMD used to establish manning levels during the acquisition of a new weapons system [Ref. 17]. The HC 8 PSQMD was the only CH-60 PSQMD fully developed and available, and was used, along with H-46 squadron AMDs, as a basis to build all CH-60 squadrons and detachments. AMDs were used to determine manning levels for squadrons flying SH-60R helicopters.

As some communities were manned at different rates in relation to requirements or authorized billets, only the requirements figures, which reflect 100 percent manning, were used in order to ensure that comparisons would be equitable. The AMDs that included Chief Warrant Officers (CWO) did not differentiate by pay grade, so it was assumed that all CWOs will be pay grade W-3.

1. HSL Squadrons

The HSL AMDs for HSL 44, an east coast squadron, and HSL 45, a west coast squadron, were used as a basis for creating models and approximations for HSL and HXX squadrons supporting the SH-60B and SH-60R helicopters [Ref. 8]. The east coast

squadrons supporting 13 aircraft all used the same manning structure. Likewise, all the west coast squadrons supporting ten aircraft used the same AMD [Ref. 17]. A 12 SH-60B approximation was derived for use as a basis for the 12-aircraft squadrons developed under the HAWC concept. The approximation used the same shore component as both the 13 and ten SH-60B squadron models. As the HSL community has no standard detachment configuration, the sea component of the 12 aircraft approximation was determined by interpolation of the difference in manning between the 10 and 13 aircraft models. Manpower summaries by pay grade for shore, sea and total personnel for the HSL squadron structures are depicted in Appendix A.

2. HS Squadrons

The AMD for HS 5, along with the typical CH-60 detachment manning from the HC 8 PSQMD, was used as a basis for creating the HS model and approximation [Ref. 18]. The HS model is the manning structure to support the future requirements of a squadron with four SH-60R and two CH-60s. Under the HSC option, each HS squadron would support an additional two CH-60s in an independent detachment. Therefore, an HS four SH-60R and four CH-60 approximation was derived by adding a CH-60 two-aircraft detachment and additional personnel to support the independent detachment to the HS 5 manning levels in the AMD [Ref. 12 and 15]. The increase in support personnel was derived by taking one-fifth of the shore component of a ten aircraft HSL squadron and rounding off to whole people. Manning levels for the model and approximation are depicted in Appendix A.

3. HC Squadrons

The HC models and approximations were based on the HC 8 PSQMD, information contained in the CH-60 MER and the H-46 squadron AMDs [Refs. 19 and 20]. The PSQMDs for CH-60 squadron shore components were based primarily on the shore component manning structures of the H-46 squadrons with some minor changes [Ref. 17]. The standard breakdown of a CH-60 one-aircraft or two-aircraft detachment was derived from the HC 8 PSQMD and is presented in Appendix A. The manning structures for all CH-60 squadron models and approximations are also presented in Appendix A. Table 3.14 is a brief summary of the numerous configurations for CH-60 squadrons. It shows the number of aircraft associated with various requirements, the option with which those requirements are associated and the related type of squadron.

CH-60 Squadron Model or Approximation Breakdown

Number of Aircraft	Option	Type of Squadron
8	HAWC	HYY
10	HAWC	HYY
12	HSC/ HAWC	HSC/ HYY
14	HMP/ HAWC	HC/ HYY
15	HSC	HSC
16	HMP	HC
20	HMP	HC

Table 3.14

The 16-aircraft squadron model is based on the PSQMD for HC 8 [Ref. 19]. The manning for HC 6, also a 16-aircraft squadron, was based on that same model without the billets allotted to a unique HC 8 training program [Ref. 21]. The model has two more billets than the total number of billets presented in the CH-60 MER as the author could not determine which two billets needed to be eliminated from the HC 8 PSQMD to reflect HC 6 manning.

The eight, ten and 12 aircraft approximations are also based on the shore component of the HC 8 PSQMD plus the appropriate number of two-aircraft detachments to equal the total aircraft supported. These approximations are generally used to represent the manning for squadrons under the HAWC concept, although the 12 aircraft approximation is also used under the HSC option for a squadron in North Island. The eight, ten and 12 aircraft approximations are presented in Appendix A.

The 14 aircraft approximation is used as a model for HC 5 in Guam. The approximation was determined by taking the HC 5 H-46 shore component and adding seven two-aircraft detachments. The squadron also provides manning for an intermediate level maintenance facility in Guam and uses some of those billets to support the high personnel tempo (perstempo) in the squadron, as well as a 24-hour SAR requirement. When comparing the HC 5 H-46 AMD to the summary figures in the CH-60 MER, the author was unable to account for 45 officer billets and 136 enlisted billets summarized as "perstempo" billets. In order to add that number of billets to the 14-aircraft approximation, the author assumed that the perstempo billets would be distributed as the sea component. The perstempo billets in

Appendix A are allocated using a ratio of the number of personnel in each pay grade of the sea component to the total number in the component. [Refs. 7 and 20]

The 15 CH-60 approximation was developed by adding the basic shore component, six two-aircraft detachments and one three-aircraft detachment. The three-aircraft detachment was determined by adding the manpower for one two-aircraft detachment to one-half of a two-aircraft detachment. The 15-aircraft squadron was used to approximate an amphibious SAR squadron in Norfolk under the HSC option. The three-aircraft detachment was built to support the mine countermeasures support ship (MCS). The manning approximation is presented in Appendix A.

The 20-aircraft approximation was used to approximate HC 11. The shore component was built from the HC 11 H-46 shore component while the sea component was made up of nine CH-60 two aircraft detachments. [Refs. 7, 8 and 15] As was the case with other former H-46 squadrons, the author was unable to account for two enlisted billets, thus the 20 CH-60 approximation is two fewer than the number in the MER. The approximation is presented in Appendix A.

The approximation for the SAR detachment in Guam was based on the enlisted manning of two CH-60 detachments with an officer manning of eight pilots. Although no model for a CH-60 SAR detachment exists, the manning levels were assumed to be comparable to both H-1 and H-3 two-aircraft SAR detachments in Brunswick, ME., and Oceana, VA., respectively. [Refs. 22 and 23]

4. Composite Squadron

The manning requirement for the six aircraft currently attached to HS 14 in Japan is not projected to change [Ref. 8]. The HAWC concept proposes that HS 14, with four SH-60Rs and two CH-60s, be the only composite squadron in the fleet. The structure of the squadron would be built around an HSL shore component and a sea component built from both the HSL and CH-60 models. The sea component to support the four SH-60Rs is made up of one-third of the sea component from the HSL 12 SH-60B approximation. The CH-60 sea component is one HC two-aircraft detachment. The manning structure is presented in Appendix A.

5. HAWC Staff

The HAWC's staff would be made up of two basic units. The core of the staff would be configured for direct support of the HAWC's mission, while the rest would support embarked squadrons. [Ref. 11]

The core staff would consist of five officers and six enlisted personnel. The HAWC would be a commander with four officers working for him or her. This thesis assumes the officers to be two lieutenant commanders and two lieutenants. Two officers would be community operations officers, one each for HXX and HYY. One officer would be the HAWC safety officer. Maintenance support would be provided by a maintenance limited duty officer and a chief petty officer. The administrative support staff would consist of five yeomen [Refs. 10 and 11].

Aircraft carriers require embarked units to provide additional personnel to augment

the ship's company to assist in areas of direct support of the embarked personnel and aircraft. Areas such as food service, mess management and rapid supply require additional manpower [Ref. 12]. Although the HAWC would have the flexibility to select detachments from different squadrons at different times to be embarked aboard the carrier, the manning structures for squadrons under the HAWC concept do not incorporate additional billets for those personnel sent TAD to the carriers for support functions [Ref. 11].

Therefore, the CV support detachment, attached to the HAWC's command, would provide personnel to the carrier for support of embarked helicopter detachments and the HAWC staff. As there is no standard for units which deploy under a detachment concept, a CV support detachment approximation was modeled [Ref. 12]. Under the HMP, carrier-based helicopters are attached to a single six-aircraft squadron [Ref. 14]. The CV support detachment is derived from the Aviation Staffing Guide, which is guidance used to build carrier-based squadron manning documents in order to have sufficient support aboard the carrier. The CV support element of the HAWC staff would have 16 people that would meet the support requirements for six aircraft, consisting of three detachments, and the HAWC staff as set forth in the Aviation Staffing Guide [Ref. 12]. The manning structure is presented in Appendix A.

