



**NAVAL  
POSTGRADUATE  
SCHOOL**

**MONTEREY, CALIFORNIA**

---

**MBA PROFESSIONAL PROJECT**

---

**NAVY GLOBAL MULTI-AWARD CONTRACT:  
EFFECTS OF COMPETITION ON  
PRICING OF PORT VISITS**

---

**June 2022**

**By: Ryan J. Cahill  
Francisco J. Degollado  
Bryan H. Ortiz**

**Advisor: Robert F. Mortlock  
Co-Advisor: Geraldo Ferrer  
Second Reader: Margaret M. Hauser**

*Approved for public release. Distribution is unlimited.*

THIS PAGE INTENTIONALLY LEFT BLANK

<b>REPORT DOCUMENTATION PAGE</b>			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
<b>1. AGENCY USE ONLY (Leave blank)</b>		<b>2. REPORT DATE</b> June 2022		<b>3. REPORT TYPE AND DATES COVERED</b> MBA Professional Project
<b>4. TITLE AND SUBTITLE</b> NAVY GLOBAL MULTI-AWARD CONTRACT: EFFECTS OF COMPETITION ON PRICING OF PORT VISITS			<b>5. FUNDING NUMBERS</b>	
<b>6. AUTHOR(S)</b> Ryan J. Cahill, Francisco J. Degollado, and Bryan H. Ortiz				
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> Naval Postgraduate School Monterey, CA 93943-5000			<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b>	
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> NAVSUP, Mechanicsburg, PA 17055			<b>10. SPONSORING / MONITORING AGENCY REPORT NUMBER</b>	
<b>11. SUPPLEMENTARY NOTES</b> The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
<b>12a. DISTRIBUTION / AVAILABILITY STATEMENT</b> Approved for public release. Distribution is unlimited.			<b>12b. DISTRIBUTION CODE</b> A	
<b>13. ABSTRACT (maximum 200 words)</b>  The Navy acquisition community has made significant strides in modernizing policies and contracting vehicles to better support U.S. warships and personnel with husbanding services both at home and abroad. Although much has been done to mitigate risks, reduce inefficiencies, and improve lag times in service provided, serious setbacks have occurred and continue to occur. This research investigates some potential shortfalls in the husbanding service provider process and provides recommendations for improvement and cost savings. The Husbanding Service Portal and the Global Multiple Award Contract strategy are two of the primary tools utilized to examine the correlation of pricing, competition, and performance in task order awards for overseas port visits across all platforms and port visit locations of U.S. Navy ships over the past 5 years. The authors have determined, based on the quantitative analysis, that it would be of great interest for Navy leadership to examine the data and findings within to better manage costs, improve audit compliance, and enhance warfighter operational readiness in the great power competition. The authors have concluded that the Global Multiple Award Contract has resulted in significant costs savings due to increased competition compared to the previous Multiple Award Contracts, with the exception of a small group of port locations outlined in this research paper.				
<b>14. SUBJECT TERMS</b> husbanding service provider, HSP, off-ship bill pay, OSBP, multiple award contract, MAC, Husbanding Service Portal, HSPortal, Request for Task Order Proposal, RTOP, Logistics Requirement, LOGREQ			<b>15. NUMBER OF PAGES</b> 83	
			<b>16. PRICE CODE</b>	
<b>17. SECURITY CLASSIFICATION OF REPORT</b> Unclassified	<b>18. SECURITY CLASSIFICATION OF THIS PAGE</b> Unclassified	<b>19. SECURITY CLASSIFICATION OF ABSTRACT</b> Unclassified	<b>20. LIMITATION OF ABSTRACT</b> UU	

THIS PAGE INTENTIONALLY LEFT BLANK

**Approved for public release. Distribution is unlimited.**

**NAVY GLOBAL MULTI-AWARD CONTRACT: EFFECTS OF  
COMPETITION ON PRICING OF PORT VISITS**

Ryan J. Cahill, Lieutenant Commander, United States Navy  
Francisco J. Degollado, Lieutenant Commander, United States Navy  
Bryan H. Ortiz, Lieutenant Commander, United States Navy

Submitted in partial fulfillment of the  
requirements for the degree of

**MASTER OF BUSINESS ADMINISTRATION**

from the

**NAVAL POSTGRADUATE SCHOOL  
June 2022**

Approved by: Robert F. Mortlock  
Advisor

Geraldo Ferrer  
Co-Advisor

Margaret M. Hauser  
Second Reader

Bryan J. Hudgens  
Academic Associate, Department of Defense Management

Rene G. Rendon  
Academic Associate, Department of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

# **NAVY GLOBAL MULTI-AWARD CONTRACT: EFFECTS OF COMPETITION ON PRICING OF PORT VISITS**

## **ABSTRACT**

The Navy acquisition community has made significant strides in modernizing policies and contracting vehicles to better support U.S. warships and personnel with husbanding services both at home and abroad. Although much has been done to mitigate risks, reduce inefficiencies, and improve lag times in service provided, serious setbacks have occurred and continue to occur. This research investigates some potential shortfalls in the husbanding service provider process and provides recommendations for improvement and cost savings. The Husbanding Service Portal and the Global Multiple Award Contract strategy are two of the primary tools utilized to examine the correlation of pricing, competition, and performance in task order awards for overseas port visits across all platforms and port visit locations of U.S. Navy ships over the past 5 years. The authors have determined, based on the quantitative analysis, that it would be of great interest for Navy leadership to examine the data and findings within to better manage costs, improve audit compliance, and enhance warfighter operational readiness in the great power competition. The authors have concluded that the Global Multiple Award Contract has resulted in significant costs savings due to increased competition compared to the previous Multiple Award Contracts, with the exception of a small group of port locations outlined in this research paper.

THIS PAGE INTENTIONALLY LEFT BLANK

# TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>A.</b>	<b>PURPOSE.....</b>	<b>2</b>
<b>B.</b>	<b>SCOPE AND LIMITATIONS.....</b>	<b>3</b>
<b>C.</b>	<b>THESIS ORGANIZATION.....</b>	<b>4</b>
<b>II.</b>	<b>BACKGROUND.....</b>	<b>5</b>
<b>A.</b>	<b>U.S. NAVY GUIDING POLICY AND BUSINESS BEST PRACTICES.....</b>	<b>6</b>
<b>B.</b>	<b>U.S. NAVY PRE-GMAC ENVIRONMENT AND TRANSITION TO GLOBAL HSP MAC.....</b>	<b>8</b>
<b>C.</b>	<b>LOGREQ PROCEDURES AND CONTRACT EXECUTION.....</b>	<b>8</b>
<b>D.</b>	<b>OSBP AND HSPORTAL REPOSITORY.....</b>	<b>9</b>
<b>E.</b>	<b>CONTRACTING KNOWLEDGE AND END-USER EDUCATION.....</b>	<b>11</b>
<b>F.</b>	<b>HSP GOVERNANCE AND AUDITS.....</b>	<b>12</b>
<b>G.</b>	<b>FUTURE OUTLOOK AND POTENTIAL ROADBLOCKS.....</b>	<b>13</b>
<b>III.</b>	<b>LITERATURE REVIEW.....</b>	<b>15</b>
<b>A.</b>	<b>HSP RESEARCH, COGNITIVISM, AND CONSTRUCTIVISM APPROACH.....</b>	<b>15</b>
<b>B.</b>	<b>TRANSPARENCY AND AUDIT REVIEWS IN HSP PROGRAMS.....</b>	<b>17</b>
<b>C.</b>	<b>SUMMARY.....</b>	<b>18</b>
<b>IV.</b>	<b>DATA AND METHODOLOGY.....</b>	<b>19</b>
<b>A.</b>	<b>IMPACT OF NUMBER OF OFFERORS ON TASK ORDER COST.....</b>	<b>19</b>
<b>1.</b>	<b>Source of Data.....</b>	<b>19</b>
<b>2.</b>	<b>Data Sample.....</b>	<b>19</b>
<b>3.</b>	<b>Data Scrubbing.....</b>	<b>21</b>
<b>4.</b>	<b>Cross-Tabulation.....</b>	<b>22</b>
<b>B.</b>	<b>COMPARISON OF ELINS ACROSS FLEETS AND EFFECT OF GMAC ON PRICING.....</b>	<b>23</b>
<b>1.</b>	<b>Source of Data.....</b>	<b>23</b>
<b>2.</b>	<b>Data Sample.....</b>	<b>23</b>
<b>3.</b>	<b>Data Scrubbing.....</b>	<b>23</b>
<b>4.</b>	<b>Cross-Tabulation.....</b>	<b>24</b>

<b>V.</b>	<b>DATA ANALYSIS AND RESULTS .....</b>	<b>25</b>
<b>A.</b>	<b>TREND IN AVERAGE DAILY COSTS IN AN INCREASINGLY COMPETITIVE ENVIRONMENT .....</b>	<b>25</b>
<b>B.</b>	<b>TRENDS IN AVERAGE DAILY COST BY LOCATION.....</b>	<b>33</b>
<b>C.</b>	<b>TRENDS IN AVERAGE DAILY COST BY SHIP TYPE.....</b>	<b>38</b>
<b>D.</b>	<b>TRENDS IN AVERAGE DAILY COST AND PERFORMANCE BY VENDOR.....</b>	<b>44</b>
<b>E.</b>	<b>ELIN COST ANALYSIS BY FLEET AND LOCATION .....</b>	<b>48</b>
<b>VI.</b>	<b>CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>55</b>
	<b>LIST OF REFERENCES.....</b>	<b>59</b>
	<b>INITIAL DISTRIBUTION LIST .....</b>	<b>61</b>

## LIST OF FIGURES

Figure 1.	Map of U.S. Military Bases Abroad. Source: United States National Geospatial-Intelligence Agency (2005). .....	4
Figure 2.	Section 809 Panel’s Roadmap to Success. Source: Defense Technical Information Center (n.d.). .....	6
Figure 3.	Map of U.S. Military Bases Abroad. Source: Vine (2020).....	7
Figure 4.	U.S. Navy-Wide LOGREQ Flowchart. Source: NAVSUP (2021). .....	9
Figure 5.	OSBP Process Flow. Source: Office of the Chief of Naval Operations (2020). .....	10
Figure 6.	HSP Governance. Source: OPNAV (2020). .....	12
Figure 7.	The Section 809 Panel’s Vision of Today’s and Tomorrow’s Defense Acquisition System. Source: DTIC (n.d.).....	14
Figure 8.	Average Daily Cost versus Average Number of Offerors (October 1, 2016–January 24, 2022).....	26
Figure 9.	Map of Strategic High-Price Ports in 7th Fleet Modified from Public Sources. Source: Apte and Morgan (2021).....	38

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF TABLES

Table 1.	Summary and Description of Required Data Elements .....	20
Table 2.	Ship Classes and Descriptions of Ship Types (Gage et al., 2021).....	21
Table 3.	Correlation among Average Daily Cost to Number of Offerors Received by Fleet (December 1, 2020–January 24, 2022) .....	28
Table 4.	Summary of Lowest Price Ports by Fleet (October 1, 2016–January 24, 2022) .....	31
Table 5.	Summary of Highest Price Ports by Fleet (October 1, 2016-January 24,2022) .....	32
Table 6.	Summary of Most Frequented Ports (December 1, 2020–January 24, 2022) .....	33
Table 7.	Average Daily Costs Versus Average Number of Offers by Ship Type (October 1, 2016–January 24, 2022) .....	40
Table 8.	Average Daily Costs versus Average Number of Offers by Ship Type, GMAC Only (December 1, 2020–January 24, 2022).....	42
Table 9.	Vendor Comparison Across Fleets (October 1, 2016–January 24, 2022) .....	45
Table 10.	Number of Port Visits with Their Quality Performance Ratings per Vendor (October 1, 2018–January 24, 2022).....	48
Table 11.	Comparison of ELINs Across Fleets (August 15, 2022–February 15, 2022) .....	50
Table 12.	Comparison of ELINs in Regional and Global MAC.....	54

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF ACRONYMS AND ABBREVIATIONS

AOR	area of responsibility
BSF	brief stop for fuel
BSP	brief stop for personnel
CNO	Chief of Naval Operations
COR	Contracting Officer's Representative
DAU	Defense Acquisition University
DFAS	Defense Financial Accounting Service
DOD	Department of Defense
DON	Department of the Navy
ELIN	exhibit line-item number
FAR	Federal Acquisition Regulation
FIAR	Financial Improvement and Audit Readiness
FLC	Fleet Logistics Center
FP	force protection
FY	fiscal year
GAO	Government Accountability Office
GDMA	Glenn Defense Marine Asia
GFE	government furnished equipment
GMAC	global multiple award contract
HSP	husbanding service provider
IDIQ	Indefinite Delivery Indefinite Quantity
KO	contracting officer
LOGREQ	Logistics Requirement
MAC	multiple award contract
MLS	Multinational Logistics Services
MSC	Military Sealift Command
NATO	North Atlantic Treaty Organization
NAVSUP	Naval Supply Systems Command
NPS	Naval Postgraduate School
OPNAV	Office of the Chief of Naval Operations

OSBP	off-ship bill pay
PVST	port visit
QASP	Quality Assurance Surveillance Plan
RTOP	Request for Task Order Proposal
SAC	Single Award Contract
SECNAV	Secretary of the Navy
TYCOM	Type Commander
WAWF	Wide Area Workflow

## EXECUTIVE SUMMARY

As the U.S. military continues to strive for a clear advantage against its adversaries in the greater power competition, few would argue the relevance of and necessity for maintaining a safe and secure supply chain. Military strategists continue to debate the type of war that will be fought in the next decade or two; yet, regardless of the type of war, strategy implemented, or technology available, all options will require the movement of U.S. troops from one location of the globe to another. Several resources are available to support sustained operations. The husbanding service providers and global multiple award contracts (GMACs) enable the U.S. Navy fleet to conduct sustained operations effectively and efficiently at sea. The strategic impact that these contracts have cannot be overstated—both in their enabling and enhancing of foreign policies and on their overall cost to the Department of Defense (DOD) and the U.S. taxpayer.

The demand and strain on the U.S. supply chain to conduct those operations could not be supported entirely by internal or domestic means. As a result of this ever-growing demand, the United States exercised its ability to delegate additional support to defense contracting firms and organizations that can provide those resources to deploying platforms and personnel when visiting strategic ports or cities across the world. A *husbanding service provider* is an agent or company under contract to provide U.S. warships, units, and personnel with additional provisions, security, force protection equipment, fuel, tools, repairs, parts, taxi services, and more. These service contracts are highly lucrative and sought after: the cost for a U.S. warship stay in a foreign port can range anywhere from \$15,000 to over \$100,000 per day (Gage et al., 2021).

This amount of money has attracted unscrupulous companies and individuals over the years, looking not only to take advantage of the profits that can be made but also to defraud the U.S. government by inflating costs, price gouging, and exercising monopolistic characteristics. None of these are more infamous than the Leonard Francis (also known as “Fat Leonard”)–Glenn Defense Marine Asia scandal. In short, an ongoing investigation of more than 9 years’ duration exposed corruption and bribery among senior officials, resulting in 33 federal indictments, 22 guilty pleas, and evidence that Leonard’s company

had overcharged the U.S. to support port visits by Navy warships by \$35 million (LaGrone, 2019). As a result, the Navy Inspector General conducted an audit to identify issues, mitigate risks, and provide recommendations that led to a much-needed modernization and implementation of new procedures in the contracting of goods and services. Some of the new tools and vehicles used for procurement were off-ship bill pay (OSBP) and the multiple award contract (MAC) in 2015.

Although several efforts were put in place to help prevent crimes such as the Glenn Defense Marine Asia scandal from occurring again, history would repeat itself. The most recent corruption case involving bribes and corruption centered on Frank Rafaraci and his company Multinational Logistics Services. Results of the investigation, which surfaced in the summer of 2021, allege that Rafaraci and others have overcharged the Navy by at least \$50 million since 2013 (Whitlock, 2021). Bribes akin to the Fat Leonard scandal were also paid and given to Navy officials in exchange for favorable outcomes and awards.

This analysis delves deeply into the recently executed GMAC and compares factors like cost, platform ship, vendor performance, and competition to determine overall cost savings effectiveness and identify any areas for improvement. Data visualizations support effective practices and highlight areas for potential improvement. Upon conclusion, the authors have determined that the GMAC and associated changes have worked successfully: increased competition has led to the reduction of costs across the primary OSBP 5th, 6th, and 7th Fleets. The data show significant increases in the average number of offerors and a direct correlation to a decrease in average daily cost as a result. Utilizing cross-tabulation methodology, the authors have found that by all metrics of a port visit (whether it be by location as a whole or a specific platform ship), there have been significant cost savings since the execution of the GMAC compared to its preceding regional MACs. However, the data do not substantiate decreased costs with increased competition for all port locations under the GMAC. These unique ports require further cost reduction measures beyond competition if the government is to see cost savings in these frequently visited ports. In closing, it would be beneficial to have policies and contracting methods updated to account for specific ports with insignificant competition to mitigate the risk of corruption and fraud.

