

Coast Guard Future Direction Study: Capstone Support Analysis

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CG Future Directions Study

Capstone Support Analysis

1. Executive Summary

This analysis is intended to support Coast Guard development of a capstone publication that articulates a vision of the Coast Guard of 2020. We present our supporting analysis in the following three sections. In section 2, we describe our view of the purpose and enduring characteristics of the Coast Guard, a sea-going armed service within the Department of Transportation. We believe that any vision of the Coast Guard's future must be consistent with its purpose and enduring characteristics. In section 3, we describe how existing Coast Guard missions will be transformed as the Coast Guard moves into the 21st century. In section 4, we describe alternative plans for the Coast Guard to consider in developing its vision.

1.1 Purpose and Enduring Characteristics

We believe that the Coast Guard's purpose should be defined, to help identify its unique contributions to the nation. In our view, that purpose has five components: to maintain U.S. sovereignty and enforce U.S. law through active presence, to represent U.S. interests and authority, to assure the safety of life and property, to protect the environment, and to defend the Republic. Within that framework, the Coast Guard helps assure the safe and efficient transit of waterborne commerce on which the well-being of the American Republic heavily depends. The Coast Guard ensures the accomplishment of these tasks in our ports

and waterways, along the nation's coasts, on international waters, or in any maritime region as necessary.

The Coast Guard's four defining characteristics express its service culture: its humanitarian focus on lifesaving and serving the public, its ability to respond rapidly with a task-oriented focus on getting jobs done, its practice of cooperation and coordination, and its identity as a military service. We believe that the future direction of the Coast Guard should be consistent with these enduring characteristics, and the service's history and tradition.

1.2 Trends

Our review of trends strongly suggests that virtually all current Coast Guard missions will still exist in the 21st century, but that the manner in which most are accomplished is likely to undergo substantial change. In some cases, the Coast Guard assets required for particular missions will decline significantly; new and different resources will be required for the performance of transformed missions. The relative importance of some missions is likely to change substantially in the early years of the next century.

1.3 CG 2020

1.3.1 Organization

We believe that the Coast Guard should remain a multi-missioned humanitarian organization, continuing to provide the range of services that users of the nation's waterways and the general public find essential. This means retaining responsibility for its existing missions. There appears to be no convincing reason or trend that would strongly argue for

the elimination of any existing Coast Guard mission. Changing technology will affect the way that the Coast Guard performs current missions, sometimes radically. Therefore, the relative level of effort and resources devoted to performing particular existing missions may change over the coming 20 years, while new efforts may be required for new mission areas.

1.3.2 Developing a Vision

The Coast Guard needs to formulate a broader vision than just a modernized and adapted version of today's service. This vision should capture the purpose and enduring characteristics of the Coast Guard, and articulate some broad objective that clearly and succinctly ties a substantial subset of Coast Guard missions into a role that the nation values. This broader and more visible role should provide a framework to help guide resource allocations and changes in organization. It also should be acceptable to the Coast Guard, other federal, state, and local organizations, and the American people.

Unless such a broader vision emerges, the Coast Guard will remain an adaptable but vulnerable collection of missions that fit together largely for reasons of efficiency and habit. Such a Coast Guard would be subject to sharp changes induced by major contingencies or other external considerations.

1.3.3 Opportunities

We have identified two structures for possible inclusion in a Coast Guard vision. First, the Coast Guard could work to create a comprehensive National Marine Transportation Plan.

This plan would ensure the effective coordination of activities required to help waterborne commerce move safely and expeditiously into and out of ports in the United States. The Coast Guard would act as executive agent for implementation of this plan. It would coordinate with other federal agencies with related responsibilities, and with state and local government authorities, private entities, and international and foreign organizations. Concurrently, the Coast Guard would maintain, and if necessary acquire, additional operational capabilities for the execution of the plan.