6. Military Sealift Command (MSC) Equivalent

As the HSC plan does not support the MSC mission which will be outsourced, it should have fewer personnel and be less expensive than the other two plans. To allow the reader to compare the manning structures on a consistent basis, a factor equal to the support

requirements for the 28 helicopter MSC requirement would need to be added to the HSC option [Ref. 15]. The MSC factor could just as easily have been subtracted from both the HMP and HAWC options. The MSC factor, was composed of two CH-60 squadron shore components and 14 CH-60 two-aircraft detachments and is presented in Appendix A. [Ref. 11]

7. Wings

At the time of this writing, each major community had one wing on each coast, for a total of six. Manning levels for wings were derived from all six wing AMDs.

The HMP projections call for no change in the number of wings to support the helicopter force. The HS and HSL communities both have one wing each in Jacksonville and North Island. The HC community is supported by wings in Norfolk and North Island. Along with the HC squadrons, these wings support SAR stations, an unmanned aerial vehicle squadron, and two HM squadrons, among others commands. [Refs. 24 and 25] As the HC wings support much more than the HC squadrons, they are called Tactical wings. To ease any possible confusion with regard to which wings support which squadrons, the Tactical wings will be referred to as HC wings.

The HSC option would merge the HS and HC wings while leaving the HSL wings intact [Ref. 8]. The thesis assumes that the new HSC wings would be similar to the former HS wings and used the HS wing AMDs for HSC wing manning levels. It was also assumed that the HSC wings would remain in the same locations as the former HS wings.

The HAWC option's wing locations were based on concentrations of supported

aircraft. The east coast HXX wing, based on the east coast HSL wing manning, would be located in Jacksonville. The east coast HYY wing would be based in Norfolk. Its manning levels were based on the HC wing AMD. The two west coast wings would be based in North Island. The west coast HXX wing manning requirements were modeled after the HSL wing. The HYY wing would be based on the HC wing. The wing manning structures are presented in Appendix A.

F. TOTAL PERSONNEL BY LOCATION

This section presents the number of personnel in each location required to support squadrons under each of the three options. Following a brief description of manning under the three options at each location, tables will depict summaries of total personnel. Also depicted in the tables will be the differences between the HAWC concept manning levels and each of the other two options. As this thesis focuses on the HAWC in relation to the other plans, differences between HAWC figures and the HMP and HSC figures are provided.

1. Jacksonville, FL.

A summary of the total manning in Jacksonville under each option and the differences between the HAWC option and the other two options was determined as follows.

a. HMP

As presented earlier, under the HMP, Jacksonville would require four 13-aircraft HSL squadrons, five six-aircraft HS squadrons and two wings. Detailed manning figures using the 13 SH-60B model, the four SH-60F and two HH-60H model, the HS wing model and HSL wing model are presented in Appendix B.

b. HSC Option

The HSC option in Jacksonville, as with the HMP, supports four HSL squadrons, five HS squadrons, one HSL wing and one HSC wing. The only difference is that the HS squadrons each have two additional CH-60s to support the AOE mission. Detailed results are presented in Appendix B.

c. HAWC Option

The HAWC option's allocation of helicopters would result in seven HXX squadrons with six of the squadrons supporting 10 SH-60Rs and one supporting 12 SH-60Rs. Also, in Jacksonville there would be one HYY squadron of 10 CH-60s, five HAWCs and an HXX wing. Detailed results are presented in Appendix B.

Table 3.15 presents a summary of the total manning in Jacksonville under each option and the differences between the HAWC option and the other two options.

Jacksonville, FL., Total Manning Requirements and Differences Between HAWC and the Other Two Options

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	2	1	1	1	2
O-5	24	0	24	0	24
O-4	63	-18	81	-13	68
O-3	154	-16	170	-6	164
O-2	164	5	159	20	179
O-1	5	5	0	5	5
W-3	9	2	7	2	9
Total Off.	421	-21	442	9	451
E-9	22	4	18	4	22
E-8	47	5	42	5	47
E-7	139	12	127	27	154
E-6	312	9	303	39	342
E-5	515	-8	523	47	570
E-4	301	81	220	101	321
E-3	564	31	533	71	604
Total Enl.	1900	134	1766	294	2060
Total	2321	113	2208	303	2511

Table 3.15

2. Norfolk, VA.

Summary figures and differences between the options were determined. Detailed manning figures are available in Appendix B.

a. HMP

As stated earlier, under the HMP, Norfolk would require two 16-aircraft HC squadrons which are based on the 16 CH-60 model and one HC wing.

b. HSC Option

The HSC option in Norfolk, would support one 15-aircraft HSC squadron based on the 15 CH-60 approximation.

c. HAWC Option

The HAWC option's allocation of helicopters would result in three HYY squadrons with two supporting ten CH-60s and one squadron supporting 12 CH-60s, based on the appropriate CH-60 models presented earlier and one HYY wing.

Summary figures and differences between options are presented in Table 3.16.

Norfolk, VA., Total Manning Requirements and Differences Between HAWC and the Other Two Options

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	1	0	1	-1	0
O-5	7	-2	9	-7	2
O-4	22	-1	23	-14	9
O-3	38	-7	45	-27	18
O-2	44	-4	48	-25	23
O-1	0	0	0	0	0
W-3	0	0	0	0	0
Total Off.	112	-14	126	-74	52
				0	
E-9	6	-2	8	-6	2
E-8	6	-3	9	-6	3
E-7	40	-5	45	-29	16
E-6	72	-8	80	-47	33
E-5	164	-31	195	-109	86
E-4	55	-3	58	-31	27
E-3	142	-28	170	-98	72
Total Enl.	485	-80	565	-326	239
Total	597	-94	691	-400	291

Table 3.16

3. North Island, CA.

Summary manning results and differences for North Island were determined. Detailed results are depicted in Appendix B.

a. HMP

As presented earlier, under the HMP, North Island would require four 10-aircraft HSL squadrons and four six-aircraft HS squadrons based on the 10 SH-60B model, and the four SH-60F and two HH-60H model. North Island would also require one 20 CH-60 HC squadron and three wings.

b. HSC Option

The HSC option in North Island, as with the HMP, supports four HSL squadrons, of ten aircraft each, and four HS squadrons. The only difference would be that the HS squadrons each have two additional CH-60s to support the AOE mission and one wing would be disestablished. Results are based on the ten SH-60 model and the four SH-60 and four CH-60 approximation. North Island would also support 12 CH-60s for amphibious SAR and local area support, an HSC wing and an HSL wing.

c. HAWC Option

The HAWC option's allocation of helicopters for North Island would result in five HXX squadrons with two supporting 10 SH-60Rs and three supporting 12 SH-60Rs. Also, in North Island, there would be three HYY squadrons. Two of the HYY squadrons would support 10 CH-60s and the remaining one would support eight CH-60s. North Island would also support four HAWCs, an HXX wing and an HYY wing.

Summary manning results and differences for North Island are presented in Table 3.17.

North Island, CA., Total Manning Requirements and Differences Between HAWC and the Other Two Options

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	3	1	2	0	2
O-5	24	0	24	-2	22
O-4	76	-1	77	-3	74
O-3	146	-26	172	-29	143
O-2	155	1	154	4	158
O-1	4	4	0	4	4
W-3	9	3	6	3	9
Total Off.	417	-18	435	-23	412
				0	
E-9	23	4	19	2	21
E-8	43	4	39	5	44
E-7	149	17	132	10	142
E-6	298	12	286	24	310
E-5	523	-3	526	10	536
E-4	274	68	206	72	278
E-3	542	20	522	32	554
Total Enl.	1852	122	1730	155	1885
Total	2269	104	2165	132	2297

Table 3.17

4. Hawaii

The allocation of aircraft and manning levels in Hawaii would remain the same under all three options and are presented in Appendix B.