## References

- Gage, A. W., Escobar, L. C., & Sturgis Jr., B. R. (2021). Husbanding service provider price analysis factors [MBA professional project, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/67717>
- LaGrone, S. (2019, January 24). *Paying the price: The hidden cost of the “Fat Leonard” investigation*. USNI News. <https://news.usni.org/2019/01/24/paying-price-hiddencost-fat-leonard-investigation>
- Whitlock, C. (2021, October 3). U.S. Navy hit by another international bribery scandal. *Washington Post*. [https://www.washingtonpost.com/investigations/navy-bribery-scandal/2021/10/03/d5181302-245e-11ec-8d53-67cfb452aa60\\_story.html](https://www.washingtonpost.com/investigations/navy-bribery-scandal/2021/10/03/d5181302-245e-11ec-8d53-67cfb452aa60_story.html)

THIS PAGE INTENTIONALLY LEFT BLANK

## ACKNOWLEDGMENTS

The researchers would like to thank:

- Jennifer Lee, Contracting Officer at NAVSUP FLC Sigonella, for help providing the data.
- Sean Harold, Contracting Officer at NAVSUP FLC Sigonella, for help providing the data and providing expertise on port visit locations in 6th Fleet.
- Dr. Ferrer, Dr. Mortlock, and Dr. Hauser, our thesis advisors for their guidance and support.
- Our sponsors, Naval Supply Systems Command (NAVSUP) and the Acquisition Research Program (ARP), for their support.
- Our family and loved ones, who supported us along the journey.

THIS PAGE INTENTIONALLY LEFT BLANK

## I. INTRODUCTION

Over the past decade, the U.S. Navy has transitioned from single award to regional multiple award contracts (MACs) for port services for its ships, due in large part to major scandals involving Glenn Defense Marine Asia (GDMA) and Multinational Logistics Service (MLS) contractors (Whitlock, 2021). On December 31, 2019, the Navy awarded a global multiple award contract (GMAC) to various qualified vendors in an effort to standardize its port visit processes for all ships and all regions, as well as realize cost savings from competition. Throughout these transitions, the Navy developed and fielded more robust data collection systems, which facilitate transparency in the acquisition process for all parties within the government and with the contractors. At the same time, budget constraints, competition with the private sector, and uncertainty in ship schedules have forced the government and its industry partners to become more efficient despite limited resources. A complete process review to investigate the impact that these factors have on the cost and quality of husbanding service provider (HSP) services has not been completed; doing so could potentially result in process improvements that would increase efficiencies (Naval Audit Service, 2019). The purpose of this research is to examine trends in competition for task order awards and pricing.

The HSP environment has changed drastically since 2015 with the implementation of off-ship bill pay (OSBP) and the MAC strategy. The process requires many key users, validators, and approvers that need to be present for audit preparation and integrity (Rendon & Rendon, 2015). However, there is no clear data on how the total port visits costs are affected by the number of offerors in a Request for Task Order Proposal (RTOP) and if the services being provided meet performance standards for the cost of award (Woods, 2018). A comparative analysis is necessary to assess which port visit locations in which fleets carry more burdensome daily costs to the government.

Additional analysis and methodologies could lead to even more process improvement, scheduling efficiency, cost savings, and higher quality service port visits for U.S. Navy ships (Grennan & McCrory, 2016). As it stands now in the OSBP husbanding program, there is a knowledge gap in examining the correlation of pricing, competition,

and performance in task order awards for overseas port visits across all platforms of U.S. Navy ships over the past 5 years. A comparative analysis identifies the most cost-effective ports, trends in the effectiveness of competition in certain ports and with specific platform ships, and highest and lowest performing contractors (Naval Supply Systems Command [NAVSUP], 2021).

The data for this project were extracted from the Husbanding Service Portal (HSPortal) and customer feedback mechanisms to evaluate the impact the port visit location and number of offerors competing on the award have on the price and performance of various HSP agents. This project provides a more streamlined, audit ready, and automated process for reducing cost and constraints that would make U.S. forces more effective.

#### **A. PURPOSE**

The purpose of this research is to examine trends in competition for task order awards and pricing. Over the last 5 years, the U.S. Navy has transitioned from regional MACs to a GMAC to standardize the port visit contract process from Logistics Requirement (LOGREQ) to task order closeout and realize cost savings from competition. The authors' methodology includes examining pricing, competition, and performance in task order awards for overseas port visits across all platforms of U.S. Navy ships since the execution of the regional MAC on October 1, 2015. This methodology includes the GMAC that was executed on December 31, 2019, and cost comparison of port visit data between the MACs.

A complete process review to investigate the impact the cumbersome process has on the cost and quality of HSP services has not been completed and could potentially result in process improvements. Specifically, this project explores the impact of competition and contractor performance on the overall cost of the port visit across 5th, 6th, and 7th fleets, examining major trends for each ship platform that impact higher or lower costs in specific locations. The fundamental questions addressed by the researchers were the following:

1. Has there been a decrease in average daily cost for port visits across all fleets since the implementation of the GMAC in December 2020?

2. Does increased competition lead to decreased prices for port visits across all fleets under the past regional MAC compared to the current GMAC?
3. What fleets are the most competitive, do they have the lowest prices, and do these trends apply across all ship types?
4. What vendors receive the largest market share of awards across all fleets, and do their performances warrant their market share and average daily cost in this competitive environment?
5. What exhibit line-item numbers (ELINs) are driving up overall port visit prices within each fleet and at what specific port locations?

## **B. SCOPE AND LIMITATIONS**

This study aims to compare how the total port visits' costs are affected by the number of offerors in an RTOP and if the services being provided meet performance standards for the cost of award using historical HSP data since the Regional MAC's implementation in Fiscal Year (FY) 2016 (October 1, 2015–September 30, 2016). All the relevant metrics for this analysis were obtained from the HSPortal website. The information gathered was limited to the U.S. Navy 5th, 6th, and 7th fleets' area of responsibility (AOR) covering FY2016 through FY2022 for services rendered by multiple HSP vendors. Figure 1 displays the geographic combatant commands, their respective AORs, and where U.S. Navy assets and personnel operate.



Figure 1. Map of U.S. Military Bases Abroad. Source: United States National Geospatial-Intelligence Agency (2005).

In this study, as is common practice, the researchers did not specify specific vendors to refrain from the unlawful distribution of information. This study is available to propagate the findings or results and impart with others in the contracting community without curtailment.

### C. THESIS ORGANIZATION

The chapters contained within this thesis are arranged as follows: Chapter II provides background information on the environment and culture leading up to the implementation of the GMAC, processes utilized to enact services, and what will likely be the standard moving forward. Chapter III introduces summaries extrapolated from relevant sources and texts. Chapter IV outlines the data, framework, and figures used to conduct the analysis. Chapter V provides the evaluation and explanations of the discoveries obtained by the researchers. Finally, Chapter VI provides resolution and recommendations for further research.

## **II. BACKGROUND**

One of the primary concerns across the Department of Defense (DOD) is ensuring that funds allocated to the respective military services are issued, tracked, and spent in accordance with the rules and regulations set forth by law. Furthermore, the U.S. Navy is entrusted to ensure those monies are spent for the programs, missions, and personnel for which they were intended while reporting these expenditures to the comptrollers and up the chain of command. Eventually, FY data are collected and disseminated back to senior naval leadership, including the chief of naval operations (CNO) and Secretary of the Navy (SECNAV), where the data are then reviewed and published so that Congress can determine if fiscal objectives were met and desirable outcomes were obtained.

As a result of some of those figures, the DOD was tasked to provide guidance and proposals which could alter the direction of the defense acquisition system to better meet the risks and requirements of the future by improving processes and recommending cost saving initiatives (DTIC, n.d.). This effort came in the form of an advisory panel known as Section 809, which brought together experts in acquisition and procurement with various backgrounds and experiences from both public and private industries. After a thorough multiyear review (from August 2016 to July 2019) and analysis of the then status quo, the panel released a final report in three volumes and a roadmap which forwarded 98 recommendations around four founding principles (DTIC, n.d.). Figure 2 shows the four founding principles and associated initiatives contained within.

**THE SECTION 809 PANEL'S ROADMAP TO SUCCESS**  
Recommendations to Revolutionize How DoD Conducts Business

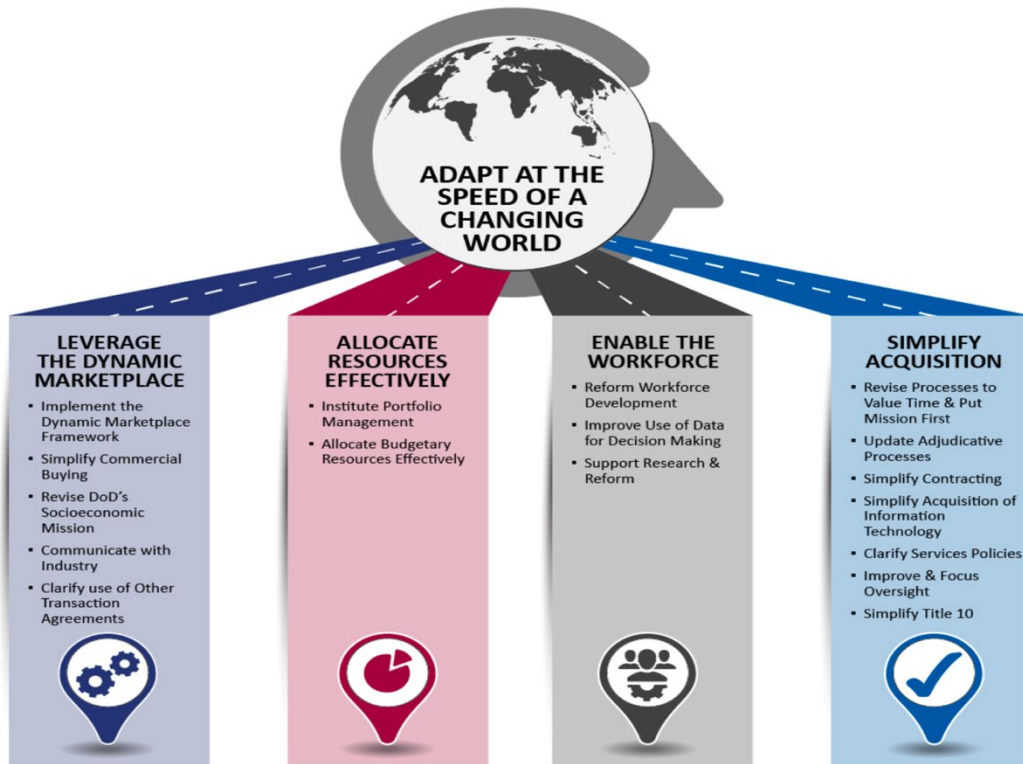


Figure 2. Section 809 Panel's Roadmap to Success. Source: Defense Technical Information Center (n.d.).

The Section 809 Panel stated that these are the four fundamental pillars the U.S. Navy needs to reach its strategic goal to improve existing resource utilization, expand workforce knowledge, and maximize productivity. This provides the background to understand onboard initiatives taken by the Office of the Chief of Naval Operations (OPNAV) and the Navy Supply Systems Command (NAVSUP) for services contracting, specifically the HSP program policy. The following subcategories provide key insights to better understand the data and metrics contained within this research paper.

**A. U.S. NAVY GUIDING POLICY AND BUSINESS BEST PRACTICES**

The U.S. Navy relies on a network of organic, host nation, and contractor-provided support to conduct port visits (PVSTs) around the world. Commercial HSPs are contractors

who deliver logistic requirements such as force protection, water tugs, waste removal, fuel, provisions, electricity, phone lines, and transportation to a visiting ship and its crew. They are an integral part of the supply chain to U.S. naval forces within territorial waters and more importantly when operating outside of the continental United States. They provide the “extended reach capabilities” necessary for naval forces when conducting training and real-world operations, allowing the U.S. Navy to conduct security operations, assure allies and partners, refuel, rearm, and maintain operational capabilities where otherwise organic methods do not exist or have extended deliveries to the end user. Figure 3 is provided to give a visual perspective; established nations that can be accessed from a major body of water and have operational ports will likely have some HSPs with limited or full capabilities.

### U.S. Military Bases Abroad, 2020

In 2020, the United States controlled around 800 bases outside the 50 U.S. states and Washington, DC. Map reflects bases' relative number and positioning given best available data. For ease of comparison we use contemporary borders and a Mercator projection.

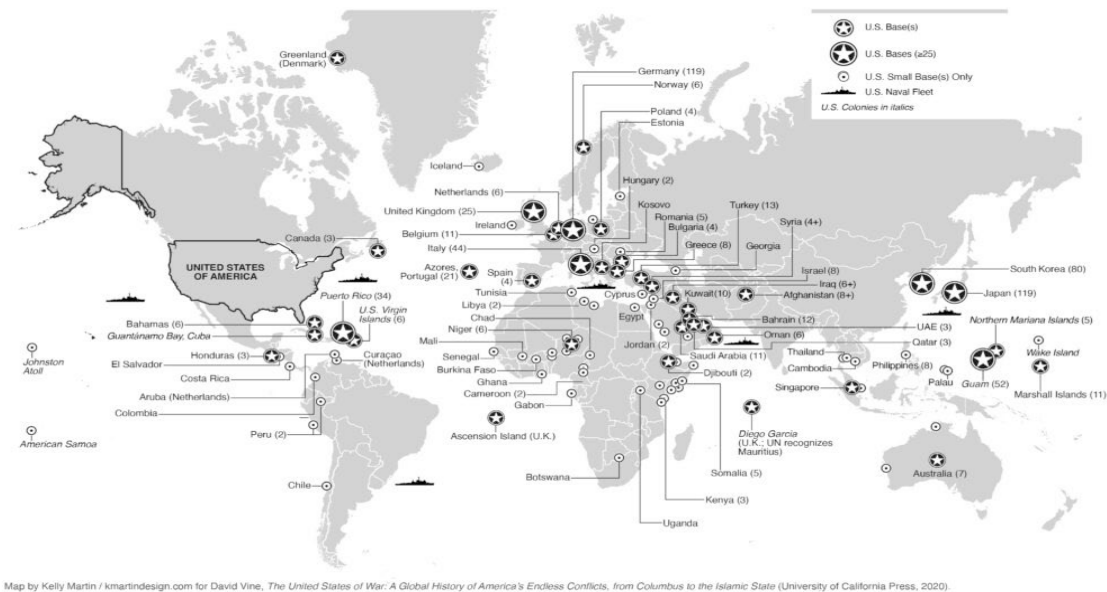


Figure 3. Map of U.S. Military Bases Abroad. Source: Vine (2020).

This is significant when one factors in that the U.S. Navy spent approximately \$172 million on port visits in FY2021 alone (NAVSUP, 2021). This number has increased incrementally over the last 5 years and reflects the demands of the Global War on Terror

and the continued rise of our adversaries for greater power competition. The U.S. Navy's overarching guidance and best business practices are derived from the OPNAV Instruction 4400.11A, dated June 26, 2020. The U.S. Navy utilizes this instruction as a standard to perform husbanding services "in a controlled, consistent, and well-documented manner" and aims to "utilize internal controls and end-to-end business processes to prevent fraud, waste, and abuse" (OPNAVINST 4400.11A).