Second, the Coast Guard could consider creating a National Ocean Policy Plan to provide the nation with a cohesive and coordinated policy for non-defense ocean issues within and beyond the EEZ. Such a plan would stress coordination of maritime safety on the high seas; pollution prevention; protection of living marine resources; and enforcement of U.S. law, international law, and Law of the Sea; and would foster appropriate polar navigation. The Coast Guard would lead in the development of such a plan, act as executive agent for its implementation, and participate in its operation.

These suggested objectives are complementary, but could also be established independently. We believe that unless the Coast Guard adopts broader objectives of this nature, with new and more comprehensive directions, it will have difficulty developing a convincing vision for its future.

1.3.4 Other Organizational Changes

The Coast Guard also could assume functions that currently are performed by other federal organizations as the

federal government is reshaped to deal with changing mandates and to enhance efficiency. In choosing such functions, the Coast Guard should strive to assume responsibilities that are consistent with its enduring characteristics and complement its existing missions.

2. Coast Guard Purpose and Enduring Characteristics

We believe the Coast Guard is the Guardian and Steward of America's waters. The American people count on the Coast Guard to keep them safe on the water, to keep the water safe for them, and to ensure the safe and efficient transit of waterborne commerce on which their well-being depends. They count on the Coast Guard to deliver or bring together whatever it takes to accomplish those ends. That broad collection of expectations is hard to reduce to a statement of purpose that is both succinct and comprehensive. Yet any orderly assessment of the Coast Guard necessarily begins with a definition of its purpose: a clear expression of why it exists and what special responsibilities it undertakes that benefit the nation.

The purpose of the Coast Guard is harder to precisely define than that of many other government organizations. The Coast Guard's many diverse responsibilities grew with the Republic, in a history of functional accumulation and adaptation. Below we present our best effort at expressing a clear and complete statement of the purpose of the Coast Guard.

Suggested Coast Guard Purpose

Maintain U.S. sovereignty and enforce U.S. law through active presence...

Represent U.S. authority and promote American interests...

Assure the safety of life and property...

Protect the environment...

Defend the Republic...

in our ports and waterways, along the nation's coasts, on international waters, or in any maritime region as necessary.

2.1 CG Enduring Characteristics

The future direction of the Coast Guard should reflect its enduring characteristics, history, and traditions. Specifically, we believe that the Coast Guard can sustain its current purpose in ways consistent with its organizational culture. That culture reflects four defining Coast Guard characteristics: its humanitarian focus on lifesaving and serving the public, its ability to respond rapidly with a task-oriented focus on getting jobs done, its practice of cooperation and coordination, and its identity as a military service.

2.1.1 Humanitarian Focus

The Coast Guard cannot be understood without an appreciation of the humanitarian outlook at its core. The humanitarian character of the Coast Guard inspires its members and is the principal descriptor of the Coast Guard

for the public. Thus the Coast Guard's operational responsibilities are focused on safety. That emphasis runs from saving individual lives, to organizing broad-scale disaster response, to fulfilling its regulatory and law enforcement duties, as approached from a perspective of ensuring safety and protecting the public weal.

This humanitarian attitude differentiates the Coast Guard from its counterpart armed services and from other law enforcement agencies. Furthermore, in contrast to the other armed forces, most of what the Coast Guard does is of a civil nature and is done directly for the public. Unlike other law enforcement agencies, the Coast Guard conducts many other operations that draw on the same resources as law enforcement. This combination of humanitarian outlook, continuing and regular contact with the American people, and broad range of responsibilities may explain the Coast Guard's exemplary and largely friction free record in the careful use of its extremely broad legal authority.

2.1.2 A Flexible, Results-Oriented, Rapid-Response Force

The Coast Guard is poised for quick response to emergencies or changing circumstances. This ability derives in part from a tradition of saving lives, where every minute counts, and from its responsibilities as an armed service and a law enforcement agency. Rapid reaction is essential for Coast Guard environmental protection operations, such as response to environmental disasters. The focus of the Coast Guard is getting the job done.