5. Guam

Detailed results of the manning levels in Guam are presented in Appendix B.

Summary figures and differences between the HAWC option and the other two options were determined.

a. HMP

As presented earlier, under the HMP, Guam would require one 14-aircraft HC squadron. Manning levels are based on the 14 CH-60 approximation.

b. HSC Option

The HSC option in Guam would support a SAR detachment of two aircraft based on the Guam SAR approximation.

c. HAWC Option

The HAWC option's allocation of helicopters would result in one HYY squadron supporting 14 CH-60s, similar to the figures under the HMP option and based on the 14 CH-60 approximation.

Summary figures and differences between the HAWC option and the other two options are presented in Table 3.18.

Guam Total Manning Requirements and Differences Between HAWC and the Other Two Options

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	0	0	0	0	0
O-5	2	0	2	-2	0
O-4	16	0	16	-14	2
O-3	34	0	34	-31	3
O-2	41	0	41	-38	3
O-1	0	0	0	0	0
W-3	0	0	0	0	0
Total Off.	93	0	93	-85	8
E-9	3	0	3	-3	0
E-8	5	0	5	-5	0
E-7	24	0	24	-20	4
E-6	48	0	48	-42	6
E-5	131	0	131	-113	18
E-4	39	0	39	-33	6
E-3	108	0	108	-96	12
Total Enl.	358	0	358	-312	46
Total	451	0	451	-397	54

Table 3.18

6. Japan

Summary manning results for Japan were determined. Detailed results are depicted in Appendix B.

a. HMP

As presented earlier, under the HMP, Japan would require one 13-aircraft

HSL squadron and one six-aircraft HS squadron. Manning figures were derived using the 13 SH-60B model, and the four SH-60F and two HH-60H model.

b. HSC Option

The HSC option in Japan, as with the HMP, would support one HSL squadron and one HS squadron. The only difference is that the HS squadron would have two additional CH-60s to support the AOE mission.

c. HAWC Option

The HAWC option's allocation of helicopters in Japan would result in one HXX squadron supporting 12 SH-60Rs and one CH-60. Also there would be one HXX squadron with four SH-60Rs and two CH-60s. Finally, Japan would have one HAWC.

Summary manning results for Japan are presented in Table 3.19.

Japan Total Manning Requirements and Differences Between HAWC and the Other Two Options

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	0	0	0	0	0
O-5	4	-1	5	-1	4
O-4	14	-1	15	0	15
O-3	35	1	34	3	37
O-2	38	7	31	10	41
O-1	1	1	0	1	1
W-3	2	0	2	0	2
Total Off.	94	7	87	13	100
E-9	4	0	4	0	4
E-8	9	1	8	1	9
E-7	27	1	26	4	30
E-6	69	2	67	8	75
E-5	116	10	106	21	127
E-4	66	19	47	23	70
E-3	127	22	105	30	135
Total Enl.	418	55	363	87	450
Total	512	62	450	100	550

Table 3.19

7. Total

Summary manning results for the totals under each option, and the differences among those options are presented in Table 3.20. Detailed results are depicted in Appendix B.

Total Manning Requirements and
Differences Between HAWC and the Other Two Options
(Without MSC Factor)

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	6	2	4	0	4
O-5	63	-3	66	-12	54
O-4	200	-21	221	-44	177
O-3	427	-48	475	-90	385
O-2	462	9	453	-29	424
O-1	10	10	0	10	10
W-3	21	5	16	5	21
Total Off.	1189	-46	1235	-160	1075
E-9	60	6	54	-3	51
E-8	114	7	107	1	108
E-7	395	25	370	-10	360
E-6	836	15	821	-18	803
E-5	1508	-32	1540	-143	1397
E-4	764	165	599	129	728
E-3	1553	45	1508	-71	1437
Total Enl.	5230	231	4999	-115	4884
Total	6419	185	6234	-275	5959

Table 3.20

Table 3.20 reflects the summary of figures from each location. For reasons discussed earlier, the HSC option requires the fewest personnel. To allow the reader a comparison of the manning structures on a consistent basis, the MSC factor, presented earlier in this chapter, was added to the HSC option totals. Table 3.21 depicts a comparison of the three options with the MSC factor added.

Total Manning Requirements and
Differences Between HAWC and the Other Two Options
(**With** MSC Factor)

Pay Grade	HMP	HMP - HAWC	HAWC	HSC (w/ MSC) - HAWC	HSC
O-6	6	2	4	**0**	4
O-5	63	-3	66	**-8**	58
O-4	200	-21	221	**-28**	193
O-3	427	-48	475	**-56**	419
O-2	462	9	453	**13**	466
O-1	10	10	0	**10**	10
W-3	21	5	16	**5**	21
Total Off.	1189	-46	1235	**-64**	1171
E-9	60	6	54	**1**	55
E-8	114	7	107	**7**	114
E-7	395	25	370	**20**	390
E-6	836	15	821	**42**	863
E-5	1508	-32	1540	**19**	1559
E-4	764	165	599	**177**	776
E-3	1553	45	1508	**63**	1571
Total Enl.	5230	231	4999	**329**	5328
Total	6419	185	6234	**265**	6499

Bold reflects difference with MSC Factor

Table 3.21

G. CONCLUSION

This chapter has indicated, in detail, how the total number of people required to support squadrons under each option for the future helicopter force structure was developed. The cost of personnel and differences in total cost among the options will be analyzed in the next chapter.

IV. PERSONNEL COSTS AND COMPARISONS

A. INTRODUCTION

This chapter will apply cost figures to the manpower numbers derived in the previous chapter. First, a description of the cost data used will be presented. Second, the derivation of weighted average cost figures for each pay grade will be discussed, followed by an allocation of those costs to the differences in personnel under each option. Finally, the differences in cost among the three options will be discussed.

B. U.S. NAVY COST OF MANPOWER ESTIMATING TOOL

The manpower cost figures used in this thesis are from the U.S. Navy Cost of Manpower Estimating Tool (COMET), a billet costing model.

> Using billet costs to estimate manpower costs provides several benefits over traditional by-grade costing. The primary benefit is that it allows analysts to measure the true impact of additional manpower requirements on total costs more accurately. Often, the cost variation of changes in requirements is only captured through the measurement of direct costs (military compensation, retirement, special pays, etc.). By capturing the variable indirect costs (training, recruiting, etc.), the model reveals the true variation between different skills. [Ref. 26]

The total costs in the COMET model are made up of both direct and variable indirect costs. Direct costs include pay, retirement pay, bonuses, G.I. Bill and expenses from permanent change of station moves. Variable indirect costs include the costs associated with acquiring, training and supporting personnel. [Ref. 26] In essence, each pay grade of every rating has a different total cost. Total costs for all pay grades of each rating used to build models in this thesis are included in Appendix C. Figures for pilots and limited duty officers of all pay

grades are also included in Appendix C.

C. MANPOWER COST DERIVATION

Weighted average cost figures were used to allocate costs to the manpower figures determined in the previous chapter. To illustrate, the weighted average cost for the 539 E-7s required to man the squadrons and wings in the HMP was $88,329.42. Calculations were based on the number of personnel in each pay grade of the various ratings and their COMET cost. For example, COMET costs are $88,027.43 for an Aviation Machinistmate Chief (ADC) and $86,731.94 for an Aviation Storekeeper Chief (AKC) [Ref. 26]. There are 18 ADCs in the total of 539 E-7s. Their portion of the weighted average cost was (18 * $88,027.43)/539. The 25 AKCs portion of the weighted average cost was (25 * $86,731.94)/539. The E-7 weighted average cost of $88,329.42 equaled the sum of the portions of weighted average cost for all ratings in which there were E-7s. The ratios of rate to pay grade are consistent across all three options. Similar computations were done for all other enlisted pay grades as well as officers.

Chief warrant officers (CWOs) were not included in the COMET model and the author was unable to replicate the methodology used by the model to determine their cost. In order to approximate the W-3 cost on a scale similar to the other officers and enlisted, a percentage relationship was set up between both the E-7 and O-3 pay grades, and the W-3 pay grade using the 1998 Regular Military Compensation chart (RMC). Pay grades E-7 and O-3 were chosen so percentages would be calculated over the same length of service and to bracket the W-3 costs. The RMC "figures combine basic pay, the basic allowance for

subsistence and the basic allowance for housing."[Ref. 27] A reproduction of the RMC chart is presented in Appendix C.