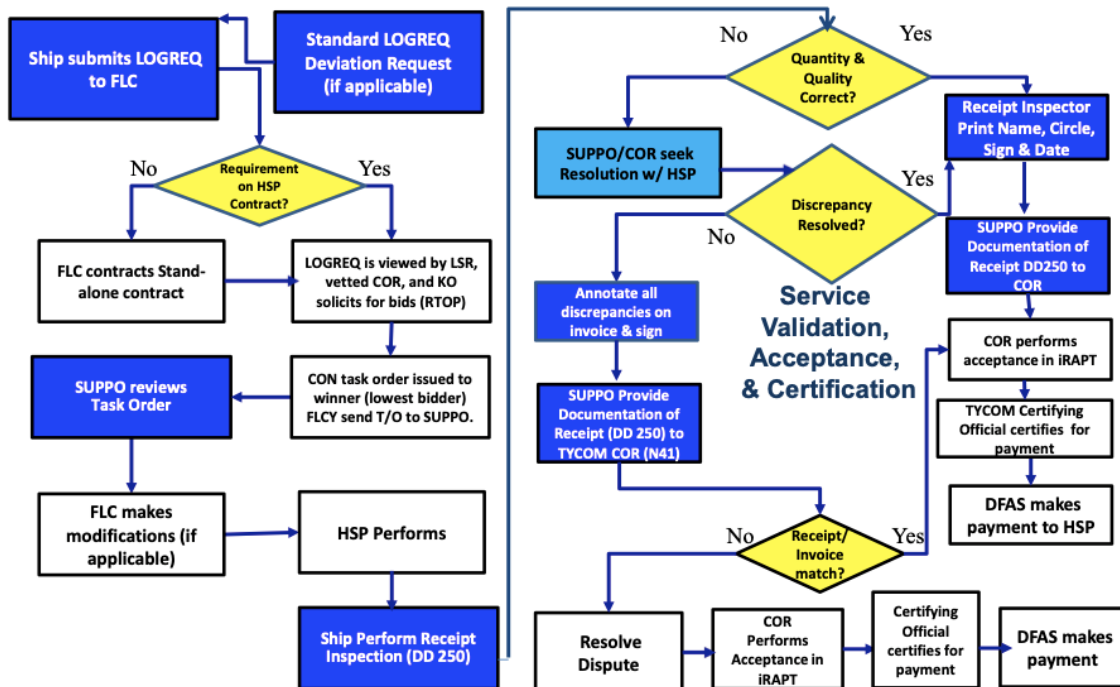
## **B. U.S. NAVY PRE-GMAC ENVIRONMENT AND TRANSITION TO GLOBAL HSP MAC**

Prior to 2015, contracts for port visits were established utilizing a single award contract (SAC). Utilizing the SAC involved negotiating every single port visit where ships had to reimburse vendors for services rendered by issuing U.S. Treasury checks with very little to no oversight. After 2015, the U.S. Navy shifted to a new husbanding service acquisition strategy known as the multiple award contract (MAC) Indefinite Delivery Indefinite Quantity (IDIQ). Subsequently, NAVSUP Fleet Logistics Center (FLC) Sigonella, Italy, awarded to various qualified vendors a worldwide husbanding services contract on December 31, 2019, to begin on October 2, 2020, with a total ceiling value of \$2.1 billion (Naval Supply Systems Command Fleet Logistics Center Sigonella, 2019). NAVSUP has since executed and monitored the HSP GMAC through a network of eight fleet logistics centers in Norfolk, VA; Jacksonville, FL; San Diego, CA; Puget Sound, WA; Pearl Harbor, HI; Yokosuka, Japan; Manama, Bahrain; and Sigonella, Italy, thereby bringing the United States to the present and proposed future modus operandi (Naval Supply Systems Command Fleet Logistics Center Sigonella, 2019)

## **C. LOGREQ PROCEDURES AND CONTRACT EXECUTION**

The current method to request services for a forward deployed vessel primarily begins 30 days prior to a port visit. An official naval message known as the LOGREQ is utilized to request services, parts, and provisions as required for the port that will be utilized for the PVST. Detailed information is provided to include the number of days on site, quantities of requested services, and costs associated with the proposed visit. The lead logistician onboard, the supply officer, coordinates the requests from key personnel

onboard and reviews the task order for accuracy and compliance with regulations as set forth in OPNAVINST 4400.11A. Once screened and approved by the afloat commander, the request is forwarded to the nearest FLC Contracting Department (Code 200) for final review and execution. Finally, upon receipt of goods and services, the logistics team onboard counts inventories, reviews invoices for accuracy, completes a ship's port visit checklist, and turns in material inspection and receiving reports (DD Form 250) for accountability and audit compliance. Figure 4 provides a flowchart that represents the workflow process for LOGREQs and mandated criteria.



Note: SUPPO means supply officer, COR means contracting officer representative.

Figure 4. U.S. Navy-Wide LOGREQ Flowchart.  
Source: NAVSUP (2021).

#### D. OSBP AND HSPORTAL REPOSITORY

Once the preliminary outline has been established on how goods and services are requested and obtained for PVSTs, the next linear progression determines how exactly those requests are funded. As previously mentioned, due to the numerous controversies

associated with ships and personnel paying invoices at port visits via U.S. Treasury checks with limited oversight, the U.S. Navy opted to utilize OSBP as the preferred method of payment for HSPs and vendors in 2016. This was a two-prong approach in that its desired end state was to (1) move financial accountability from the ships to the respective regional FLC Code 200 shops and (2) move payments from large cash deposits and treasury checks to direct deposits paid from the Defense Financial Accounting Service (DFAS) directly to the HSP. Along with this measure, documents utilized in the request—order forms, invoices, and the DD Form 250s—were uploaded to the Wide Area Workflow (WAWF) website with the intention of leaving a digital paper trail that could be reviewed and audited. Figure 5 provides a flowchart that follows the OSBP workflow and criteria.

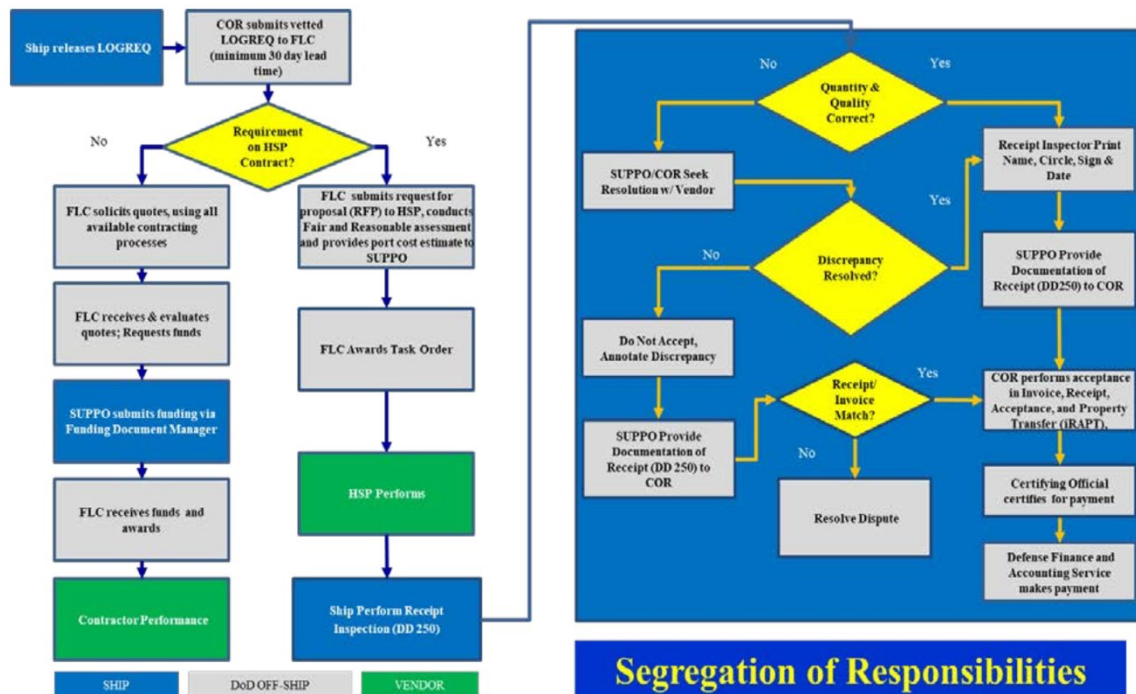


Figure 5. OSBP Process Flow. Source: Office of the Chief of Naval Operations (2020).

NAVSUP also implemented the utilization of the HSPortal (a comprehensive database repository of HSP information aggregated from multiple sources) in addition to documentation on the WAWF website. The database contains information for all PVSTs

utilizing husbanding contracts since FY2010. The type of information available to shipboard supply officers includes historical data on prior PVST history, points of contact for FLCs, HSPs' contact information, husbanding contracts by region, global LOGREQ templates, and all relevant guidance, directives, and training associated with obtaining services for successful PVSTs.

#### **E. CONTRACTING KNOWLEDGE AND END-USER EDUCATION**

If uncertainty remained or there was any ambiguity in the means of executing HSP services, there are numerous resources available to prepare, educate, and enable personnel to execute these services across various spectrums. Namely, each type commander (TYCOM) has been mandated to ensure all units are adequately trained in OSBP procedures and are prepared to execute a PVST and properly utilize HSP contracts, both CONUS and OCONUS. Additionally, receipt inspectors are designated in writing by the commanding officer or Military Sealift Command (MSC) comptroller, as appropriate, and must ensure supply officers and receipt inspectors receive formal training prior to deployment. Supply officers and receipt inspectors must receive formal HSP-specific training prior to deployment including ethics training and guidelines regarding interactions with prohibited sources. Finally, all TYCOMs issue routine updated standard operating procedures; ensure all of their units maintain and execute a Fleet Internal Audit Readiness (FIAR)-compliant OSBP PVST execution process that follows the procedures found in OPNAV and fleet instructions; and include the HSP program in their TYCOM supply management certification criteria. Aside from OPNAVINST 4400.11A, several pre-deployment briefs provide quick reference slides, refresher training, and key points of contact should special circumstances arise. In conjunction with the mandates and protocols mentioned, personnel can further their knowledge domain by referencing the Federal Acquisition Regulation (FAR) under FAR Part 16 for IDIQ intricacies, visiting the Defense Acquisition University (DAU) online for contracting officer's representative (COR) initial and refresher training, along with utilizing the *Department of Defense Contracting Officer's Representatives Guidebook*, published in May 2021.

## F. HSP GOVERNANCE AND AUDITS

As with most government contracts, they are only as effective as the people who understand them, enforce them, and provide feedback as to what is working effectively and where there is still room for improvement. Specifically, this feedback is applied and enacted via the HSP governance structure, which is responsible for reviewing, validating, and overseeing compliance with all HSP policy, procedures, and business processes. The HSP governance structure receives reports on audit findings, reviews and assesses OPNAV N09G and HSP inspection plans, and approves inspection and audit closure responses. The senior member of the HSP governing structure, OPNAV N41, annually briefs the CNO N4 and informs the Department of the Navy (DON) Senior Management Council. The HSP governance construct consists of the HSP Board of Directors, HSP Audit Committee, and HSP Working Group (see Figure 6).

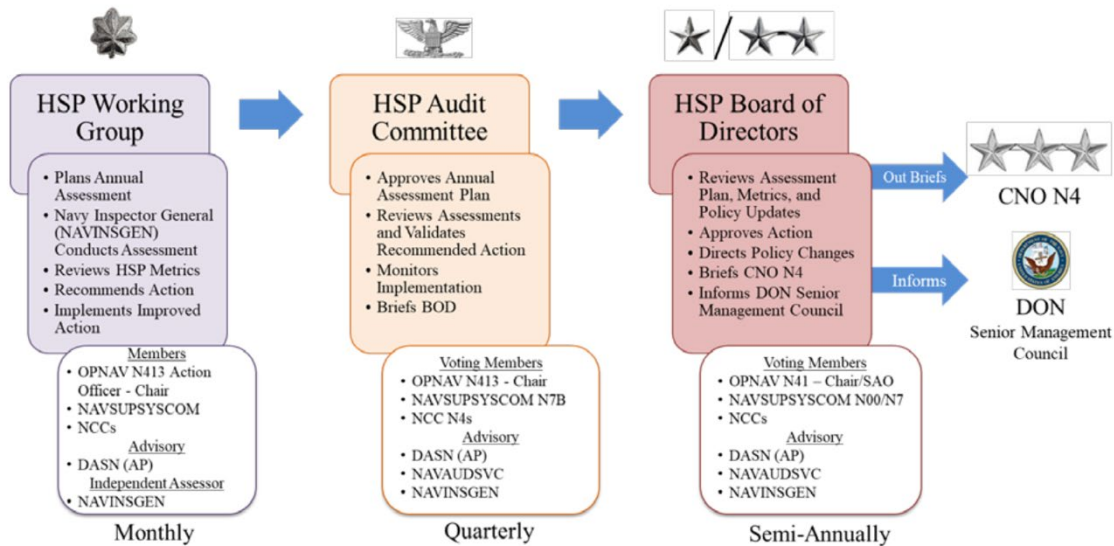


Figure 6. HSP Governance. Source: OPNAV (2020).

In addition to the annual brief provided to senior naval leadership, another useful tool to aide in transparency and effectiveness in this program is via inspections and audits. One of the most impactful audits conducted for this endeavor was the Naval Audit Service report conducted in 2019 at the behest of the SECNAV (Naval Audit Service, 2019). The

audit found several deficiencies in auditability, oversight, and proper implementation. Specifically identified weaknesses were found in “requirement generation and approval, task order award and modification, surveillance and receipt/acceptance, and invoicing and payment” (Naval Audit Service, 2019). Therefore, the U.S. Navy’s HSP program lacked much to be desired and was simply not up to standards in accordance with the guidelines and instructions set forth in the inspection. Most of the shortfalls came as a result of commands not having provided adequate amount of training, internal oversight, and ample written instructions to ensure the U.S. Navy’s HSP program was in compliance with existing rules and regulations. Although much was left to be desired, the audit did find paths to meet compliance and made 25 recommendations to address weaknesses found. Implementation of those recommendations has since taken place and improvements were found, but the final verdict is not out and will require a follow-on Naval Audit Service report to delve into the effectiveness of implementation and compliance across the board.

#### **G. FUTURE OUTLOOK AND POTENTIAL ROADBLOCKS**

Despite best efforts, training, and implementation of industry best practices, the U.S. Navy has still succumbed to embarrassing setbacks and further controversies as it relates to husbanding services contracts around the world. Whenever naval forces are deployed around the world, the need to supply those forces along with the costs and all the risks associated with operating in foreign ports must be assessed. Should another major conflict arise with the necessity to get troops from the United States to any given destination as quickly as possible, how much emphasis would or should be placed on making sure that documents, procedures, and cost metrics are completed in a timely fashion and in a fiscally conservative manner? How many redundancies exist to avoid any setbacks or mishaps, should a cyber warfare attack come from any adversaries? A level of autonomy and decentralized command is necessary to execute and win the major battles of the future.

Figure 7 displays Section 809 Panel’s vision for transforming defense acquisition. Avoiding complacency, raising standards, and emphasizing a proactive vice reactive approach is the way forward, and initiatives like the GMAC are leading the way.

## The Section 809 Panel's Vision for Transforming Defense Acquisition

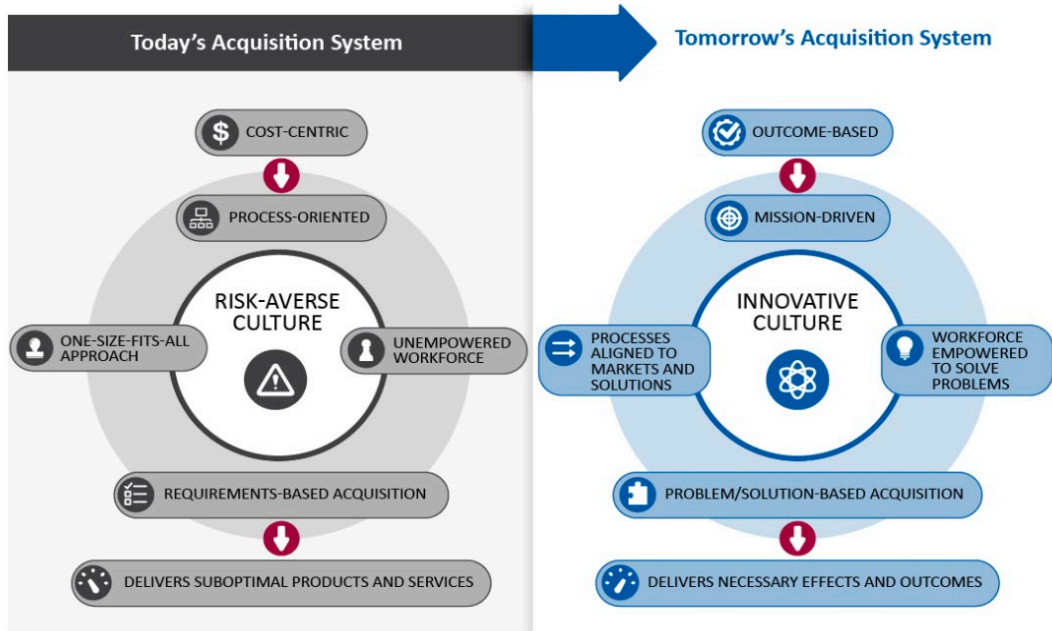


Figure 7. The Section 809 Panel's Vision of Today's and Tomorrow's Defense Acquisition System. Source: DTIC (n.d.).

### III. LITERATURE REVIEW

Operating overseas and in foreign lands is not a new phenomenon to the U.S. Navy or its personnel. Although much success and goodwill has been established from events like the Great White Fleet to the liberation of Europe in World War II, many scandals and shortcomings have still occurred despite the overwhelming percentage of successes that occur on a routine basis.

In reviewing the literature related to GMAC, HSPs, and IDIQ contracts, the researchers drew data and information from various sources: SECNAV-directed audits by the Naval Audit Service, OPNAV instructions, the FAR, Government Accountability Office (GAO) reports, NAVSUP directives, various academic and news articles, and Naval Postgraduate School (NPS) thesis reports with information relative to the establishment of the GMAC and HSP policy.

#### A. HSP RESEARCH, COGNITIVISM, AND CONSTRUCTIVISM APPROACH

Collaborative efforts led to the review of some recent NPS reports, which the researchers expand upon here, utilizing both cognitivism (learning from acquiring, storing, and retrieving information) as well as constructivism (where learning is a process of building an understanding based on past real-world experiences and present inputs). The NPS report, titled *Analysis of the Multiple Award Contracting Strategy on U.S. Government Husbanding Service Provider (HSP) Prices*, was published in 2020 (Kiengsiri et al., 2020). The research focused primarily on the comparison of the MAC to the SAC IDIQ. The premise of the research was to ascertain if HPS prices under a SAC and MAC were noteworthy and then to prognosticate the MACs relative effect on price. Kiengsiri et al. went on to conduct a “quantitative analysis of the measurable effects of the MAC strategy on price within the HSP program” (2020, p. xvii) The results from the primary regression model showed that, “using a 95% confidence interval, the MAC reduced prices for port services by 14.8% to 20.6% using their preferred method” (Kiengsiri et al., 2020, p. xviii). Ultimately, the study arrived at the conclusion that prices for regular services

under a MAC type of contract had a tendency of being less expensive than a SAC and thus warranted being the more fiscally preferred contracting vehicle for services abroad.

Although the work of Kiengsiri et al. (2020) provided very practical data with regards to the contrast in price differences between the two previous HSP contracting vehicles, they were limited in the scope of sample utilized as it only covered separate and independent analysis which spanned a three-year timeframe, from October 2016 to August 2019. Additionally, the results of the study's model did not apply invariably to all forms of IDIQ contracts. Some key differences in metrics were not addressed, a disparity arose in the types of services rendered as well as in the specific ports being utilized to administer those services. There was, per their study's own omission, "enough randomness and variation in the data collected that it would be inappropriate to base a conclusion on which ports provided the best value to the government based on the port-specific results" (Kiengsiri et al., 2020, p. 69).

Secondly, a review was given to *Husbanding Service Provider Price Analysis Factors*, which was published in 2021 (Gage et al., 2021). The data and analysis provided was dedicated primarily to the impacts of short-notice PVSTs (PVSTs conducted under the 30-day notification normally required by policy) to determine if such occurrences drove costs higher for port visits, as HSPs tended to have reduced reaction times to adjust prior to entrance. Additionally, the authors examined the effect on cost of ports "with competitive environments versus those with noncompetitive environments" (Gage et al., 2021, p. xv). The study's analysis concluded that port visits, which occurred in a relatively expeditious manner and required LOGREQ submissions with a quick turnaround, had little monetary influence on husbanding services awarded. Furthermore, after examining the price figures, the researchers deduced that "competition has affected husbanding contract costs and that the U.S. Navy should expect to have higher contract costs in locations where there is only one monopolist providing husbanding contracts" (Gage et al., 2021, p. xvi).

Although the work of Gage et al. (2021) provided in-depth data and metrics on short-notice PVSTs, competition, and lead times, the scope of their analysis was limited in its consideration for actions or policies to improve environments where competition is lacking. It did not include data from the GMAC. Also, their analysis on competition was

based on an estimate of number of offerors vice real data from the actual solicitations under the MAC. Further research was required to conduct a deeper analysis into ports that experience higher prices even though competition exists, mainly due to limited resources or underdeveloped infrastructure. Additionally, data was insufficient to determine whether a contractor sacrificed quality in the event of a short-notice port visit; in essence, if the HSP price gouged to win a contract while providing subpar service.

## **B. TRANSPARENCY AND AUDIT REVIEWS IN HSP PROGRAMS**

Programs in the DOD tend to prosper or wither away depending on how effective they are in solving a problem or increasing efficiencies and effectiveness. The HSP policy and GMAC are no exception. After the initial fallout from the Fat Leonard-GDMA scandal, the U.S. Navy was forced to take a hard look into its then standard operating procedures and determine a better path forward. As a result, the Naval Audit Service Report N2014-0048, was conducted to pinpoint the vulnerabilities in the husbanding contract process and what internal review procedures can be implemented to mitigate these weaknesses (Naval Audit Service, 2019). The initial audit led to several recommendations to be implemented and a follow-on Naval Audit Service Report N2019-0013 (Naval Audit Service, 2019), which verified that HSP programs were functioning successfully and were in strict compliance with DON mandates and guidelines. Additionally, it provided transparency and progress on previously agreed to corrective actions from the 2014 report, identifying remediation efforts and issues that were since rectified while also highlighting areas where significant improvement was still required.

The final audit found that even though the U.S. Navy took considerable actions to prevent shortfalls and implement corrective actions to improve deficiencies, serious inner control deficiencies persisted within the U.S. Navy HSP program. With over 4 years of directed efforts, the HSP program still failed to meet satisfactory audit conditions. Twenty-five recommendations were given to correct those shortfalls and improve the overall efficiency, effectiveness, and oversight of the program. To date, most of those recommendations either have been completed or are pending completion.

## **C. SUMMARY**

The literature reviewed and referenced within is useful in obtaining a greater understanding of the U.S. Navy's husbanding service policy, process, and procedures. The historical background given also provides an understanding of the struggles involved in running a highly effective and efficient program that is paramount to the successful deployment of U.S. Navy assets around the world. Moreover, the use of existing resources, audits, and personal experiences are being utilized in a never-ending effort to expand users' knowledge base, reduce discrepancies, and hold high ethical standards while improving the stewardship of public funds. Despite several shortcomings and identified areas for improvement, the U.S. Navy has and will continue to endeavor to improve policies by collecting feedback, analyzing data, implementing changes, and educating the force on new mandates to better posture the nation for future success.

## **IV. DATA AND METHODOLOGY**

This chapter covers the methodology of data aggregation, scrubbing, and analysis used to draw conclusions from the data. Utilizing HSPortal, the researchers were able to conduct a cost analysis to determine whether average daily costs has decreased with increased competition across all fleets since the implementation of the GMAC. Research methodology took into account critical factors such as ship type, vendor, the regional MAC, ELIN's, and port locations in their comparative analysis.

### **A. IMPACT OF NUMBER OF OFFERORS ON TASK ORDER COST**

It has widely been assumed both in public and private sectors that increasing competition lowers costs. The researchers assessed in this section what effect competition amongst HSP contractors has on the average daily costs of port visits. The scope of this data spanned 6 years, including 13 months under the most current contract vehicle, removing inconclusive data, and conducting an analysis on the remaining conclusive data to effectively validate relationships between the number of offerors and cost. Irrelevant elements are specified in the data scrubbing subparagraph within this section.

#### **1. Source of Data**

The HSPortal is an unclassified, online repository for global port visit data of U.S. Navy ships. All data used for this project were downloaded directly from HSPortal. Per HSPortal, the U.S. Navy conducted 7,624 port visits in the 5th, 6th, and 7th fleets from October 1, 2015, to January 24, 2022. The COR and NAVSUP FLC contracting officer (KO) supporting their respective fleets are responsible for accurate and timely submission of data elements, such as contract actions, cost, and number of offerors, in HSPortal. These data create the core for the price comparison between varying levels of competition for task order awards. The researchers analyzed and scrubbed the data for accuracy.

#### **2. Data Sample**

The first grouping of data had 7,624 port visits that occurred in the scope spanning six years. Using all available data from the "Port Visit" and "PV ELINs" tabs within

HSPortal, the researchers focused on the following for this analysis: event type, global contract region, fleet, daily cost, number of offerors, port visit ID, vendor, and ELIN. Prior to downloading port visit data from HSPortal, the researchers utilized the website’s following embedded filters to extract the most useful data set: for “FY” included only FY2016 to FY2022, for “Status” selected all port visits but those that were “Cancelled—Contract Action Not Required,” and for “Fleet” included only 5th, 6th, and 7th fleets. Each data element downloaded from HSPortal is described in Table 1 and presented similarly as in previous research, specifically in *Husbanding Service Provider Price Analysis Factors* (Gage et al., 2021).

Table 1. Summary and Description of Required Data Elements

DATA ELEMENT	DESCRIPTION
EVENT TYPE	Examples include normal visit, brief stop for personnel, dry dock, transit
CONTRACT REGION	Number assigned to a region where port is located
“FLEET”	“Numbered fleet where the port visit was executed”
DAILY COST	All-inclusive costs of husbanding services for port visit divided by duration
NO. OF OFFERORS	Number of contractors that submitted a proposal for a given solicitation
PORT VISIT ID	Unique number assigned to a scheduled or unscheduled port visit
VENDOR NUMBER	Number assigned to HSP contractor for purposes of anonymity
ELIN	Exhibit Line-Item Number corresponding to a specific HSP provided service

The researchers utilized common ship class groupings defined in previous research on this topic (Gage et al., 2021), shown in Table 2. A second sample was extracted, specifically for Quality Assurance Surveillance Plan (QASP) data, which contained 3,198 port visits for 5th, 6th, and 7th fleets executed over a 4-year period from October 1, 2017, to January 24, 2022.

Table 2. Ship Classes and Descriptions of Ship Types (Gage et al., 2021)

SHIP CLASS	DESCRIPTION OF SHIP TYPE
AMPHIB	Dock Landing Ship (LSD) Landing Platform/Dock (LPD)
CRUDES	Guided Missile Destroyer (DDG) Guided Missile Cruiser (CG)
LARGE DECK	Landing Helicopter Assault (LHA) Landing Helicopter Dock (LHD) Aircraft Carrier (CVN)
MSC SHIPS	Afloat Forward Staging Base (AFSB) Submarine Tender (T-AS) Command Ship (LCC) Hospital Ship (T-AH) Dry Cargo/Ammunition Ship (T-AKE) Underway Replenishment Oiler (T-AO) Fast Combat Support Vessel (T-AOE) Cable Laying/Repair (T-ARC) Rescue/Salvage Ship (T-ARS) Fleet Ocean Tugs (T-ATF) Expeditionary Fast Transport Vessel (T-EPF) Expeditionary Mobile Base (T-ESB)
SMALL CRAFT	Littoral Combat Ship (LCS)

What makes this project unique from previous research in this area is the availability of competition data, specifically the data element in HSPortal called “number of offerors.” Each time a port visit is solicited and awarded, this data element is recorded, and when aggregated across multiple years and locations, these data were analyzed for trends and correlations with “daily cost.” Unlike previous research, the “daily cost” data element is already calculated within HSPortal. These data elements served as the baseline data and were scrubbed utilizing the methodology described in the following section.

### 3. Data Scrubbing

Prior to conducting a thorough analysis on the raw data, inaccurate and incomplete datapoints were removed. This data scrubbing improved the extracted data sample’s quality without impacting its integrity, and increased confidence in the conclusions on the relationship between competition and price.

The focus of data scrubbing was to remove non-normal port visits. Specifically, the following event types were excluded: ammo/boat offload, brief stop for fuel (BSF), brief stop for personnel (BSP), dry dock, and transits. Offloads, BSF, BSP, and transits require only a few services from the contractor and typically completed in one day, which would not be a valid point to be averaged into normal port visits where the full suite of services were provided. These events qualify as non-normal port visits, and excluding them from the data set naturally removes the lowest-cost outliers. Dry dock events, on the other hand, are substantially longer in duration and require much more complex services. This type of event qualifies as abnormal, and excluding them from the dataset naturally removes the highest cost outliers. Using the “filter” function in Excel, the researchers deselected and excluded 754 (9.89%) of these events from the entire dataset of 7,624 port visits. The researchers analyzed the remaining 6,870 port visits.

#### **4. Cross-Tabulation**

The researchers analyzed the dataset in an Excel pivot table to identify any trends and correlations between competition and price. The first cross-tabulation model (Model 1), which incorporated seven data elements from Table 1, showed the average daily cost, average number of offerors, and count of port visit ID for each port per year as well as the aggregate totals. Event type, global contract region, and fleet were added as filterable fields, which allowed the researchers to conduct an analysis within different regions as well as globally. Analysis of the Model 1 yielded Tables 3, 5, 7, and 9 depicted in Chapter V.

Model 2 included one table and utilized the same data elements, but only included data from December 2020 to January 2022, which is the current period of performance for the global HSP MAC. Analysis of Model 2 yielded Tables 4, 6, and 8. The same filterable fields were used, this time with a focus on the current contract vehicle’s performance.

Model 3 included one table and utilized data elements of Vendor Number and their associated ratings. Analysis of Model 3 yielded Tables 10 and 11 and depicted count of each QASP rating for each vendor.

Model 4 included one table, which showed the ELIN and average daily cost data elements. Model 4 yielded Table 12, allowing the researchers to conduct a comparative analysis of various ELINs across fleets.

## **B. COMPARISON OF ELINS ACROSS FLEETS AND EFFECT OF GMAC ON PRICING**

Since the implementation of the GMAC in FY2021, services provided by HSPs have been standardized contractually, such as the unit of issue for volumetric services. In this section of the research, the researchers sought to identify the highest priced ELINs, conduct a comparative analysis across fleets, and validate whether increased competition and standardization under the GMAC has decreased prices as compared to services under the regional MACs in years prior.

### **1. Source of Data**

Similar to the “Impact of Number of Offerors on Task Order Cost” discussed in Section A, the researchers extracted data directly from HSPortal. These data create the core for the price comparison of ELINs across fleets and prior to and during GMAC execution.

### **2. Data Sample**

The sample included port visits that were executed over the 6-month period. The researchers utilized all available data from the “PV ELINs” tab within HSPortal but focused on the following for this analysis: fleet, daily cost, and ELIN. Based on findings identified in Chapter V, the researchers also extracted “Regional MAC” and “Global MAC” ELIN pricing data for specific ports.

### **3. Data Scrubbing**

No functional data scrubbing capabilities apply for Port Visit ELIN data available in HSPortal. Because the researchers analyzed specific ELINs that are common to normal port visits, data scrubbing utilized in Section A of this chapter was not applied.

#### **4. Cross-Tabulation**

Cross-tabulation Model 4 included one table, which showed the ELIN, fleet, and average daily cost data elements over the 6-month period. The researchers computed the difference between the fleet with highest priced ELIN and the fleet with the lowest price ELIN and titled the column “Max Diff.” This allowed the researchers to sort ELINs in descending order, which displayed the highest price ELINs with greatest variation between fleets at the top of the model, and also to conduct a comparative analysis across fleets. Analysis of Model 4 yielded Table 12, depicted in Chapter V.

## V. DATA ANALYSIS AND RESULTS

This chapter covers the researchers' analysis on port visit, vendor, and cost data.

### A. TREND IN AVERAGE DAILY COSTS IN AN INCREASINGLY COMPETITIVE ENVIRONMENT

Over the course of the U.S. Navy's HSP program, there has been a transition to more competitive contracts with increasing geographic scope in efforts to simultaneously realize cost savings and standardize the requirements processes across all U.S. Navy fleets. A graphical overview of this relationship is provided in Figure 8 derived from Model 1 (see Chapter IV), which shows the average daily cost by year versus the average number of offerors. Average daily cost by year is adjusted to real 2021 U.S. dollars using the Bureau of Labor and Statistics Consumer Price Index (<https://data.bls.gov/cgi-bin/cpicalc.pl>). Since the inception of the first regional MAC in 2016, overall daily costs have remained fairly constant despite significant gains in competition. Since the implementation of the GMAC, execution beginning December 2020, average daily costs overall have risen nearly 16% and the average number of offerors at the task order level overall have decreased nearly 30%. This inverse relationship between cost and competition is what the researchers expected, and this is typical in any industry, whether it be defense or private commercial sector. Over the long term, one of the aims of the GMAC would be to increase competition at the task order level and ultimately drive down costs, but unfortunately this has not been the case at least over the first 13 months of execution. The researchers hypothesize that the increased costs and decreased competition are not solely attributable to the transition to the GMAC; instead, they believe that economic factors resulting from the COVID-19 pandemic have negatively impacted HSP financial positions and supply chains, likely contributing to decreased competition and higher prices for services. From March 2020 through September 2020, prior to GMAC implementation and during first six months of COVID-19 pandemic, daily average cost decreased by 20% while average number of offerors decreased only 2% overall during this period. During this initial period during the COVID-19 pandemic, daily average costs had fallen drastically (down 43% from March to April 2020) as ships remained at sea (number of port visits per month down

40% during this time period) or required reduced services from HSPs when in port. The researchers believe that further research analyzing GMAC trends in costs and competition over a longer period would benefit the U.S. Navy in assessing the performance of this contract vehicle, and whether to adopt this strategy for future acquisitions in support of U.S. Navy port services.