The average of the O-3 entries for years four through 14 was $55,959.32. The averages of the W-3 and E-7 entries over the same period were $45,793.44 and $38,166.06, respectively. The COMET figures for O-3 and E-7 are $111,513.53 and $88,329.42, respectively. Applying the percentage relationship of the difference in the RMC figures to the COMET figures results in a W-3 approximation of $98,267.68. Table 4.1 displays RMC figures, COMET figures, percent relationships and the approximated W-3 Cost.

Derivation of the Estimated W-3 Cost

	RMC Averages (Years 4-14)	COMET Model Figures
O-3	$55,959.32	$111,513.53
Percent of Difference Between O-3 and E-7	.5713	.5713
W-3	$45,793.44	**$98,267.68**
Percent of Difference Between O-3 and E-7	.4287	.4287
E-7	$38,166.06	$88,329.24

Bold is Estimated

Table 4.1

Weighted average costs for all rates and officer communities are presented in Appendix C. The weighted average cost figures for each pay grade are shown in Table 4.2.

Weighted Average Cost by Pay Grade

Pay Grade	Weighted Average Cost
O-6	$231,080.69
O-5	$202,548.08
O-4	$182,845.14
O-3	$168,993.20
O-2	$151,910.42
O-1	$139,275.29
W-3	$98,267.68
E-9	$108,736.43
E-8	$97,916.16
E-7	$88,329.42
E-6	$82,296.77
E-5	$73,760.61
E-4	$66,514.81
E-3	$61,187.91

Table 4.2

D. COST ALLOCATION

In the previous chapter, the differences in manning levels between the HAWC option and each of the other two options were presented. This section will present the allocation of personnel costs to those differences. Table 4.3 depicts the total cost and the differences in cost among the options without the MSC factor.

Total Manning Costs and
Cost Differences Between HAWC
and the Other Two Options
(**Without** MSC Factor in $000)

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC
O-6	$ 1,386	$ 462	$ 924	$ 0	$ 924
O-5	$ 12,761	$ (607)	$ 13,368	$ (2,430)	$ 10,938
O-4	$ 36,569	$ (3,840)	$ 40,409	$ (8,045)	$ 32,364
O-3	$ 72,160	$ (8,112)	$ 80,272	$ (15,210)	$ 65,062
O-2	$ 70,183	$ 1,368	$ 68,815	$ (4,405)	$ 64,410
O-1	$ 1,393	$ 1,393	$ 0	$ 1,393	$ 1,393
W-3	$ 2,433	$ 579	$ 1,854	$ 579	$ 2,433
Total Officers *	$ 196,885	$ (8,757)	$ 205,642	$ (28,118)	$ 177,524
E-9	$ 6,524	$ 652	$ 5,872	$ (326)	$ 5,546
E-8	$ 11,162	$ 685	$ 10,477	$ 98	$ 10,575
E-7	$ 34,890	$ 2,208	$ 32,682	$ (883)	$ 31,799
E-6	$ 68,800	$ 1,234	$ 67,566	$ (1,482)	$ 66,084
E-5	$ 111,231	$ (2,360)	$ 113,591	$ (10,547)	$ 103,044
E-4	$ 50,817	$ 10,975	$ 39,842	$ 8,581	$ 48,423
E-3	$ 95,025	$ 2,754	$ 92,271	$ (4,344)	$ 87,927
Total Enlisted *	$ 378,449	$ 16,148	$ 362,301	$ (8,904)	$ 353,397
Total *	$ 575,334	$ 7,391	$ 567,943	$ (37,022)	$ 530,921

Table 4.3

* Totals may not add due to rounding.

Table 4.4 depicts the total cost and the differences in cost among the options with the MSC factor.

Total Manning Costs and
Cost Differences Between HAWC
and the Other Two Options
(**With** MSC Factor in $000)

Pay Grade	HMP	HMP - HAWC	HAWC	HSC - HAWC	HSC (W/ MSC)
O-6	$ 1,386	$ 462	$ 924	$ 0	$ 924
O-5	$ 12,761	$ (607)	$ 13,368	$ (1,620)	$ 11,748
O-4	$ 36,569	$ (3,840)	$ 40,409	$ (5,120)	$ 35,289
O-3	$ 72,160	$ (8,112)	$ 80,272	$ (9,464)	$ 70,808
O-2	$ 70,183	$ 1,368	$ 68,815	$ 1,975	$ 70,790
O-1	$ 1,393	$ 1,393	$ 0	$ 1,393	$ 1,393
W-3	$ 2,433	$ 579	$ 1,854	$ 579	$ 2,433
Total Officers *	$ 196,885	$ (8,757)	$ 205,642	$ (12,257)	$ 193,385
E-9	$ 6,524	$ 652	$ 5,872	$ 109	$ 5,981
E-8	$ 11,162	$ 685	$ 10,477	$ 685	$ 11,162
E-7	$ 34,890	$ 2,208	$ 32,682	$ 1,766	$ 34,448
E-6	$ 68,800	$ 1,234	$ 67,566	$ 3,456	$ 71,022
E-5	$ 111,231	$ (2,360)	$ 113,591	$ 1,402	$ 114,993
E-4	$ 50,817	$ 10,975	$ 39,842	$ 11,773	$ 51,615
E-3	$ 95,025	$ 2,754	$ 92,271	$ 3,855	$ 96,126
Total Enlisted *	$ 378,449	$ 16,148	$ 362,301	$ 23,046	$ 385,347
Total *	$ 575,334	$ 7,391	$ 567,943	$ 10,789	$ 578,732

Table 4.4

* Totals may not add due to rounding.

E. CONCLUSION

When allocating COMET cost figures to the manning structures, the HSC option is by far the least expensive with regard to manpower costs. As discussed in Chapter III, in order to allow the reader to compare the manpower structures of the three options on a consistent basis, a factor equal to the MSC requirements was added to the HSC option. When comparing the manpower structures on a consistent basis, the HAWC configuration is the least expensive. Further analysis is presented in the next chapter.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This study was undertaken to analyze the manpower costs associated with three options for the future structure of the U.S. Navy helicopter force. The manning levels under each plan were derived from forecasted helicopter requirements and an analysis of current and prospective manning documents for the commands needed to support those requirements. Finally, manpower costs were allocated to the total personnel requirements and differences in costs among the options were calculated.

Unlike the HMP and HAWC plans, the HSC option does not support the MSC mission and requires fewer personnel and helicopters. The reader should not be surprised that the results show the HSC option as the least expensive at $531 million per year. If outsourcing of the MSC mission is found to be not economical, the restructuring of the helicopter force under the HSC option will not take place. In order to provide a consistent comparison of the manning structures, a factor equal to the MSC requirement was added to the HSC option totals. This method was chosen for simplicity, as the MSC factor could just as easily have been subtracted from the HMP and HAWC options with similar results.

When compared on a basis consistent with the other two options, the manpower costs of the manning structure under the HSC option is $579 million per year. When the three options are compared on a consistent basis, the cost of the manning structure under the HAWC option, with a projected manpower cost of $568 million per year, is significantly less

expensive than the other two options. The manpower cost associated with the manning structure under the basic plan set forth in the HMP is projected to be $575 million per year. Results comparing the number of squadrons, number of personnel and manpower costs associated with each of the three options are presented in Table 5.1.

Squadrons, Manpower and Personnel Costs Under the HMP, HSC and HAWC Options

	HMP	HSC (Without MSC Factor)	HSC (With MSC Factor)	HAWC
Number of Squadrons	24	22	24	23
Number of Personnel	6,419	5,959	6,499	6,234
Annual Manpower Cost ($000)	$575,334	$530,921	$578,732	$567,943

Table 5.1

This study only covered costs associated with a restructure of the helicopter force. However, the methodology could be used, in conjunction with other data, to evaluate costs and benefits of any restructuring. Changes to aircraft requirements or type, by quantity or location, changes in manning levels or changes to the cost structure could all be incorporated to assist decision makers.