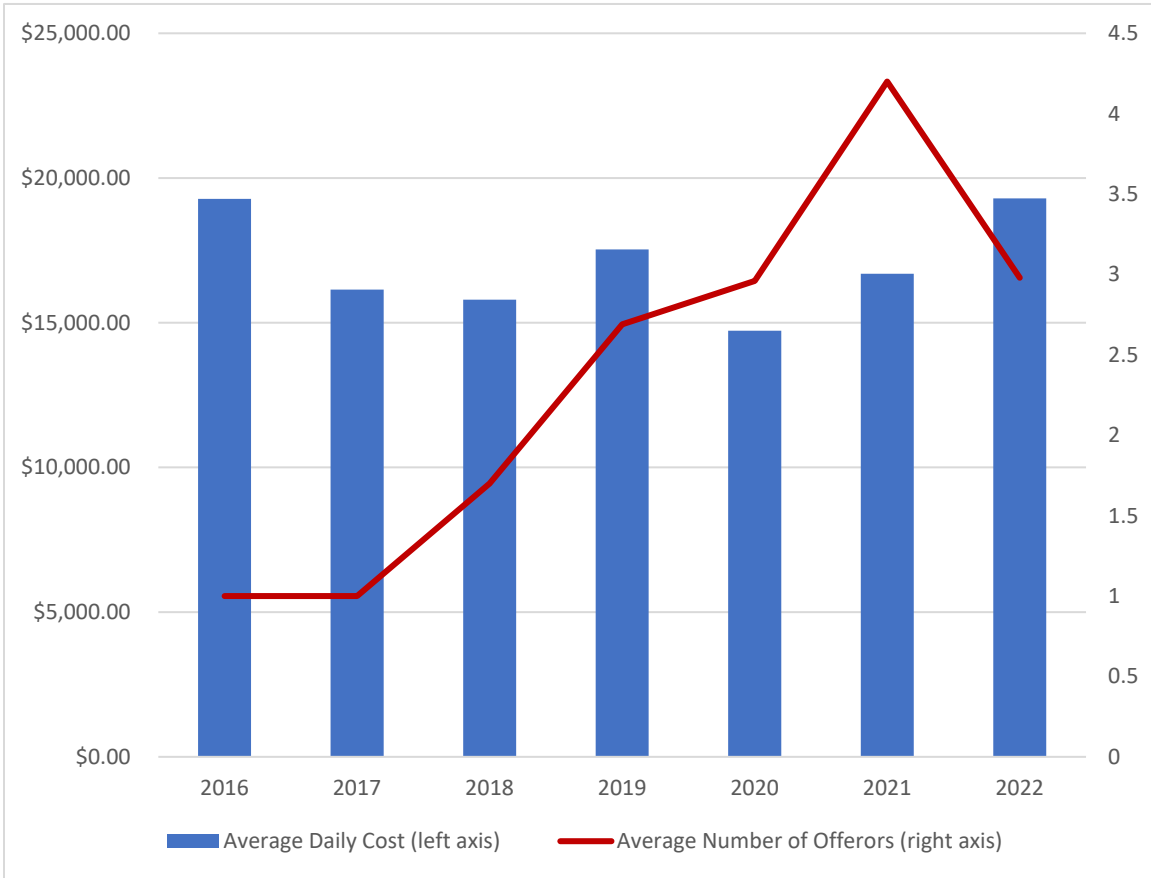


Figure 8. Average Daily Cost versus Average Number of Offerors (October 1, 2016–January 24, 2022)

Starting on December 1, 2020, the U.S. Navy began executing its first port visits under the GMAC. For the 13 months of execution, the correlations between average daily cost and number of offerors received are shown in Table 3 derived from model 2 (see Chapter IV). In the “Correlation” column of Table 3, conditional formatting is used to visually depict the relative strength in correlation data (lowest values indicated as darker

green gradient, highest values are white). Green is good, because it indicates a more negative correlation between cost and competition and supports the generally accepted fact that increased competition means relatively lower prices. White is the opposite. It indicates a more positive correlation between cost and competition, meaning increased competition actually means relatively higher prices or decreased competition means relatively lower prices. Correlation values were not calculated in Contract Regions 14 and 22, since each region included only one port and was not enough datapoints to generate a significant statistical analysis. Future research could cross-tabulate data by Port Visit ID vice Port Location to provide a more granular correlation.

Table 3. Correlation among Average Daily Cost to Number of Offerors Received by Fleet (December 1, 2020–January 24, 2022)

Fleet	Region No.	Location	Avg No.		Correlation
			Avg Daily Cost	Offerors	
5	10	Middle East	\$ 19,960	2.58	0.1779
5	11	Oman	\$ 25,150	2.39	0.5102
5	12	Bahrain	\$ 8,159	2.55	0.8430
5	13	UAE	\$ 14,666	2.83	-0.6314
5	Overall	All 5th Fleet	\$ 12,899	2.65	-0.0287
6	14	Djibouti	\$ 13,407	3.46	-
6	15	Africa	\$ 15,633	3.20	-0.0529
6	16	Greece	\$ 21,315	3.15	-0.2422
6	17	North Atlantic	\$ 16,371	3.30	0.0278
6	18	Western Mediterranean	\$ 20,448	3.20	-0.2229
6	19	Black Sea	\$ 18,345	3.07	-0.1530
6	20	Italy	\$ 17,000	3.50	0.2276
6	21	North Sea	\$ 12,514	3.07	0.1570
6	Overall	All 6th Fleet	\$ 17,158	3.23	-0.0740
7	22	China & Russia	\$ 57,523	2.50	-
7	23	Japan	\$ 12,357	3.06	-0.5648
7	24	South Korea	\$ 15,571	4.09	-0.5173
7	25	Singapore	\$ 11,559	4.96	-0.6825
7	26	Indian Ocean	\$ 25,114	5.55	0.0891
7	27	Oceania	\$ 48,929	3.83	-0.3499
7	28	Southeast Asia 1	\$ 22,379	3.88	-0.3933
7	29	Philippines	\$ 13,533	3.97	-0.8529
7	30	Southeast Asia 2	\$ 31,572	5.81	-0.3025
7	Overall	All 7th Fleet	\$ 17,323	4.04	-0.2510
		Overall	\$ 15,584	3.11	-0.0599

In 7th Fleet, there appears to be a strong negative correlation overall, except for Contract Region 26 (weak positive correlation). A negative correlation means that there is an inverse relationship between Average Daily Cost and Average Number of Offerors. This is an indication that the GMAC is effective in driving lower prices in the 7<sup>th</sup> Fleet. Due to the growing strategic importance of India for the 7th Fleet and the U.S. Indo-Pacific Command (USINDOPACOM), future research investigating the Region 26 correlation may prove fruitful in uncovering economic factors the KO can use to modify the contract to more favorable terms for the U.S. government.

In 6th Fleet, there appears to be no correlation overall, with Contract Regions 16 and 18 exhibiting a weak negative correlation. This is one indication that the GMAC is not meeting its goal of driving lower prices because of increased competition in this region. In 5th Fleet, there appears to be no correlation overall, with the exception of Contract Regions 11 and 12 (strong positive correlation) and 13 (strong negative correlation). Like in 6th Fleet, the GMAC is not meeting its goal since there is no relationship between the two variables. In contract regions where a strong, negative correlation exists, such as the United Arab Emirates, Japan, South Korea, Singapore, and the Philippines, the GMAC is driving lower prices with greater competition. In contract regions where this type of correlation does not exist, the government does not benefit from increased competition in the form of lower prices and instead carries the burden of additional contract administration. When HSPs do not have their own organic assets in port, HSPs compete against each other for a small pool of assets, which are owned by a few local suppliers. The suppliers have the negotiating power over the competing HSPs, who in turn lease the local assets at a higher price. Instead, the government should explore opportunities to reduce the number of contractors in these regions and develop long-term partnerships with HSPs so that they may invest in capital assets and improve port conditions that will in turn better serve the U.S. Navy and its allies. This type of investment in one or a few companies in strategic ports may have greater operational benefits than the cost savings gained by competition. In contract regions where there is a strong, positive correlation, such as Bahrain and Oman, the government should investigate the market forces because prices appear to be increasing with more competition, which is contrary to fundamental economics. One explanation could be an extremely competitive environment exists for limited assets, thereby driving up prices. HSPs could be colluding to drive up prices artificially.

Table 4 and 5, derived from Model 1 (see Chapter IV) depicts the lowest and highest priced ports, respectively, including a comparison of historical prices (2016–2020) and the current GMAC (2021–2022), as well as a comparison of the average number of offerors. Ports were included only when there were at least 10 port visits over the entire period and there were multiple port visits from 2019 to 2022. Since FY2018 (when data for number of offerors have become available), competition as measured by average number of

offerors has increased 75%. It is widely assumed that a more competitive environment generally drives prices lower, but in the case of HSP, prices overall have actually increased 22% (adjusted for inflation) since 2018. The overall increase in prices is driven by a small group of frequently visited ports, where increased competition has actually led to increased prices as evidenced by tables 4 and 5. Table 6 in the next section depicts where these ports rank among the most frequented ports.

Despite prices increasing on average overall, for the lowest priced ports, daily average cost decreased across all fleets with few exceptions, most notably Mina Salman in 5th Fleet (which increased 314%) and Tromso in 6th Fleet (which increased by 95%). This trend of falling prices also applies to half of the highest priced ports, and the remaining ports saw significant price increases, most notably Darwin (which increased 2,341%), Souda Bay (which increased 331%), and Townsville (which increased 100%). Outside of these exceptions, the significant reduction in prices in the ports of Mohammed Al Ahmad Naval Base (Ras Al Juliah), Jebel Ali, Plymouth, Faslane, Brest, Sembawang, Subic Bay, Chinhae, Sasebo, Eilat, Al Duqm, Marseilles, and Civitavecchia—despite rising inflation and economic impacts resulting from the COVID-19 pandemic—is an indication that the GMAC is an effective contract vehicle for the current environment, driving lower prices as a result of increased competition in most cases (the only exception being Marseilles, which has become less competitive). In all ports, competition or the number of offerors has increased with the implementation of the GMAC beginning in FY2021 in comparison to historical competition.

Table 4. Summary of Lowest Price Ports by Fleet  
(October 1, 2016–January 24, 2022)

Lowest Cost Ports By Fleet						
Port	Daily Cost			Avg No. Offerors		
	2016-2020	2021-2022	% Change	2016-2020	2021-2022	% Change
<b>5th Fleet</b>						
Mina Salman	\$2,479	\$10,266	314%	1.78	3.45	93%
Mohammed Al	\$4,364	\$1,800	-59%	1.64	4.25	160%
Jebel Ali	\$9,106	\$5,973	-34%	2.83	3.74	32%
Overall	\$12,809	\$17,037	33%	2.25	3.50	56%
<b>6th Fleet</b>						
Plymouth	\$4,471	\$3,795	-15%	2.14	2.44	14%
Faslane	\$5,675	\$2,362	-58%	2.36	3.40	44%
Brest	\$7,787	\$2,836	-64%	3.00	3.00	0%
Tromso	\$8,990	\$17,544	95%	3.00	3.60	20%
Overall	\$16,738	\$22,430	34%	2.66	3.58	35%
<b>7th Fleet</b>						
Sembawang	\$6,145	\$4,843	-21%	5.15	5.83	13%
Subic Bay	\$8,041	\$5,614	-30%	4.21	4.55	8%
Chinhae	\$8,982	\$4,883	-46%	3.14	6.27	99%
Sasebo	\$10,068	\$9,010	-11%	1.23	4.29	249%
Overall	\$18,956	\$23,960	26%	3.48	4.40	26%

Table 5. Summary of Highest Price Ports by Fleet  
(October 1, 2016-January 24,2022)

Most Expensive Ports by Fleet						
Port	Daily Cost			Avg No. Offerors		
	2016-2020	2021-2022	% Change	2016-2020	2021-2022	% Change
<b>5th Fleet</b>						
Eilat	\$51,378	\$38,205	-26%	3.00	3.56	19%
Al Duqm	\$36,803	\$24,252	-34%	2.27	3.03	34%
Haifa	\$33,861	\$32,236	-5%	3.00	4.00	33%
<b>Overall</b>	<b>\$12,809</b>	<b>\$17,037</b>	<b>33%</b>	<b>2.25</b>	<b>3.50</b>	<b>56%</b>
<b>6th Fleet</b>						
Marseilles	\$96,701	\$26,185	-73%	3.00	2.50	-17%
Civitavecchia	\$46,954	\$5,520	-88%	3.00	4.00	33%
Kiel	\$24,934	\$33,539	35%	3.00	6.00	100%
Souda Bay	\$10,532	\$45,369	331%	2.56	3.96	55%
<b>Overall</b>	<b>\$16,738</b>	<b>\$22,430</b>	<b>34%</b>	<b>2.66</b>	<b>3.58</b>	<b>35%</b>
<b>7th Fleet</b>						
Darwin	\$36,716	\$896,070	2341%	3.67	4.00	9%
Brisbane	\$57,105	\$64,011	12%	3.50	5.00	43%
Townsville	\$43,224	\$86,488	100%	3.56	5.50	55%
Cam Ranh Bay	\$25,891	\$45,890	77%	-	7.00	-
<b>Overall</b>	<b>\$18,956</b>	<b>\$23,960</b>	<b>26%</b>	<b>3.48</b>	<b>4.40</b>	<b>26%</b>

Overall, the U.S. Navy’s efforts to increase competition has increased the vendor pool significantly but has not increased the number of capital assets or service capacity where its ships conduct port visits. The increased competition over scarce assets, such as tugs, fenders, brows, and force protection (FP) equipment, may explain the increase in prices. Increased activity from the commercial ocean shipping and cruise ship industries could be contributing to an even more competitive environment. These market forces are likely at work in ports such as Souda Bay (438 port visits and 5th most frequented port), Kiel (32 port visits and 32nd most frequented port), and Townsville (21 port visits and tied for 48th most frequented port), where prices have skyrocketed in 2021–2022 (up 331%, 35%, and 100%, respectively) and vastly exceeded the current annual rate of inflation of 6.8%. These increases are occurring despite there being an increase in the number of offerors for the port location under the GMAC. The consumer price index increases in energy commodities such as gasoline and fuel oil (up 57.5%) and energy services such as electricity and piped gas service (up 10.7%) from November 2020 cannot explain

skyrocketing prices in these ports as they are not the typical cost drivers in a routine port visit. The cost drivers at these ports are primarily charter and hire services, which are discussed further in Section E of this chapter.

## B. TRENDS IN AVERAGE DAILY COST BY LOCATION

Table 6, derived from model 2 (see Chapter IV), compares daily average cost and the number of offers received of the most frequented ports visited after the implementation of the GMAC, where all ports have at least 10 port visits, with the most frequented port (Mina Salman) at the top. Including only frequently visited ports provided a more accurate comparison of the daily average cost with other factors such as number of offerors; the increased number of visits reduces the impact of extreme values meaning values are less likely to be skewed by a port visit with exceptional costs. Although each port is covered by roughly 10 HSPs, depending on the contract-region, the researchers observed varying price and competition trends.

Table 6. Summary of Most Frequented Ports  
(December 1, 2020–January 24, 2022)

Port	Avg. Daily Cost	Avg. No. Offers Received	Max. No. Offers Received	Min. No. Offers Received	No. Port Visits
Mina Salman	\$2,978	2.19	10	1	905
Jebel Ali	\$8,555	3.10	8	1	569
Khalifa Bin Salman Port	\$17,521	2.86	8	0	489
Sasebo	\$8,980	2.86	8	0	449
Souda Bay	\$19,553	3.28	8	1	438
Subic Bay	\$7,775	4.33	7	1	366
Fujairah	\$25,347	2.45	10	1	337
Djibouti	\$13,407	3.46	8	1	308
Sembawang	\$5,844	5.36	10	1	237
Augusta Bay	\$15,957	3.84	9	1	204
Yokosuka	\$12,073	3.45	11	1	199
Al Duqm	\$33,467	2.55	7	1	143
Faslane	\$5,078	3.00	7	1	116
Chinhae	\$8,401	4.69	12	1	108
Changi Naval Base	\$24,731	3.70	6	2	108
Tromso	\$8,397	3.19	5	2	93
Salalah	\$18,338	2.40	4	1	80

Port	Avg. Daily Cost	Avg. No. Offers Received	Max. No. Offers Received	Min. No. Offers Received	No. Port Visits
Muscat (Port Sultan Qaboos)	\$17,148	2.05	3	1	77
Pusan (Busan)	\$26,052	3.07	6	1	60
Haakensvern	\$20,051	3.38	6	1	60
Abu Dhabi	\$13,970	2.68	4	1	58
Port Victoria	\$8,563	3.38	4	2	56
Gaeta	\$16,704	3.59	6	2	54
Plymouth	\$4,237	2.29	3	1	52
Dardanelles -Bosporus	\$1,093	3.81	9	1	49
Piraeus	\$25,556	2.11	3	1	47
Danish Straits	\$4,644	3.67	6	2	43
Manila	\$52,637	2.38	5	1	41
Phuket	\$27,177	6.50	9	1	34
Aqaba (Port of Aqaba)	\$31,742	2.17	5	1	33
Sattahip	\$15,805	6.10	9	1	33
Kiel	\$24,974	3.67	6	2	32
Haifa	\$33,808	3.50	4	3	31
Sitra	\$11,736	3.00	3	3	31
Saipan	\$14,356	1.38	3	1	28
Doha	\$15,678	1.89	4	1	28
Lochstriven	\$11,618	3.09	4	2	28
Lisbon	\$31,082	3.43	5	3	28
Constanza	\$13,695	2.36	3	1	27
Brisbane	\$55,456	3.64	5	2	26
Mohammed Al Ahmad Naval Base (Ras Al Julia)	\$3,575	2.74	5	1	26
Puerto Princesa	\$31,397	2.33	3	1	26
Brest	\$7,485	3.00	3	3	25
Malaga	\$11,277	2.78	4	1	23
Odessa	\$12,280	3.17	5	1	23
Toulon	\$15,583	2.29	3	2	22
Hong Kong	\$58,642	2.50	4	2	22
Darwin	\$77,637	3.71	4	3	21
Yokohama	\$11,024	3.78	7	1	21
Townsville	\$45,286	3.91	6	2	21
Larnaca	\$20,004	2.83	3	2	21
Safaga	\$19,313	2.23	4	1	20
Laem Chabang	\$50,370	5.57	9	1	20
Portsmouth	\$33,263	3.33	4	3	20
Napoli (Naples)	\$34,098	3.20	4	2	19
Maura	\$19,518	5.00	7	1	19

Port	Avg. Daily Cost	Avg. No. Offers Received	Max. No. Offers Received	Min. No. Offers Received	No. Port Visits
Copenhagen	\$7,526				18
Sepangar	\$38,741	6.67	7	6	18
Eilat	\$49,851	3.50	5	3	17
Limassol	\$24,264	2.63	4	1	17
Split	\$16,408	3.50	4	3	16
Royal Jordanian Naval Base, Aqaba	\$27,516	3.93	8	1	15
Reykjavik	\$39,825	4.00	5	3	15
Palma de Mallorca	\$33,611	3.33	4	2	15
Hamad Port	\$17,181	3.47	5	2	15
Gibraltar	\$16,968	2.67	3	2	15
Varna	\$13,612	2.88	4	2	15
Ponta Delgada	\$15,093	3.50	4	3	15
Iwakuni	\$22,719	3.08	7	1	14
Rijeka	\$1,622	4.27	7	2	14
Batumi	\$21,962	2.71	7	1	13
Jeddah	\$30,590	2.36	4	1	13
Funchal	\$18,638	2.50	3	2	13
Colombo	\$27,794	3.00	3	3	13
Ominato	\$33,030	3.00	5	1	12
Agadir	\$25,051	3.78	5	3	12
Cam Ranh Bay	\$34,761	7.00	7	7	12
Suva	\$32,987	3.80	5	3	12
Marseille	\$73,195	2.60	4	2	12
NAVSTA Okinawa (White Beach)	\$16,543	2.83	5	1	12
Gwangyang	\$13,593				12
Gdynia	\$16,582	2.17	3	2	11
Majuro	\$23,352	5.00	7	3	11
Civitavecchia	\$38,666	3.67	5	3	10
Chuuk	\$28,172	2.00	2	2	10
Venice	\$11,739	2.00	3	1	10
Jakarta	\$29,097	6.00	6	6	10
Da Nang	\$123,833	4.00	7	3	10
Pohang	\$8,670	3.25	4	3	10
Kota Kinabalu	\$30,999	6.00	6	6	10
Aksaz	\$11,442	1.50	2	1	10
Pyeongtaek	\$23,099	4.00	4	4	10
<b>Aggregate Values</b>	<b>\$15,584</b>	<b>3.11</b>	<b>12</b>	<b>0</b>	<b>7616</b>

Of the most frequented ports, Doha and Saipan are the least competitive, where the average number of offerors is 1.89 and 1.38, respectively. Their daily average costs are significantly lower than other ports within that geographic fleet. For example, Doha's average daily price of \$15,678.48 is 7.97% lower than the average daily price of all 5th Fleet ports of \$17,036.83 within the same time period. Saipan's average daily price of \$14,356.04 is 40% lower than the average daily price of all 7th Fleet ports of \$23,960.30. At these two ports, since competition has remained very low, some other factor is likely driving lower prices, which requires further investigation that could aid in costs savings for other ports. In Hong Kong and Manila, where average number of offerors is approaching a duopoly, 2.50 and 2.38, respectively, price trends are polar opposites. In Hong Kong, prices have climbed each year and competition is stagnant. In Manila, prices have fallen despite declines in competition much like in Doha and Saipan. High-priced 7th Fleet ports, such as Laem Chabang (\$50,370.25, or 110% higher than the region), Sepangar (\$38,741.78, or 62% higher), and Cam Ranh Bay (\$34,761.57, or 45% higher) are highly competitive (the average number of offerors 5.57, 6.67, and 7.00, respectively). However, the researchers believe HSPs are competing over a scarcer pool of capital assets, which is likely driving up prices.

This trend of increasing prices with increasing competition also applies in other regions, such as the ports of Kiel, Tromso, Souda Bay, Darwin, Townsville, and Mina Salman. Because these ports are visited so frequently, the researchers recommend that the U.S. Navy conduct a cost-benefit analysis of implementing government furnished equipment (GFE) or a government-owned commercially operated program at these frequently visited higher priced ports. In addition to potential cost savings by owning capital assets, in the 7th Fleet ports mentioned above, the U.S. Navy could benefit from having a strategic resupply port that is just a short transit from the highly contested South China Sea where major maritime operations are expected to occur in a conflict between the People's Republic of China and the United States. Sepangar and Cam Ranh Bay (see ports labeled with purple stars in Figure 9) would make ideal resupply ports because their proximity to the South China Sea would enable swift resupply to naval forces, yet outside of the first island chain. Experts believe the ports within the first island chain are already

within striking distance of Chinese missiles, therefore should not be relied upon. (Petrinovic et al., 2019). Mature logistical support is already established in U.S. naval bases along the second island chains, including Guam and Yokosuka, but transit times to the South China Sea for resupply ships like the T-AKE would be nearly two weeks. The difference between transit times in ports such as Sepangar and Cam Ranh Bay versus Guam and Yokosuka could be the difference in winning a war.

In the 6th Fleet AOR, Kiel could serve as a strategic resupply port between the North and Baltic Seas that could support U.S. and allied forces in a conflict with Russia. Tromso could serve as a robust resupply port for ships transiting to and from the Arctic, where strategic importance is growing with the potential opening of a new sea route. Souda Bay and Mina Salman are already well-established strategic resupply ports supporting ships transiting to and operating in the 5th Fleet AOR. They could benefit from GFE programs to combat rising prices. Owning assets in these strategic ports provides the U.S. Navy operational flexibility in the event of short-fused port visits required in the area, since it would not need to compete with commercial vessels docking in these ports. This strategy could retain the benefits of the standardized port visit process under the GMAC and result in cost savings over leased capital assets provided by HSPs.



Figure 9. Map of Strategic High-Price Ports in 7th Fleet Modified from Public Sources. Source: Apte and Morgan (2021).

**C. TRENDS IN AVERAGE DAILY COST BY SHIP TYPE**

Table 7 derived from model 1 (see Chapter IV) provides a comparison of price, competition, and number of port visits per ship platform across 5th, 6th, and 7th fleets. Table 7 is sorted in descending order by the ship platform with the highest average daily cost at the top and conditional formatting for each ship platform, green indicating the lowest price and red indicating the highest price when comparing 5th, 6th, and 7th fleets. The table breaks down number of port visits by fleet showing that 5th Fleet ports were the most frequented: nearly 200 more visits than 6th Fleet ports and nearly 400 more than 7th Fleet ports. This is consistent with the U.S. Navy’s rotation of forces, maintaining a carrier strike group presence in 5th Fleet in support of Operation Inherent Resolve and Operation

Enduring Freedom. However, when patrol craft, which are exclusive to 5th Fleet, are removed from this analysis, the researchers found that 6th Fleet ports were the most frequented. This is noteworthy, because 6th Fleet ports are consistently more expensive, both historically over the past 5 years, and when examining only the GMAC, as depicted in Table 8 (derived from model 2, see Chapter IV), over the last year.

Table 7. Average Daily Costs Versus Average Number of Offers by Ship Type (October 1, 2016–January 24, 2022)

SHIP_TYPE	Avg. Daily Cost			Avg. No. Offerors			No. Visits			Overall Avg	Overall Avg.	Overall
	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet	Daily Cost	No. Offerors	Visits
CVN	\$ 146,127	\$ 225,330	\$ 165,136	1.62	2.60	3.00	15	11	18	\$ 173,704	2.31	44
LHD	\$ 48,242	\$ 92,935	\$ 48,554	3.12	2.75	2.75	30	9	12	\$ 56,202	3.03	51
LHA			\$ 48,401			3.88			9	\$ 48,401	3.88	9
T-AH			\$ 46,837						1	\$ 46,837		1
SSGN - OHIO	\$ 36,552	\$ 38,482		3.40	2.13		5	11		\$ 37,879	2.62	16
T-AOE	\$ 32,129	\$ 29,246		2.31	3.60		45	29		\$ 30,999	2.71	74
LPD	\$ 30,084	\$ 38,428	\$ 21,198	3.26	3.00	4.14	28	25	23	\$ 30,140	3.49	76
AS			\$ 30,069			3.73			19	\$ 30,069	3.73	19
LCC	\$ 27,264	\$ 25,766	\$ 46,502		3.66	3.40	1	55	14	\$ 29,935	3.62	70
LSD	\$ 30,266	\$ 29,314	\$ 21,710	2.55	3.60	3.94	31	13	27	\$ 26,838	3.11	71
SSN (VA)	\$ 68,919	\$ 17,207	\$ 16,171	1.50	3.04	4.00	4	35	1	\$ 22,352	2.86	40
DDG	\$ 16,257	\$ 16,636	\$ 33,684	2.62	3.03	3.84	175	270	70	\$ 18,824	2.93	515
T-ARC		\$ 20,106	\$ 14,068		2.50	1.00		6	2	\$ 18,596	2.13	8
CG	\$ 18,086	\$ 23,910	\$ 15,656	2.74	3.42	3.40	39	18	30	\$ 18,453	3.02	87
T-ESB	\$ 9,326	\$ 29,851	\$ 4,817	3.57	3.54	2.43	61	40	7	\$ 16,636	3.48	108
SSBN - OHIO	\$ 7,701	\$ 18,691		5.00	3.00		1	3		\$ 15,944	4.00	4
SSN (LA)	\$ 17,345	\$ 13,044	\$ 20,887	1.80	3.36	3.00	5	35	13	\$ 15,373	2.96	53
MCM	\$ 8,779	\$ 9,747	\$ 22,735	1.94	2.50	3.80	61	4	44	\$ 14,448	2.45	109
LCS			\$ 14,217			5.50			20	\$ 14,217	5.50	20
T-AKE	\$ 18,387	\$ 14,823	\$ 10,306	2.95	3.04	3.76	252	125	348	\$ 13,894	3.29	725
T-AO	\$ 16,927	\$ 13,542	\$ 8,643	2.95	3.47	4.09	180	162	178	\$ 13,037	3.41	520
T-EPF	\$ 4,035	\$ 10,658	\$ 7,683	2.84	3.16	4.49	75	308	112	\$ 8,981	3.36	495
SSN (SW)		\$ 5,151	\$ 13,694		3.50			4	1	\$ 6,859	3.50	5
T-ARS			\$ 6,538			3.80			30	\$ 6,538	3.80	30
T-ESB MILCREW	\$ 5,495	\$ 5,696	\$ 8,540	3.36	3.50	2.63	64	36	8	\$ 5,787	3.35	108
PC	\$ 5,027			2.17			254			\$ 5,027	2.17	254
MK VI	\$ 4,509		\$ 2,903	1.20			10		1	\$ 4,363	1.20	11
T-ATF	\$ 1,140			3.17			44			\$ 1,140	3.17	44
Aggregate Value	\$ 15,802	\$ 18,591	\$ 17,269	2.71	3.20	3.90	1380	1199	988	\$ 17,146	3.12	3567

When examining the average daily port visit costs and comparing average number of offerors against platform of ship, the regional MAC appears to be driving down the average daily port visits costs as intended. For example, the LSD platform ships had average daily port visit costs of \$30,266.11 (5th Fleet), \$29,313.51 (6th Fleet), and \$21,709.64 (7th Fleet). The average number of offerors solicited for LSD port visits in each fleet were 2.55 (5th Fleet), 3.60 (6th Fleet), and 3.94 (7th Fleet), respectively. The sample size of LSD port visits is 71 between the three fleets that the highest cost 5th Fleet had the lowest number of offerors, while the lowest cost 7th Fleet had the highest number of offerors.

This same correlation between average daily cost and competition can be observed with the SSN(VA) and T-AKE platform ships. The SSNs had average daily port visit costs of \$68,919 (5th Fleet), \$17,207 (6th Fleet), and \$16,170 (7th Fleet) in a sample of 40 total port visits. The average number of offerors solicited for SSN port visits in each fleet were 1.50 (5th Fleet), 3.04 (6th Fleet), and 4.00 (7th Fleet), respectively. With a massive 725 port visits, the largest of all platform sample sizes, the T-AKE ships had average daily port visit costs of \$18,387 (5th Fleet), \$14,823 (6th Fleet), and \$10,305 (7th Fleet). The average number of offerors solicited for T-AKE port visits in each fleet were 2.95 (5th Fleet), 3.04 (6th Fleet), and 3.76 (7th Fleet), respectively.

Table 8. Average Daily Costs versus Average Number of Offers by Ship Type, GMAC Only  
(December 1, 2020–January 24, 2022)

SHIP_TYPE	Avg. Daily Cost			Avg. No. Offerors			No. Visits			Overall Avg Daily Cost	Overall Avg. No. Offerors	Overall No. Port Visits	
	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet				
CVN	\$ 168,106	\$ 369,010	\$ 119,414	1.75	2.33	2.00	4	3	3	1	\$ 237,358	2.00	8
LHD	\$ 52,702	\$ 119,059	\$ -	4.33	2.67	3.00	9	3	1	\$ 63,961	3.85	13	
SSGN - OHIO	\$ 27,432	\$ 51,754		4.00	2.25		4	4		\$ 39,593	3.13	8	
T-AOE	\$ 29,900	\$ 36,490		3.78	3.73		9	17		\$ 34,208	3.75	26	
AS			\$ 32,443			1.83			6	\$ 32,443	1.83	6	
LHA			\$ 29,199			2.67			7	\$ 29,199	2.67	7	
LPD	\$ 32,273	\$ 32,146	\$ 5,648	3.40	3.25	4.13	20	4	8	\$ 25,601	3.56	32	
DDG	\$ 14,649	\$ 22,243	\$ 69,491	3.55	3.36	4.13	44	83	17	\$ 25,501	3.51	144	
LCC		\$ 24,611			4.27			15		\$ 24,611	4.27	15	
SSBN - OHIO	\$ 7,701	\$ 40,371		5.00	3.00		1	1		\$ 24,036	4.00	2	
SSN (VA)		\$ 23,134			3.33			16		\$ 23,134	3.33	16	
SSN (LA)		\$ 22,244	\$ 24,978		4.38	1.00		8	1	\$ 22,547	4.00	9	
LSD	\$ 26,742	\$ 26,988	\$ 4,222	3.17	3.75	4.14	12	4	7	\$ 19,931	3.57	23	
T-ESB	\$ 8,785	\$ 29,100	\$ 4,817	4.67	3.59	2.43	21	34	7	\$ 19,477	3.82	62	
T-ARC		\$ 18,170			2.25			4		\$ 18,170	2.25	4	
MCM	\$ 16,490	\$ 9,747	\$ 21,733	2.73	2.50	5.75	11	4	4	\$ 16,174	3.32	19	
T-AO	\$ 19,256	\$ 19,270	\$ 8,346	3.67	4.32	4.55	54	33	57	\$ 14,941	4.16	144	
CG	\$ 16,542	\$ 22,072	\$ 4,857	3.16	3.86	3.67	19	7	9	\$ 14,643	3.41	35	
T-AKE	\$ 16,074	\$ 20,857	\$ 10,646	3.40	3.24	4.88	104	34	94	\$ 14,576	3.97	232	
LCS			\$ 13,114			5.38			9	\$ 13,114	5.38	9	
T-EPF	\$ 3,855	\$ 12,102	\$ 6,227	2.93	3.67	4.48	14	117	25	\$ 10,420	3.72	156	
PC	\$ 8,052			2.84			89			\$ 8,052	2.84	89	
SSN (SW)		\$ 6,580			4.00			3		\$ 6,580	4.00	3	
T-ESB MILCREW	\$ 4,462	\$ 5,849	\$ 8,540	4.71	3.53	2.63	21	32	8	\$ 5,725	3.82	61	
T-ARS			\$ 4,114			5.50			6	\$ 4,114	5.50	6	
T-ATF	\$ 1,007			5.57			7			\$ 1,007	5.57	7	
Aggregate Value	\$ 16,721	\$ 22,430	\$ 14,259	3.47	3.58	4.40	443	426	267	\$ 18,283	3.72	1136	

Competition was clearly a cost-reduction factor for specific platform ships from the regional MAC. This trend has continued with the GMAC implementation as well. Once again, taking the largest sample size of total port visits for a specific platform, the T-AKE ships with 232 port visits, the average daily port visit costs were \$16,074 (5th Fleet), \$20,856 (6th Fleet), and \$10,646 (7th Fleet). The average number of offerors solicited for T-AKE port visits in each fleet were 3.40 (5th Fleet), 3.24 (6th Fleet), and 4.88 (7th Fleet), respectively. For the large LHD ships, the average daily cost from a sample of 12 port visits in just 5th and 6th Fleets were \$52,701 (5th Fleet) and \$119,058 (6th Fleet). The 5th Fleet had an average of 4.33 offerors compared to the 2.67 of 6th Fleet. The correlation between increased competition and reduced average daily port visits costs for specific platform ships is just as high for the GMAC.