Projected costs were based on 100 percent manning levels for all commands. As wings and squadrons are rarely manned at that level, actual costs would be different. However, as any increase or decrease in manning levels would affect each option to the same

degree, relative relationships between the options will remain valid.

A similar argument can be made for the cost figures. Cost estimates are in fiscal year 1997 dollars and future projections would need to account for inflation, salary changes, or change in the input parameters. However, as with the manning levels, the changes would have the same relative effect on all cost figures, and the relative relationship among cost figures would remain constant.

The assumptions made in the development of the manning structures are presented in this thesis. The assumptions were consistent in deriving manning levels for all three options. In using individual cost or manning figures outside the realm of the data presented in this thesis, the reader needs to be aware of the assumptions.

B. RECOMMENDATIONS

It is recommended that the Navy expand the use of the methodology developed in this thesis for use fleet wide. This model could use the manpower data for any community, whether ashore or afloat, to allocate appropriate cost estimates using any activity manning documents or prospective manning documents.

There are many potential topics in the area of the helicopter force structure which require further study. Recommeded topics regarding the restructuring of the Navy helicopter force include changes in effectiveness and efficiency of the battle group helicopters under the HSC and HAWC options, changes in training effectiveness under the HSC and HAWC options, an analysis of the process of change in the restructuring of the helicopter force, and career progression under the HSC and HAWC options.

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APPENDIX A

MODELS AND APPPROXIMATIONS

13 SH-60 Model

	Shore	Sea	Total
O-5	2		2
O-4		9	9
O-3	3	25	28
O-2		26	26
O-1			
W-3	1		1
Total Officer	6	60	66
E-9	2		2
E-8	2	3	5
E-7	6	11	17
E-6	16	28	44
E-5	12	60	72
E-4	8	24	32
E-3	9	63	72
Total Enlisted	55	189	244
Total	61	249	310

10 SH-60 Model

	Shore	Sea	Total
O-5	2		2
O-4		9	9
O-3	3	17	20
O-2		20	20
O-1			
W-3	1		1
Total Officer	6	46	52
E-9	2		2
E-8	2	3	5
E-7	6	8	14
E-6	16	21	37
E-5	12	48	60
E-4	8	18	26
E-3	9	51	60
Total Enlisted	55	149	204
Total	61	195	256

	12 SH-60 Approximation			Four SH-60 and Two HH-60H Model
	Shore	Sea	Total	Sea
O-5	2		2	2
O-4		9	9	5
O-3	3	22	25	7
O-2		24	24	12
O-1				1
W-3	1		1	1
Total Officer	6	55	61	28
E-9	2		2	2
E-8	2	3	5	4
E-7	6	10	16	10
E-6	16	26	42	25
E-5	12	56	68	44
E-4	8	22	30	34
E-3	9	59	68	55
Total Enlisted	55	176	231	174
Total	61	231	292	202

Four SH-60 and Four CH-60
Approximation

	Sea	Additional Support	CH-60 Detachment	Total
O-5	2			2
O-4	5		1	6
O-3	7		2	9
O-2	12		3	15
O-1	1			1
W-3	1			1
Total Officer	28		6	34
E-9	2			2
E-8	4			4
E-7	10	1	2	13
E-6	25	3	3	31
E-5	44	2	9	55
E-4	34	1	3	38
E-3	55	2	6	63
Total Enlisted	174	9	23	206
Total	202	9	29	240

16 CH-60 Model

	Shore	Shore Training	Sea Detachments 1 Through 6 Two CH-60s	Sea Detachments 7 and 8 One CH-60	Total
O-5	2				2
O-4	1		1	1	9
O-3	3		2	1	17
O-2			3	2	22
O-1					
W-3					
Total Officer	6		6	4	50
E-9	2				2
E-8	3				3
E-7	1		2	1	15
E-6	8	1	3	3	33
E-5	15	3	9	5	82
E-4	3		3	3	27
E-3	24	1	6	5	71
Total Enlisted	56	5	23	17	233
Total	62	5	29	21	283

Eight CH-60 Approximation

	Shore	Sea Detachments 1 through 4	Total
O-5	2		2
O-4	1	1	5
O-3	3	2	11
O-2		3	12
O-1			
W-3			
Total Officer	6	6	30
E-9	2		2
E-8	3		3
E-7	1	2	9
E-6	8	3	20
E-5	15	9	51
E-4	3	3	15
E-3	24	6	48
Total Enlisted	56	23	148
Total	62	29	178

Ten CH-60 Approximation

	Shore	Sea Detachments 1 Through 5	Total
O-5	2		2
O-4	1	1	6
O-3	3	2	13
O-2		3	15
O-1			
W-3			
Total Officer	6	6	36
E-9	2		2
E-8	3		3
E-7	1	2	11
E-6	8	3	23
E-5	15	9	60
E-4	3	3	18
E-3	24	6	54
Total Enlisted	56	23	171
Total	62	29	207

12 CH-60 Approximation

	Shore	Sea Detachments 1 Through 6	Total
O-5	2		2
O-4	1	1	7
O-3	3	2	15
O-2		3	18
O-1			
W-3			
Total Officer	6	6	42
E-9	2		2
E-8	3		3
E-7	1	2	13
E-6	8	3	26
E-5	15	9	69
E-4	3	3	21
E-3	24	6	60
Total Enlisted	56	23	194
Total	62	29	236

14 CH-60 Approximation

	Shore	Sea Detachments 1Through 7	Subtotal	Perstempo Estimate	Total
O-5	2		2		2
O-4	1	1	8	8	16
O-3	3	2	17	17	34
O-2		3	21	20	41
O-1					
W-3					
Total Officer	6	6	48	45	93
E-9	2		2	1	3
E-8	2		2	2	4
E-7	3	2	17	9	26
E-6	9	3	30	18	48
E-5	17	9	80	50	130
E-4	6	3	27	15	42
E-3	35	6	77	41	118
Total Enlisted	74	23	235	136	371
Total	80	29	283	181	464

15 CH-60 Approximation

	Shore	Sea Detachments 1 Through 6	Sea Detachment 7	Total
O-5	2			2
O-4	1	1	2	9
O-3	3	2	3	18
O-2		3	5	23
O-1				
W-3				
Total Officer	6	6	10	52
E-9	2			2
E-8	3			3
E-7	1	2	3	16
E-6	8	3	6	32
E-5	15	9	14	83
E-4	3	3	6	27
E-3	24	6	11	71
Total Enlisted	56	23	40	234
Total	62	29	50	286

20 CH-60 Approximation

	Shore	Sea Detachments 1-9	Total
O-5	2		2
O-4	1	1	10
O-3	3	2	21
O-2		3	27
O-1			
W-3			
Total Officer	6	6	60
E-9	2		2
E-8	2		2
E-7	1	2	19
E-6	15	2	33
E-5	16	9	97
E-4	5	3	32
E-3	25	6	79
Total Enlisted	66	22	264
Total	72	28	324

Guam SAR Detachment Approximation

O-5	
O-4	2
O-3	3
O-2	3
O-1	
W-3	
Total Officer	8

E-9	
E-8	
E-7	4
E-6	6
E-5	18
E-4	6
E-3	12
Total Enlisted	46

Total	54

Composite Squadron
of Four SH-60s and Two CH-60s

	Shore	Sea SH-60 Detachments	Sea CH-60 Detachment	Total
O-5	2			2
O-4		3	1	4
O-3	3	7	2	12
O-2		8	3	11
O-1				0
W-3	1			1
Total Officer	6	18	6	30
E-9	2			2
E-8	2	1		3
E-7	6	3	2	11
E-6	16	9	3	28
E-5	12	19	9	40
E-4	8	7	3	18
E-3	9	20	6	35
Total Enlisted	55	59	23	137
Total	61	77	29	167

Helicopter Air Wing Commander Staff

	Staff	CV Detachment	Total
O-5	1		1
O-4	2		2
O-3	2		2
O-2			
O-1			
W-3			
Total Officer	5		5
E-9			
E-8			
E-7	1		1
E-6	1	1	2
E-5	1	5	6
E-4	1	2	3
E-3	2	8	10
Total Enlisted	6	16	22
Total	11	16	27