When examining pricing for CVNs and LHDs, the U.S. Navy's largest ships, 5th and 7th Fleet port pricing pales in comparison to 6th Fleet. CVN port visits in 6th Fleet are 54% and 36% more expensive than 5th and 7th fleet ports, respectively. For LHDs, they are over 90% more expensive than 5th and 7th fleet ports. For both CVN and LHD port visits, competition in 6th Fleet was middle of the road when compared to 5th and 7th fleets. This trend is even more exceptional with much smaller ships, such as the T-EPF and T-ESB. T-EPF port visits in 6th Fleet are over 164% and 39% more expensive than 5th and 7th Fleet ports, respectively. T-ESB port visits in 6th Fleet are more than double in price over 5th Fleet ports and 5 times more expensive than 7th Fleet ports. The requirements and process have been standardized globally and across all platforms of ships since OSBP was implemented in 2016. Similarly, the procurement process was standardized with the GMAC in December 2020. Due to these improvements, researchers do not believe training or administration of these ship platforms to be a primary factor in determining why prices are much higher for these classes of ship.

The researchers believe economic factors at specific ports were primary causes of these exceptionally higher prices in 6th Fleet. For CVNs and LHDs, the most frequented port was Souda Bay. Consistent with findings from Table 5, daily costs climbed higher each year (\$79,904 in FY2017 to \$640,964 in FY2022 for CVNs, \$36,400 in FY2019 to \$173,316 in FY2021 for LHDs) and recommend further investigation in the market forces

at play in Souda Bay. One explanation could be that increased competition for scarce resources for capital assets are driving up prices and recommend the government consider a GFE program in this port for these assets. For T-EPFs, the most frequented port is Souda Bay, which follows the same trends found in CVNs and LHDs. For T-ESBs, the most frequented port is Djibouti and Souda Bay; however, pricing for this ship platform is falling nearly each year at both ports and does not require further investigation.

#### **D. TRENDS IN AVERAGE DAILY COST AND PERFORMANCE BY VENDOR**

Table 9 derived from model 1 (see Chapter IV) compares HSP pricing, competition faced, and number of port visits across 5th, 6th, and 7th Fleet ports with conditional formatting to indicate the highest and lowest prices (most competition in green, least competition in red, greatest number of port visits in green, and least port visits in red). These numbered vendors are based on actual contractor data. The researchers found that the distribution of task order awards is largely concentrated amongst the top three HSPs, who won nearly 73% of the 3,567 global port visits examined. 5th Fleet is dominated by Vendor 14 and Vendor 20, accounting for nearly 92% of port visits; 6th Fleet by Vendors 11, 14, and 20, accounting for nearly 94% of port visits; and 7th Fleet was well balanced amongst seven vendors. Of the 27 HSP contractors, 13 have received 10 or fewer task order awards over the past 5 years. Identifying the causes of task order bids may address this very low utilization rate amongst half of the contractors. One solution is to host an industry day for all contractors to determine if there are barriers to bidding with the current GMAC or any other issues that have precluded vendors from making competitive bids. Based on contractor inputs and the government's ability to respond, hosting events like an industry may improve competition at the task order level in future option years. Because of the sheer dominance of some of these HSPs, the government should investigate anticompetitive business practices that may be affecting other HSPs from submitting competitive bids, specifically Vendor 11, the most dominant HSP, winning nearly 45% of global task order awards. Its pricing is average and competition is below average (overall and specifically in 5th Fleet).

Table 9. Vendor Comparison Across Fleets (October 1, 2016–January 24, 2022)

Vendor No.	Avg. Daily Cost			Avg. No. Offerors			No. Port Visits			Overall Avg. Daily Cost	Overall Avg. No. Offerors	Overall No. Port Visits
	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet	5th Fleet	6th Fleet	7th Fleet			
1			\$ 13,946			1.50			14	\$ 13,946	1.50	14
2	\$ 9,151			2.92			39			\$ 9,151	2.92	39
3		\$ 48,147			3.00			3		\$ 48,147	3.00	3
4			\$ 17,641			5.50			23	\$ 17,641	5.50	23
5			\$ 12,466			2.08			210	\$ 12,466	2.08	210
6			\$ 9,866			2.75			4	\$ 9,866	2.75	4
7			\$ 59,082						3	\$ 59,082		3
8			\$ 53,604			3.76			42	\$ 53,604	3.76	42
9			\$ 29,443			5.00			2	\$ 29,443	5.00	2
10		\$ 4,317			4.40			5		\$ 4,317	4.40	5
11	\$ 16,598	\$ 19,852	\$ 2,955	3.12	3.00	6.50	30	330	10	\$ 19,131	3.05	370
12			\$ 5,280			5.00			7	\$ 5,280	5.00	7
13	\$ 15,194	\$ 27,766	\$ 13,710	3.25	3.74	4.44	34	48	62	\$ 18,746	3.89	144
14	\$ 16,250	\$ 17,901	\$ 16,093	2.46	3.22	4.56	1009	476	108	\$ 16,733	2.69	1593
15			\$ 9,071			4.10			80	\$ 9,071	4.10	80
16			\$ 11,316			4.39			199	\$ 11,316	4.39	199
17	\$ 9,708		\$ 73,598	7.00		4.09	1		22	\$ 70,820	4.33	23
18			\$ 5,620			5.43			10	\$ 5,620	5.43	10
19			\$ 8,805			3.60			5	\$ 8,805	3.60	5
20	\$ 15,490	\$ 17,964	\$ 13,285	3.48	3.18	5.17	254	315	68	\$ 16,478	3.52	637
21	\$ -	\$ -	\$ -				6	15	12	\$ -		33
22			\$ 48,847			4.00			2	\$ 48,847	4.00	2
23			\$ 18,126			3.00			3	\$ 18,126	3.00	3
24	\$ 26,830			2.50			2			\$ 26,830	2.50	2
25		\$ 12,416	\$ 23,656		5.33	3.77		3	97	\$ 23,318	3.83	100
26			\$ 117,190						3	\$ 117,190		3
27		\$ 3,678			3.67			3		\$ 3,678	3.67	3
<b>Aggregate Value</b>	<b>\$ 15,802</b>	<b>\$ 18,591</b>	<b>\$ 17,269</b>	<b>2.71</b>	<b>3.20</b>	<b>3.90</b>	<b>1380</b>	<b>1199</b>	<b>988</b>	<b>\$ 17,146</b>	<b>3.12</b>	<b>3567</b>

Table 10 derived from model 3 (see Chapter IV) provides a breakdown QASP for each of the contractors in 5th, 6th and 7th fleets during FY2021. The QASP is a breakdown of feedback giving by ships for the government to use in assessing vendor performance. The confidence levels rated by ships serve as past performance data for vendors. The QASP is continuously revised and reviewed as services are performed by the vendors. The percentages in the tables reflect the overall quantity of performance reviews that achieved a no confidence, limited confidence, satisfactory confidence, and substantial confidence rating. These performance reviews are assessed by the customers, who are the ship supply officers. The rating assigned to the contractor is determined by the quality of supplies and services for each line item of the contract, the timeliness of delivery, and the quality of communication and coordination between the ship and the contractor.

These performance reviews are crucial to the contractors in continuing to obtain government contract awards for future task orders in support of U.S. Navy warships visiting foreign countries. Past performance is a key determining factor in KOs' award when considering offerors after solicitation. Warships are on tight schedules and even tighter budgets. They can ill afford to experience any adversity from the contractors that could potentially negatively affect their overall mission. Adverse past performance can therefore essentially disqualify contractors in competitive environments from future contracts. At the very least, it would cause the contractor to have to lower their bid below what they would consider the market value of the port visit to compensate for their negative review and allow them to remain competitive with other offerors with positive QASP ratings. For example, Contractor 20 from Table 10 scored the lowest "no confidence" rating on a port visit due to tugs and pilots being late, which affected the ship's arrival and departure time, in addition to four overall "no confidence" rated port visits and 33 "limited confidence" rated port visits. Only 8% of their port visits obtained a "substantial confidence" rating with 19% of all total HSP contracts in 5th, 6th, and 7th fleets. With this record of mediocrity at best, they should see a decrease in their future offers for daily port costs totals to remain competitive if performance is a top evaluation parameter.

Frequently used contractors, such as Contractor 14 from Table 10, who had a "no confidence rating" as well as some of the highest daily port visit totals across multiple

fleets, will have to be assessed in future solicitations when considering the high costs they charged in return for poor service. In FY2021, their low rating on a port visit was due to poor Wi-Fi service for the crew and constant outages. This is a major priority for ships in foreign ports, as it impacts the crew's ability to communicate for military-related issues as well as overall ship morale. All contractors know this, so for this type of line item in the task order to be an issue, it can be perceived as a metric for how much the contractor prioritizes U.S. Navy concerns. Overall, Contractor 14 has had five total "no confidence" rated port visits and 42 "limited confidence," yet they obtained 40% of all awarded port visits contracts in 5th, 6th, and 7th fleets from FY2018 to FY2022. Only 13% of their total contracts awarded scored a "substantial confidence" from the ships. With this dominant share of government HSP contracts, above average performance is expected. These numbers indicate that this vendor is complacent in their ability to obtain government contracts.

Table 10. Number of Port Visits with Their Quality Performance Ratings per Vendor (October 1, 2018–January 24, 2022)

Vendor No.	Limited Confidence (low expectation)	No Confidence: No expectation for future performance	Satisfactory Confidence (reasonable expectation)	Substantial Confidence (high expectation)	Grand Total
1	1		10	2	13
2	3		26	9	38
3			6		6
4	3		12	2	17
5	3		160	24	187
6			13	8	21
7	1		1		2
8			34	9	43
9			1	1	2
10	1		7		8
11	12	6	346	32	396
12			7		7
13	7	2	118	14	141
14	42	5	1067	164	1278
15	1		79	20	100
16	2		142	18	162
17			14	5	19
18			9	1	10
19	2		7		9
20	33	4	525	48	610
21			1		1
22	1		1		2
23			3		3
24			1	1	2
25			93	21	114
26			1	2	3
27	1		3		4
<b>Grand Total</b>	<b>113</b>	<b>17</b>	<b>2687</b>	<b>381</b>	<b>3198</b>

**E. ELIN COST ANALYSIS BY FLEET AND LOCATION**

Table 11 derived from model 4 (see Chapter IV) compares the top 25 most expensive ELINs across 5th, 6th, and 7th fleets, sorted in descending order from the most expensive, Fleet Landing, with conditional formatting, which indicates the fleet where the ELIN is most expensive. ELINS are common line items that are found for each task order executed under the GMAC. The last column in Table 12, “Max Diff,” is sorted in descending order and shows wide range of pricing for the same service. Although competition has improved as discussed above in tables 3 and 5, prices have increased and outpaced record-high inflation. The researchers believe economic factors, such as

heightened competition over scarce assets and services, are driving higher prices for port visits overall. Specifically, ELINs shown in Table 12 are generally the cost drivers for each port visit and can be candidates for GFE in certain regions.

Table 11. Comparison of ELINs Across Fleets (August 15, 2022–February 15, 2022)

ELIN Category	ELIN	ELIN Nomenclature	Unit of Issue	5th Fleet	6th Fleet	7th Fleet	MAX DIFF
Fleet Landing	**0V	Events (Open Tents, Tables, Chairs, Lighting) - Minimum	LOT per DY		\$ 178,900	\$ 11,699	\$ 167,201
General Charter & Hire Items	**2B	Breasting Barge	DY	\$ 5,425	\$ 116,813	\$ 11,214	\$ 111,388
General Utility Services	**3D	Other Utilities Supplies/Services	TBD	\$ 309	\$ 15	\$ 91,967	\$ 91,951
Fleet Landing	**0S	Portable Electric Generators (One Unit (one serviced	UNIT per DY	\$ 2,980	\$ 63,497	\$ 600	\$ 62,897
Force Protection Barriers	**3P	CONEX Box Barrier (Meter/per day)	MR	\$ 48,514	\$ 5,726	\$ 7,846	\$ 42,787
Water Ferry/Taxi Services	**20	Minimum 36 Person	HR	\$ -	\$ 26,725	\$ 41,690	\$ 41,690
General Utility Services	**3B	Shore Power - 450-48V, 60 HZ	DY	\$ 16,677	\$ 7,272	\$ 48,800	\$ 41,528
Land Transportation (Personnel & Equipment)	**58	Bus, 26 Person Capacity (includes one driver 8 hour p	HR	\$ 4,055	\$ 3,441	\$ 40,822	\$ 37,381
Force Protection Personnel & Equipment	**41	X-Ray Baggage Scanning Machine (Each Per Day)	DY	\$ 3,600	\$ 34,325	\$ -	\$ 34,325
Land Transportation (Personnel & Equipment)	**5Q	Vehicle, 12 Passenger Van With Driver	DY	\$ 500	\$ 6,131	\$ 33,158	\$ 32,658
General Charter & Hire Items	**2H	Anchorage - Receiving, Storage, Reporting and Delive	LOT		\$ 6,841	\$ 38,919	\$ 32,078
Land Transportation (Personnel & Equipment)	**5P	Vehicle, 9 Passenger Van With Driver	DY	\$ 810	\$ 3,730	\$ 31,338	\$ 30,528
General Utility Services	**3C	Other Utilities Supplies/Services	TBD	\$ 260	\$ 1,491	\$ 30,496	\$ 30,236
Fleet Landing	**0T	Events (Open Tents, Tables, Chairs, Lighting) - Minimum	LOT per DY	\$ 23	\$ 30,000	\$ 68	\$ 29,978
Fleet Landing	**0D	Refrigerator Units (One Unit of one 40ft or two 20ft P	UNIT per DY	\$ 8,516	\$ 7,829	\$ 37,500	\$ 29,671
Force Protection Personnel & Equipment	**3V	Manned (or Unmanned) Waterborne Patrol Craft Con	DY	\$ -	\$ 15,811	\$ 24,240	\$ 24,240
Water Ferry/Taxi Services	**1Z	Minimum 10 Person	HR	\$ 24,120	\$ 5,620	\$ 980	\$ 23,140
General Charter & Hire Items	**2D	Landing Barges	DY	\$ 24,253	\$ 26,955	\$ 4,500	\$ 22,455
Oily Waste Removal	**33	Oily Waste Removal	CZ	\$ 1,076	\$ 2,759	\$ 22,620	\$ 21,544
Land Transportation (Personnel & Equipment)	**5M	Vehicle, Sedan With Driver	DY	\$ 1,715	\$ 4,352	\$ 18,626	\$ 16,911
General Charter & Hire Items	**2T	Other General Charter & Hire Items	TBD	\$ 22,633	\$ 13,767	\$ 5,855	\$ 16,779
Ship Movement Services	**07	Tug Services - Standby	DY		\$ 43,883	\$ 27,364	\$ 16,519
Land Transportation (Personnel & Equipment)	**59	Bus, 40 Person Capacity (includes one driver 8 hour p	HR	\$ 7,548	\$ 12,839	\$ 23,521	\$ 15,973
Force Protection Personnel & Equipment	**43	Armed Waterborne Patrol Craft Continuous Coverage	DY	\$ 25,740		\$ 11,390	\$ 14,350
Collection, Holding, and Transfer	**32	CHT Management Fee	DY	\$ 1,673	\$ 9,890	\$ 15,865	\$ 14,192

Specific ELIN data were extrapolated from the HSPortal repository for the following port locations for the purposes of this study: Souda Bay, Townsville, Kiel, and Cam Ranh. These port locations were selected as outliers to the primary cost savings initiative of the GMAC of decreased costs with increased competition. The cost comparison of each of these port's specific line items from the regional MAC and the GMAC highlight the trend of increasing costs due to market forces despite significantly increased competition. Souda Bay's average daily cost under the regional MAC (2016–2020) was \$10,531, but it saw a 331% increase in average daily cost to \$45,369 (see Table 5) with a sample of 438 port visits (see Table 6) under the GMAC (2021–2022). This increase is despite the average number of offerors under the regional MAC of 2.56 increasing under the GMAC by 55% to 3.96.