MSC Equivalent (28 CH-60s)

	Shore	14 Detachments	Total
O-5	4		4
O-4	2	14	16
O-3	6	28	34
O-2		42	42
O-1			
W-3			
Total Officer	12	84	96
E-9	4		4
E-8	6		6
E-7	2	28	30
E-6	18	42	60
E-5	36	126	162
E-4	6	42	48
E-3	50	84	134
Total Enlisted	122	322	444
Total	134	406	540

Wings

	Tactical Wings (HC)		HS Wings		HSL Wings	
	Atlantic	Pacific	Atlantic	Pacific	Atlantic	Pacific
O-6	1	1	1	1	1	1
O-5	3	2	3	2	3	2
O-4	4	3		4	2	3
O-3	4	5	5	5	2	7
O-2			0			
O-1						
W-3						1
Total Officer	12	11	9	12	8	14
E-9	2	2	2	1	2	2
E-8	0		3	3	4	2
E-7	10	13	10	10	11	11
E-6	7	5	5	5	6	7
E-5	3	3	2	3	5	4
E-4	1	1	2	1	1	
E-3	1	1		1	1	1
Total Enlisted	24	25	24	24	30	27
Total	36	36	33	36	38	41

APPENDIX B

TOTAL PERSONNEL BY LOCATION

Jacksonville, FL.

HMP Option

	Four HSL Squadrons 13 SH-60 Model		Five HS Squadrons Four SH-60s and Two HH-60Hs	
	Per Squadron	**Total**	**Per Squadron**	**Total**
O-5	2	8	2	10
O-4	9	36	5	25
O-3	28	112	7	35
O-2	26	104	12	60
O-1	0	0	1	5
W-3	1	4	1	5
Total Officer	66	264	28	140
E-9	2	8	2	10
E-8	5	20	4	20
E-7	17	68	10	50
E-6	44	176	25	125
E-5	72	288	44	220
E-4	32	128	34	170
E-3	72	288	55	275
Total Enlisted	244	976	174	870
Total	310	1240	202	1010

Jacksonville, FL.

HMP Option

	HS Wing	HSL Wing	Total Squadrons and Wings
O-6	1	1	2
O-5	3	3	24
O-4		2	63
O-3	5	2	154
O-2			164
O-1			5
W-3			9
Total Officer	9	8	421
E-9	2	2	22
E-8	3	4	47
E-7	10	11	139
E-6	5	6	312
E-5	2	5	515
E-4	2	1	301
E-3		1	564
Total Enlisted	24	30	1900
Total	33	38	2321

Jacksonville, FL.

HSC Option

	Four HSL Squadrons 13 SH-60 Model		Five HS Squadrons (With CH-60 Detachment) Four SH-60s and Four CH-60 Approximation	
	Per Squadron	**Total**	**Per Squadron**	**Total**
O-5	2	8	2	10
O-4	9	36	6	30
O-3	28	112	9	45
O-2	26	104	15	75
O-1			1	5
W-3	1	4	1	5
Total Officer	66	264	34	170
E-9	2	8	2	10
E-8	5	20	4	20
E-7	17	68	13	65
E-6	44	176	31	155
E-5	72	288	55	275
E-4	32	128	38	190
E-3	72	288	63	315
Total Enlisted	244	976	206	1030
Total	310	1240	240	1200

Jacksonville, FL.

HSC Option

	HS Wing	HSL Wing	Total Squadrons and Wings
O-6	1	1	2
O-5	3	3	24
O-4		2	68
O-3	5	2	164
O-2			179
O-1			5
W-3			9
Total Officer	9	8	451
E-9	2	2	22
E-8	3	4	47
E-7	10	11	154
E-6	5	6	342
E-5	2	5	570
E-4	2	1	321
E-3		1	604
Total Enlisted	24	30	2060
Total	33	38	2511

Jacksonville, FL.

HAWC Option

	Six HXX Squadrons 10 SH-60 Model		One HXX Squadron 12 SH-60 Approximation	One HYY Squadron 10 CH-60 Approximation
	Per Squadron	Total		
O-5	2	12	2	2
O-4	9	54	9	6
O-3	20	120	25	13
O-2	20	120	24	15
O-1				
W-3	1	6	1	
Total Officer	52	312	61	36
E-9	2	12	2	2
E-8	5	30	5	3
E-7	14	84	16	11
E-6	37	222	42	23
E-5	60	360	68	60
E-4	26	156	30	18
E-3	60	360	68	54
Total Enlisted	204	1224	231	171
Total	256	1536	292	207

Jacksonville, FL.

HAWC Option

	Five HAWCs		One HXX Wing	Total Squadrons and Wings
	Per HAWC	Total		
O-6			1	1
O-5	1	5	3	24
O-4	2	10	2	81
O-3	2	10	2	170
O-2				159
O-1				
W-3				7
Total Officer	5	25	8	442
E-9			2	18
E-8			4	42
E-7	1	5	11	127
E-6	2	10	6	303
E-5	6	30	5	523
E-4	3	15	1	220
E-3	10	50	1	533
Total Enlisted	22	110	30	1766
Total	27	135	38	2208

Norfolk, VA.

HMP Option

	Two HC Squadrons 16 CH-60 Model		HC Wing	Total
	Per Squadron	Total		
O-6			1	1
O-5	2	4	3	7
O-4	9	18	4	22
O-3	17	34	4	38
O-2	22	44		44
O-1				
W-3				
Total Officer	50	100	12	112
E-9	2	4	2	6
E-8	3	6	0	6
E-7	15	30	10	40
E-6	33	65	7	72
E-5	82	161	3	164
E-4	27	54	1	55
E-3	71	141	1	142
Total Enlisted	233	461	24	485
Total	283	561	36	597

Norfolk, VA.

HSC Option

	15 CH-60 Approximation	Total
O-5	2	2
O-4	9	9
O-3	18	18
O-2	23	23
O-1		
W-3		
Total Officer	52	52
E-9	2	2
E-8	3	3
E-7	16	16
E-6	33	33
E-5	86	86
E-4	27	27
E-3	72	72
Total Enlisted	239	239
Total	291	291

Norfolk, VA.

HAWC Option

	Two HYY Squadrons 10 CH-60 Approximation		One HYY Squadron 12 CH-60 Approximation	HYY Wing	Total
	Per Squadron	Total			
O-6				1	1
O-5	2	4	2	3	9
O-4	6	12	7	4	23
O-3	13	26	15	4	45
O-2	15	30	18		48
O-1					
W-3					
Total Officer	36	72	42	12	126
E-9	2	4	2	2	8
E-8	3	6	3	0	9
E-7	11	22	13	10	45
E-6	23	46	27	7	80
E-5	60	120	72	3	195
E-4	18	36	21	1	58
E-3	54	108	61	1	170
Total Enlisted	171	342	199	24	565
Total	207	414	241	36	691

North Island, CA.

HMP Option

	Four HSL Squadrons Ten SH-60 Model		Four HS Squadrons Four SH-60 and Two HH-60 Model		One HC Squadron 20 CH-60 Approximation
	Per Squadron	Total	Per Squadron	Total	
O-5	2	8	2	8	2
O-4	9	36	5	20	10
O-3	20	80	7	28	21
O-2	20	80	12	48	27
O-1			1	4	
W-3	1	4	1	4	
Total Officer	52	208	28	112	60
E-9	2	8	2	8	2
E-8	5	20	4	16	2
E-7	14	56	10	40	19
E-6	37	148	25	100	33
E-5	60	240	44	176	97
E-4	26	104	34	136	32
E-3	60	240	55	220	79
Total Enlisted	204	816	174	696	264
Total	256	1024	202	808	324

North Island, CA.

HMP Option

	HS Wing	HSL Wing	HC Wing	Total Squadrons and Wings
O-6	1	1	1	3
O-5	2	2	2	24
O-4	4	3	3	76
O-3	5	7	5	146
O-2				155
O-1				4
W-3		1		9
Total Officer	12	14	11	417
E-9	1	2	2	23
E-8	3	2		43
E-7	10	11	13	149
E-6	5	7	5	298
E-5	3	4	3	523
E-4	1	0	1	274
E-3	1	1	1	542
Total Enlisted	24	27	25	1852
Total	36	41	36	2269

North Island, CA.

HSC Option

	Four HSL Squadrons Ten SH-60 Model		Four HS squadrons (With CH-60 Det) Four SH-60 and Four CH-60 Approximation		One HC Squadron 12 CH-60 Approximation
	Per Squadron	Total	Per Squadron	Total	
O-5	2	8	2	8	2
O-4	9	36	6	24	7
O-3	20	80	9	36	15
O-2	20	80	15	60	18
O-1	0	0	1	4	
W-3	1	4	1	4	
Total Officer	52	208	34	136	42
E-9	2	8	2	8	2
E-8	5	20	4	16	3
E-7	14	56	13	52	13
E-6	37	148	31	124	26
E-5	60	240	55	220	69
E-4	26	104	38	152	21
E-3	60	240	63	252	60
Total Enlisted	204	816	206	824	194
Total	256	1024	240	960	236

North Island, CA.

HSC Option

	HSC Wing	HSL Wing	Total Squadrons and Wings
O-6	1	1	2
O-5	2	2	22
O-4	4	3	74
O-3	5	7	143
O-2			158
O-1			4
W-3		1	9
Total Officer	12	14	412
E-9	1	2	21
E-8	3	2	44
E-7	10	11	142
E-6	5	7	310
E-5	3	4	536
E-4	1	0	278
E-3	1	1	554
Total Enlisted	24	27	1885
Total	36	41	2297

North Island, CA.

HAWC Option

	Two HXX Squadron HSL Ten SH-60 Model		Three HXX Squadrons 12 SH-60 Approximation		Two HYY Squadrons Ten CH-60 Approximation	
	Per Squadron	**Total**	**Per Squadron**	**Total**	**Per Squadron**	**Total**
O-5	2	4	2	6	2	4
O-4	9	18	9	27	6	12
O-3	20	40	25	75	13	26
O-2	20	40	24	72	15	30
O-1						
W-3	1	2	1	3		
Total Officer	52	104	61	183	36	72
E-9	2	4	2	6	2	4
E-8	5	10	5	15	3	6
E-7	14	28	16	48	11	22
E-6	37	74	42	126	23	46
E-5	60	120	68	204	60	120
E-4	26	52	30	90	18	36
E-3	60	120	68	204	54	108
Total Enlisted	204	408	231	693	171	342
Total	256	512	292	876	207	414

North Island, CA.

HAWC Option

	One CH-60 Squadron Eight CH-60 Approximation	Four HAWCs		HXX Wing	HYY Wing
		Per HAWC	Total		
O-6				1	1
O-5	2	1	4	2	2
O-4	5	2	8	3	4
O-3	11	2	8	7	5
O-2	12				
O-1					
W-3				1	
Total Officer	30	5	20	14	12
E-9	2			2	1
E-8	3			2	3
E-7	9	1	4	11	10
E-6	20	2	8	7	5
E-5	51	6	24	4	3
E-4	15	3	12	0	1
E-3	48	10	40	1	1
Total Enlisted	148	22	88	27	24
Total	178	27	108	41	36

North Island, CA.

HAWC Option

	Total
O-5	2
O-5	24
O-4	77
O-3	172
O-2	154
O-1	
W-3	6
Total Officer	435
E-9	19
E-8	39
E-7	132
E-6	286
E-5	526
E-4	206
E-3	522
Total Enlisted	1730
Total	2165

Hawaii

HMP Option

	One HSL Squadron Ten SH-60 Model	Total
O-5	2	2
O-4	9	9
O-3	20	20
O-2	20	20
O-1		
W-3	1	1
Total Officer	52	52
E-9	2	2
E-8	5	5
E-7	14	14
E-6	37	37
E-5	60	60
E-4	26	26
E-3	60	60
Total Enlisted	204	204
Total	256	256

Hawaii

HSC Option

	One HSL Squadron Ten SH-60 Model	Total
O-5	2	2
O-4	9	9
O-3	20	20
O-2	20	20
O-1		
W-3	1	1
Total Officer	52	52
E-9	2	2
E-8	5	5
E-7	14	14
E-6	37	37
E-5	60	60
E-4	26	26
E-3	60	60
Total Enlisted	204	204
Total	256	256

Hawaii

HAWC Option

	One HXX Squadron Ten SH-60 Model	Total
O-6		0
O-5	2	2
O-4	9	9
O-3	20	20
O-2	20	20
O-1		
W-3	1	1
Total Officer	52	52
E-9	2	2
E-8	5	5
E-7	14	14
E-6	37	37
E-5	60	60
E-4	26	26
E-3	60	60
Total Enlisted	204	204
Total	256	256

Guam

HMP Option

	One HC Squadron 14 CH-60 Approximation	Total
O-5	2	2
O-4	16	16
O-3	34	34
O-2	41	41
O-1		
W-3		
Total Officer	93	93
E-9	3	3
E-8	4	4
E-7	26	26
E-6	48	48
E-5	130	130
E-4	42	42
E-3	118	118
Total Enlisted	371	371
Total	464	464

Guam

HSC Option

	Guam SAR Approximation	Total
O-5		
O-4	2	2
O-3	3	3
O-2	3	3
O-1		
W-3		
Total Officer	8	8
E-9		
E-8		
E-7	4	4
E-6	6	6
E-5	18	18
E-4	6	6
E-3	12	12
Total Enlisted	46	46
Total	54	54

Guam

HAWC Option

	One HYY Squadron 14 CH-60 Approximation	Total
O-6		
O-5	2	2
O-4	16	16
O-3	34	34
O-2	41	41
O-1		
W-3		
Total Officer	93	93
E-9	3	3
E-8	4	4
E-7	26	26
E-6	48	48
E-5	130	130
E-4	42	42
E-3	118	118
Total Enlisted	371	371
Total	464	464

Japan

HMP Option

	One HSL Squadron 13 SH-60 Model	One HS Squadron Four SH-60 and Two HH-60H Model	Total
O-5	2	2	4
O-4	9	5	14
O-3	28	7	35
O-2	26	12	38
O-1		1	1
W-3	1	1	2
Total Officer	66	28	94
E-9	2	2	4
E-8	5	4	9
E-7	17	10	27
E-6	44	25	69
E-5	72	44	116
E-4	32	34	66
E-3	72	55	127
Total Enlisted	244	174	418
Total	310	202	512

Japan

HSC Option

	One HSL Squadron 13 SH-60 Model	One HS Squadron (With CH-60 Detachment) Four SH-60 and Four CH-60H Approximation	Total
O-5	2	2	4
O-4	9	6	15
O-3	28	9	37
O-2	26	15	41
O-1		1	1
W-3	1	1	2
Total Officer	66	34	100
E-9	2	2	4
E-8	5	4	9
E-7	17	13	30
E-6	44	31	75
E-5	72	55	127
E-4	32	38	70
E-3	72	63	135
Total Enlisted	244	206	450
Total	310	240	550

Japan

HAWC Option

	One HXX Squadron 13 SH-60 Model	One Composite Squadron Four SH-60 and Two CH-60 Approximation	One HAWC	Total
O-5	2	2	1	5
O-4	9	4	2	15
O-3	20	12	2	34
O-2	20	11		31
O-1				
W-3	1	1		2
Total Officer	52	30	5	87
E-9	2	2		4
E-8	5	3		8
E-7	14	11	1	26
E-6	37	28	2	67
E-5	60	40	6	106
E-4	26	18	3	47
E-3	60	35	10	105
Total Enlisted	204	137	22	363
Total	256	167	27	450

APPENDIX C

COST INFORMATION

COMET Model Costing

Officers

Pay Grade	Specialty: Pilots	Specialty: Limited Duty Officers
O-6	$231,080.69	$174,663.95
O-5	207,768.59	142,208.95
O-4	187,881.28	124,637.02
O-3	173,966.31	111,513.53
O-2	156,938.17	93,799.32
O-1	144,122.81	83,247.32
W-3	0.00	98,267.68