Townsville's average daily cost under the regional MAC was \$43,224, but saw a 100% increase in average daily cost to \$86,487 with a sample of 21 port visits under the GMAC. This increase is despite the average number of offerors under the regional MAC of 3.56 increasing under the GMAC by 55% to 5.50. Kiel's average daily cost under the regional MAC was \$24,933, but saw a 35% increase in average daily cost to \$33,539.21 with a sample of 32 port visits under the GMAC. This increase is despite the average number of offerors under the regional MAC of 3.00 increasing under the GMAC by 100% to 6.00. Cam Ranh's average daily cost under the regional MAC was \$25,891, but saw a 77% increase in average daily cost to \$45,889 with a sample of 12 port visits under the GMAC. This increase is despite the average number of offerors rising to an astounding 7.00 contractors competing for the contract.

These drastic increases in average daily port costs warranted individual port location comparative analysis between the regional MAC and GMAC for the average daily cost of each line item or ELIN for all port visits to that location. Each ELIN falls under several categories that make up each individual task order under the contract. By examining each ELIN under both regional MAC and GMAC in the HSPortal repository, specific supplies and services affected by market forces, which render competition void, can be identified. Table 12 compares the costs of a group of ELINs during the regional MAC and the GMAC. In Souda Bay, Greece, first day husbanding fees for large Class I ships had an

average cost of \$1,460 per day under the regional MAC but \$7,228 under the GMAC. Subsequent day husbanding fees for Class I ships were on average \$893 per day for the regional MAC and \$3,862 under the GMAC. Portable hand washing stations and sanitary facilities were on average \$108 and \$130 per day under regional MAC and \$228 and \$386 under the GMAC. Portable electric generators were on average \$350 per day under regional MAC but were an astounding \$4,288 under the GMAC. Renting open tents, tables, lighting, and chairs for events for 300-person capacity per day had an average unit cost of \$2,133 under the regional MAC and a massive increase to \$10,500 under the GMAC. Portable heaters were \$39 per day under the regional MAC but \$163 per day under the GMAC. A brow stand cost on average \$1,424 per day under the regional MAC but \$2,202 under the GMAC. A 90-ft and 120-ft manlift cost \$1,057 and \$1,408 per day on average under the regional MAC but \$1,973 and \$2,900 under the GMAC. Line handlers cost \$600 to be commercially contracted per service requirement under the regional MAC but \$1,150 for each job under the GMAC. For water taxi services per hour under the regional MAC, the average cost was \$405 and \$381 per hour for a minimum of 10 and 36 passengers. Under the GMAC, the average cost per hour was \$1,849 and \$1,157 for a minimum of 10 and 36 passengers. A Class II ship landing barge under the regional MAC cost \$2,157 per day on average but \$3,700 under the GMAC. A 15-passenger van cost \$586 per day on average under the regional MAC but \$1,447 under the GMAC. A man basket for painting cost, on average, \$176 per day under the regional MAC but \$420 under the GMAC. A paint float, on average, cost \$3,200 per port visit under the regional MAC but \$7,128 per port visit under the GMAC. It is abundantly clear that cost mitigation practices must be implemented in the Souda Bay contract award processes, because an alarming number of line items for a very large sample size of 438 port visits under the GMAC have average daily costs at very unreasonably high markup rates compared to the costs of the very same line items and units of measure from the regional MAC. This is despite more offerors competing in solicitations for these awards after a small amount of time has passed between the transition from regional to global. It is possible that price gouging may be occurring in Souda Bay. It is also possible that collusion is taking place amongst suppliers in the region. It is critical that proper oversight is being utilized by KOs in examining fair and reasonable justification

for this pricing based on market research to prevent any potential occurrences of this taking place.

Also in 6th Fleet, in Kiel, Germany, substantial price increases can be seen in several line items (also shown in Table 12). The first-day husbanding fee for a Class II ship under the regional MAC, on average, was \$833 but was \$7,400 under the GMAC. The subsequent-day husbanding fee for a Class II ship under the regional MAC was \$206, on average, but was \$2,956 on average under the GMAC. A 15–40 ft. brow cost, on average, \$812 per day for the regional MAC but \$2,415 per day under the GMAC. The brow stand under the regional MAC cost just \$3 per day, on average, but cost \$102 per day under the GMAC. Forklift services up to 4 tons cost, on average, \$210 per day under the regional MAC but \$1,596 per day under the GMAC. A Class II fender cost \$797 a day, on average, under the regional MAC but cost \$2,051 under the GMAC. Finally, a Class II landing barge, on average, cost \$2,432 per day under the regional MAC but \$6,288 under the GMAC. Once again, these massive mark ups compared to the regional MAC are unacceptable and require more research and oversight to justify these prices as fair and reasonable.

This trend can be seen in Table 11 (derived from model 4, see Chapter IV) for 7th Fleet ports as well. In Townsville, Australia, the average daily cost of a 40-ft flatbed truck under the regional MAC was \$400 per day but was \$900 per day under the GMAC. A breasting barge was \$1,943 per day under the regional MAC but \$9,250 under the GMAC. Manned waterborne patrol craft continuous coverage cost, on average, \$15,812 per port visit but cost \$35,750 per port visit under the GMAC. Receiving and storage utilizing a 100 MT capacity barge cost \$12,513, on average, per port visit when a ship was at anchor under the regional MAC but increased to \$30,000 per port visit under the GMAC. At Cam Ranh Bay in Vietnam, first day husbanding fees for a class III ship were, on average, \$3,250 per day under the regional MAC but \$7,600 per day under the GMAC. A 15–40 ft. brow, on average, cost \$716 per day under the regional MAC but \$3,000 per day under the GMAC. Mobile crane services for 16–40 ton capacity cost \$292 per day, on average, under the regional MAC but \$2,500 under the GMAC. Forklift services up to 4 tons cost, on average, \$272 per day under the regional MAC but \$600 per day under the GMAC. Fenders

for class I ships are, on average, \$1,540 per day under the regional MAC but are \$5,561 per day under the GMAC. These high increases in costs in these two 7th Fleet ports require more scrutiny in the contracting office in examining fair and reasonable market value. Due to all of these markup rates for these line items, the GMAC is not working to maximize cost savings as intended for these port locations.

Table 12. Comparison of ELINs in Regional and Global MAC

ELIN	Souda Bay Avg. Cost		Kiel Avg. Cost		Townsville Avg. Cost		Cam Ranh Bay Avg. Cost	
	Regional	GMAC	Regional	GMAC	Regional	GMAC	Regional	GMAC
1st Day Fee/day	\$ 1,460	\$ 7,228	\$ 833	\$ 7,400			\$ 3,250	\$ 7,600
Subsequent Day Fee/day	\$ 893	\$ 3,862	\$ 206	\$ 2,956				
Portable Hand Wash/day	\$ 108	\$ 228						
Portable Sanitary Facilities/day	\$ 130	\$ 386						
Portable Electric Generators/day	\$ 350	\$ 4,288						
Portable Heaters/day	\$ 39	\$ 163						
Open Tents, Tables, Lighting, Chairs/day	\$ 2,133	\$ 10,500						
Brow 15-40 Ft/day			\$ 812	\$ 2,415			\$ 716	\$ 3,000
Brow Stand/day	\$ 1,424	\$ 2,202	\$ 3	\$ 102				
Forklift 4 Tons/day			\$ 210	\$ 1,596			\$ 272	\$ 600
Mobile Crane/day							\$ 292	\$ 2,500
Manlift 90 Ft/day	\$ 1,057	\$ 1,973						
Manlift 120 Ft/day	\$ 1,408	\$ 2,900						
Line Handlers/request	\$ 600	\$ 1,150						
Water Taxi Services 10 Pax/hour	\$ 405	\$ 1,849						
Water Taxi Services 36 Pax/hour	\$ 381	\$ 1,157						
Fender/day			\$ 797	\$ 2,051			\$ 1,540	\$ 5,561
Landing Barge Class II/day	\$ 2,157	\$ 3,700	\$ 2,432	\$ 6,288				
Breasting Barge/day					\$ 1,943	\$ 9,250		
Manned Waterborne Patrol Craft/port visit					\$ 15,812	\$ 35,750		
Manbasket/day	\$ 176	\$ 420						
Paint Float/day	\$ 3,200	\$ 7,128						
Flatbed Truck 40 Ft/day					\$ 400	\$ 900		
Van 15 Pax/day	\$ 586	\$ 1,447						
Receiving & Storage 100 Mt. Barge/port visit					\$ 12,513	\$ 30,000		

## VI. CONCLUSIONS AND RECOMMENDATIONS

To summarize the results to the five fundamental questions addressed in Chapter I, the primary question on whether there has been a decrease in average daily port visit costs with the increased competition since the execution of the GMAC was proven to be the case. The competition overall has increased compared to the number of offerors in the regional MAC's, which has resulted in further average daily cost reduction with only certain locations serving as exceptions. When comparing the fleets using identical ship types, each fleet with the highest competition for each platform ship overall had the lowest average daily cost. The fleet with lowest number of offerors had the highest cost for each ship type. The two vendors with the highest market share across all fleets do not boast optimal performance reviews per the QASP ratings to warrant such a high market share in this competitive environment. Finally, several ELINs are drastically increasing overall port visit costs across the fleets and are being unreasonably raised in specific port locations to levels that render the increased competition benefit of the GMAC null.

After a thorough quantitative analysis, the authors recommend that the U.S. Navy conduct a cost-benefit analysis of implementing GFEs or government-owned commercially operated programs at these frequently visited higher priced ports. As described in Chapter V, several ports have line-item costs that are being driven up by the market despite increased competition. It would be in the government's best interest to buy instead of continuing to lease these supply items that can be easily reused. Given the high frequency of port visits in these locations since the start of the GMAC, it is clear from the line-item cost data presented that it would be irresponsible to continue to allow contractors to set rental prices for equipment for over 400 port visits in Souda Bay a year. Not buying fenders, brows, or an area to house/stage these items but instead opting to rent these things hundreds of times over is poor business practice. Line items such as forklifts, cranes, or landing barges can be purchased, and qualified operators can come from ship's company or contracted out. This would result in significant cost savings in these ports and would tie up a major loose end in the already solid GMAC strategy. In addition to potential cost savings by owning capital assets, in the 7th Fleet ports mentioned above, the U.S. Navy

could benefit from having a strategic resupply port that is just a short transit from the highly contested South China Sea. In the 6th Fleet AOR, Kiel could serve as a strategic resupply port between the North and Baltic Seas. Souda Bay and Mina Salman are already strategic resupply points and could benefit from GFE programs to combat rising prices. Owning assets in these strategic ports provides operational flexibility in the event of short-fused port visits required in the area, since it would not need to compete with commercial vessels docking in these ports. This strategy could retain the benefits of the standardized port visit process under the global MAC and result in cost savings over leased capital assets provided by HSPs. The GMAC can be revised to incorporate these changes at these particular port locations.

To address the high-dollar line items that cannot be purchased, such as armed waterborne force protection coverage or first day and subsequent husbanding fees, along with increasing supply line-item costs, an alternative recommendation would be to remove all ports with increasing costs from the GMAC and executing a single award contract (SAC) covering these locations. This SAC would be for a period of performance spanning 3 years, with 1 year base and option years following, in ports where prices are being driven too high by market forces. Rather than competing each individual port visit and awarding hundreds of task orders, one contractor would receive all the port visits for that location for the base year. It would greatly incentivize strong performance from that contractor in order for the government to exercise each option year so the contractor would retain rights to that port visit location. This SAC solicitation would see an abundance of vendors competing, and since the award would mean vast profit margins over the course of a year, competition would likely drive costs down again. The SAC would also likely remove all elements of collusion in ports where price gauging is occurring as a result of a “winner take all” single award system in play. Market forces for line items would lose their potency in a scenario where the lowest price offeror gets the award. The vendors would most definitely compromise profits in certain areas to obtain such an important contract award that would mean sustained cash flow to their companies over a long period of time. The government would likely see port visit costs for these locations achieve the same equilibrium as the other port locations in the same fleets where the GMAC is already proving successful.

Based on contractor inputs and the government's ability to respond, hosting events like an industry may improve competition at the task order level in future option years. Because of the sheer dominance of some of these HSPs despite mediocre performance ratings, the government should investigate anticompetitive business practices that may be affecting other HSPs from submitting competitive bids. The DOD should certainly weigh performance more heavily in the awards to several of these vendors. If vendors with average to below average QASP ratings start losing more awards, they will likely decrease the price of their bids to be in line with their performance accordingly. This would result in further cost savings for the government. Until some of the vendors highlighted in this thesis lose some of their market share over the port visit awards in these fleets, QASP ratings will be unable to be leveraged as a quality past performance metric for solicitation and will merely serve as an indicator of extreme negative performance in very rare circumstances. Even recent vendor scandals are not fully captured by QASP ratings.

Since the advent of the GMAC coincided with the COVID-19 pandemic, sample size data may have been skewed due to less port visits than normal with ships remaining out in sea for the duration of deployments. The researchers believe that further research examining GMAC trends in costs and competition over a longer period would benefit the U.S. Navy in assessing the cost savings of this contract. Correlation values for Contract Regions 14 and 22 should also be further researched, since currently there is no sufficient port visit data to provide an accurate analysis. Lastly, further investigation into why the port locations of Doha and Saipan have decreasing average daily costs despite decreasing competition should be conducted to identify potential elements of cost savings. The government must continue improving the processes and execution of the GMAC to prevent further scandals and inefficient cost savings procedures. The reputation and integrity of the U.S. Navy is at stake.

THIS PAGE INTENTIONALLY LEFT BLANK

## LIST OF REFERENCES

- Apte, A., & Morgan, E. (2021). *Logistics support in contested environment* [Case study]. Naval Postgraduate School.
- Defense Technical Information Center. (n.d.) *Section 809 Panel*. Retrieved March 1, 2022, from <https://discover.dtic.mil/section-809-panel/>
- Gage, A. W., Escobar, L. C., & Sturgis Jr., B. R. (2021). *Husbanding service provider price analysis factors* [MBA professional project, Naval Postgraduate School]. NPS Archive: Calhoun. <http://hdl.handle.net/10945/67717>
- Grennan, J. A., & McCrory, M. A. (2016). *Auditability in the U.S. Navy: Knowledge assessment of the contracting workforce* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <https://calhoun.nps.edu/handle/10945/58420>
- Kiengsiri, J. Y., Walsh, C. T., & Rieger, C. F. (2020). *Analysis of the multiple award contracting strategy on U.S. government husbanding service provider (HSP) prices* [MBA professional project, Naval Postgraduate School]. NPS Archive: Calhoun. <https://apps.dtic.mil/sti/pdfs/AD1114623.pdf>
- LaGrone, S. (2019, January 24). *Paying the price: The hidden cost of the "Fat Leonard" investigation*. USNI News. <https://news.usni.org/2019/01/24/paying-price-hiddencost-fat-leonard-investigation>
- Naval Supply Systems Command. (2021). *Husbanding service portal*. [https://my.navsup.navy.mil/apps/ops\\$logsrv2.home](https://my.navsup.navy.mil/apps/ops$logsrv2.home)
- Naval Supply Systems Command Fleet Logistics Center Sigonella. (2019, December 31). *Global Multiple Award Contract No. N68171-21-D-00XX*.
- Naval Audit Service. (2019). *Department of the Navy Husbanding and Port Services Provider Program* (Audit Report No. N2019-0013). Department of the Navy. <https://www.secnav.navy.mil/navaudsvc/FOIA/N2019-0013%20redacted%20for%20website.pdf>
- Office of the Chief of Naval Operations. (2020). *Husbanding service provider program policy* (OPNAVINST 4400.11A).
- Petrinovic, J., Rivera, C., & Tran, L. (2019). *The viability of husbanding service providers in major theater conflicts* [Master's thesis, Naval Postgraduate School]. NPS Archive: Calhoun. <https://dair.nps.edu/bitstream/123456789/2328/1/SYM-AM-19-183.pdf>

- Rendon, R., & Rendon, J. (2015). Auditability in public procurement: An analysis of internal controls and fraud vulnerability. *International Journal of Procurement Management*, 8(6), 710–730. <https://www.doi.org/10.1504/IJPM.2015.072388>
- United States National Geospatial-Intelligence Agency. (2005) *The world with commanders' areas of responsibility* [Map]. Library of Congress. <https://www.loc.gov/item/2005633566/>
- Vine, D. (2020). *The United States of war: A global history of America's endless conflicts, from Columbus to the Islamic State*. University of California Press.
- Whitlock, C. (2021, October 3). U.S. Navy hit by another international bribery scandal. *Washington Post*. [https://www.washingtonpost.com/investigations/navy-bribery-scandal/2021/10/03/d5181302-245e-11ec-8d53-67cfb452aa60\\_story.html](https://www.washingtonpost.com/investigations/navy-bribery-scandal/2021/10/03/d5181302-245e-11ec-8d53-67cfb452aa60_story.html)
- Woods, W. T. (2018). *Federal acquisitions: Congress and the executive branch have taken steps to address key issues, but challenges endure* (GAO-18-627). Government Accountability Office.

## INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center  
Ft. Belvoir, Virginia
2. Dudley Knox Library  
Naval Postgraduate School  
Monterey, California