COMET Model Costing

Enlisted

Rating

Pay Grade	AD	AFCM	AE	AK	AMH
E-9	$ 0.00	$ 103,371.00	$ 0.00	$ 110,334.73	$ 0.00
E-8	98,511.31	0.00	104,446.83	97,093.63	0.00
E-7	88,800.14	0.00	94,551.14	86,731.94	89,133.72
E-6	81,674.72	0.00	87,647.95	79,433.55	81,481.58
E-5	74,437.11	0.00	79,910.95	71,479.60	73,746.66
E-4	67,034.59	0.00	72,661.88	64,588.03	66,853.47
E-3	60,209.04	0.00	66,575.33	58,839.42	59,765.20

	AMS	AO	AS	AT	AVCM
E-9	0.00	110,398.02	111,272.41	0.00	102,105.55
E-8	88,027.43	98,101.97	96,876.39	99,238.06	0.00
E-7	89,185.56	89,887.93	87,543.67	89,596.78	0.00
E-6	81,766.95	82,029.49	81,062.28	82,526.98	0.00
E-5	74,225.41	73,906.41	73,850.74	74,057.95	0.00
E-4	67,269.13	67,619.22	66,803.33	67,511.49	0.00
E-3	60,171.73	60,362.79	59,442.02	63,317.64	0.00

	AW	AZ	DK	PN	YN
E-9	109,955.79	107,759.20	108,470.44	107,960.90	108,363.20
E-8	98,872.70	93,326.57	99,109.04	95,259.17	95,336.47
E-7	89,989.88	85,437.93	87,711.16	85,883.21	85,698.22
E-6	82,638.77	78,322.53	80,536.53	78,324.04	78,051.81
E-5	74,038.50	70,640.38	72,497.72	70,710.00	70,136.86
E-4	65,910.05	63,711.65	65,402.45	64,461.62	63,772.54
E-3	58,858.76	57,837.25	59,650.98	59,316.97	58,551.34

COMET Model Costing

Enlisted
(Continued)

Rating

Pay Grade	MS	APO	HM	DP	BM
E-9	$ 110,091.20	$ 109,912.89	$ 104,531.42	$ 102,842.77	$ 112,987.55
E-8	95,809.27	97,958.33	92,150.70	92,062.52	100,167.27
E-7	86,450.34	88,667.78	82,905.88	83,217.76	90,694.83
E-6	78,887.88	82,111.75	75,394.66	75,522.51	83,405.81
E-5	71,242.94	73,601.50	67,933.00	67,467.03	76,177.74
E-4	64,464.92	66,141.40	61,785.37	60,349.27	68,941.03
E-3	57,830.73	60,373.37	59,802.31	56,611.79	64,326.44

	PR	NC	PO	RM
E-9	109,058.64	98,828.90	109,912.89	110,738.53
E-8	94,675.61	87,692.54	97,958.33	97,749.49
E-7	88,287.60	78,609.56	88,667.78	88,241.23
E-6	81,319.95	71,739.60	82,111.75	81,505.84
E-5	73,321.66	66,043.85	73,601.50	73,947.72
E-4	66,255.92	0.00	66,141.40	66,250.46
E-3	60,313.88	0.00	60,373.37	59,555.14

1998 regular military compensation

This chart shows the average annual military "salary" for each grade. The figures combine basic pay, the basic allowance for subsistence and the basic allowance for housing. They also include the tax advantage from untaxed allowances. The figures do not include the average overseas housing allowance or the overseas cost-of-living allowance. A zero in the chart indicated that none of the services reported any members having that combination of years of service and grade.

	Years of service														
Grade	**< 2**	**2**	**3**	**4**	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**	**24**	**26**
Commissioned officers															
O-10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136820.4
O-9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136373.6
O-8	0	0	0	0	0	0	0	0	0	0	0	0	125526.53	125648.94	125544.5
O-7	0	0	0	0	0	0	0	0	0	0	113490.99	0	113457.27	113553.60	113481.0
O-6	0	0	0	74648.30	74168.61	74209.73	74209.73	74214.57	76294.34	85759.05	89006.52	90460.59	94377.25	96793.35	100422.1
O-5	0	60913.86	64194.60	64334.84	64380.06	64385.78	65946.96	68847.57	72675.92	77211.52	80832.33	82785.01	85015.87	0	0
O-4	47059.74	53710.52	56196.21	56198.16	56953.79	58795.62	61879.71	64706.38	67169.62	69684.62	71323.72	0	0	0	0
O-3	42183.53	45671.67	47890.47	51465.04	53247.14	54640.37	56914.17	59154.20	60334.99	0	0	0	0	0	0
O-2	36036.98	38497.06	44377.39	45472.14	46159.90	0	0	0	0	0	0	0	0	0	0
O-1	31143.09	32010.99	37054.41	0	0	0	0	0	0	0	0	0	0	0	0
Commissioned officers with more than four years' active duty as an enlisted member or warrant															
O-3E	0	0	0	52657.62	54287.41	55739.38	58037.28	60302.79	62257.39	0	0	0	0	0	0
O-2E	0	0	0	47056.69	47738.74	48815.06	50643.98	52051.51	53099.15	0	0	0	0	0	0
O-1E	0	0	0	38477.94	40523.45	41699.46	42911.50	44101.83	45608.74	0	0	0	0	0	0
Warrant officers															
W-5	0	0	0	0	0	0	0	0	0	0	0	66592.35	68594.07	70380.42	72927.8
W-4	0	0	0	0	0	0	0	0	55167.65	56640.52	57776.99	59235.18	60818.44	62409.21	64837.0
W-3	0	0	0	42658.94	42993.74	45101.56	46928.19	48000.78	49077.45	50124.93	51244.63	52695.37	54092.05	54092.18	55513.7
W-2	0	37594.69	37575.49	38317.62	39735.38	41232.31	42327.05	43422.54	44492.88	45616.54	46685.73	47740.99	49142.58	0	0
W-1	30514.49	33226.30	33256.36	35088.82	36184.08	37257.04	38347.72	39481.89	40560.83	41678.49	42756.04	43917.77	0	0	0
Enlisted members															
E-9	0	0	0	0	0	0	0	49614.86	0	51167.76	51958.01	52659.83	54611.12	56171.36	58558.1
E-8	0	0	0	0	0	0	43297.29	43980.07	44766.18	45579.64	46295.15	47083.55	48998.78	50532.27	52843.2
E-7	33263.73	34815.33	35589.33	36359.73	36931.67	37654.38	38430.53	39221.05	40399.02	41174.46	41950.00	42326.85	44287.44	45837.73	48132.3
E-6	29438.36	30872.99	31569.90	32417.06	33194.60	33943.98	34737.28	35910.00	36659.93	37450.31	37832.52	0	0	0	0
E-5	26022.64	27386.89	28212.92	29002.49	30129.33	30847.62	31592.37	32350.90	32734.46	0	0	0	0	0	0
E-4	23513.27	24331.54	25226.21	26407.18	27060.45	0	0	0	0	0	0	0	0	0	0
E-3	22183.17	22907.29	23465.18	24045.27	0	0	0	0	0	0	0	0	0	0	0
E-2	21492.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E-1>4	19834.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E-1<4	18733.24	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX D

A. ACRONYMS

AMD - Activity Manning Document

BG - Battle Group

CAG - Carrier Air Group Commander

HAWC - Helicopter Air Wing Commander

HC - Helicopter Combat Support Squadron

HM - Helicopter Mine Countermeasures Squadron

HMP - Helo Master Plan

HS - Helicopter Antisubmarine Warfare Squadron

HSC - Helicopter Community which combines HS and HC.

HSL - Helicopter Antisubmarine Warfare Light Squadron

HXX - SH-60 Squadron, HAWC Concept

HYY - CH-60 Squadron, HAWC Concept

MCS - Mine Countermeasures Support Ship

MER - Manning Estimate Report

MSC - Military Sealift Command

NAVAIR - Naval Air Systems Command

NSW - Naval Special Warfare

PSQMD - Prospective Squadron Manning Document

VERTREP - Vertical Replenishment

VOD - Vertical Onboard Delivery

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