In peacetime, Coast Guard responsibilities require direct action in real time, except for defense operations that emphasize training. Many Coast Guard tasks must be done

immediately, even in bad weather and dangerous conditions. Because of its multi-mission orientation, the Coast Guard can perform its assigned roles more rapidly and effectively than other organizations could. For one thing, Coast Guard personnel are exhaustively familiar with these jobs, which are executed, practiced, or trained for continuously. Because the Coast Guard is a small service with many tasks, its crews and equipment can perform several tasks at a moment's notice, often more than one concurrently. Also, the combination of multi-mission trained crews and multi-mission suitable equipment is a force multiplier; its combined efficiencies and savings are self-evident, though hard to measure precisely.

2.1.3 Coordination and Cooperation

Another force multiplier hard to measure and harder to duplicate is the Coast Guard's vast web of cooperative experience and active cooperative arrangements with other federal agencies, with state, local, and foreign authorities, and with private institutions. This web of relationships allows the Coast Guard, as the federal voice, to assure that someone does the job, effectively and promptly. Most Coast Guard responsibilities are performed in cooperation with others. When Coast Guard cooperation or coordination is mandated in legislation, it is likely to be a codification of pre-existing operations derived from the Coast Guard's long experience with managing a large number of tasks with limited resources, and with the advantage of public trust and federal authority.

International cooperation and coordination is often essential to the accomplishment of missions—including many

missions generally understood as domestic, such as Great Lakes icebreaking and search and rescue. There, as in the Bering Sea and Caribbean, informal working-level relationships with local foreign authorities help assure that the mission is performed efficiently even when intergovernmental relations are more adversarial. Such informal relationships complement more formal arrangements under which the Coast Guard acts in cooperation with services of other states, in compliance with agreements to which the United States is a party, or as a trainer of and model for sister services of other countries.

Because the Coast Guard has such extensive ties with so many diverse organizations, it is uniquely positioned to serve the maritime community. Therefore, as political, economic, and technological changes modify the maritime environment, the Coast Guard becomes the best positioned federal agency to lead the many interested private and public constituencies in shaping—or adapting to—the future of the marine environment.

In some respects, the Coast Guard provides the same integration for the maritime community that the Internet provides to the electronic world. The Internet is not centrally managed or controlled; neither is the maritime community. Just as information on the Internet is diffused rather than held in some centralized repository, so is maritime expertise spread throughout the Coast Guard, through whom expertise is passed to others who routinely interact with the Coast Guard. Yet, the Coast Guard can draw on its own expertise, just as users of the Internet can employ special-purpose search engines to find the data they seek. The plans we have proposed establish the Coast Guard both as

a link to the wide array of maritime organizations and groups, and as a provider of services.

2.1.4 Military Nature

The Coast Guard is one of the five armed forces that defend the United States from foreign enemies. We believe that the Coast Guard should continue as a military service. Although most of what the Coast Guard does is in direct support to the public, its military character provides a discipline and esprit that assures efficient and effective accomplishment of its often-dangerous responsibilities. Also, the Coast Guard supplements and complements the resources of the other armed services, and offers unique capabilities that arise in part from the skills and relationships developed in conducting its many non-defense missions.

3. The Evolution of Coast Guard Missions

3.1 Coast Guard Missions

The Coast Guard will conduct search and rescue, support national defense operations, provide navigation services, ensure maritime safety, help protect the maritime environment, conduct ice breaking, assist mariners, and enforce federal laws and agreements to which the United States is a party.

The Coast Guard will also remain a multi-mission organization. Diverse responsibilities, limited assets, and broad authority combine to justify an approach in which Coast Guard assets and uniformed personnel can carry out simultaneous responsibilities. Not every Coast Guard responsibility requires full-time dedicated assets; yet the

Coast Guard requires widely dispersed assets, which must be present at all times if its ascribed missions are to be executed when and where required.

3.2 Impact of Trends

Our review of trends strongly suggests that virtually all current Coast Guard missions will still exist in the 21st century, but that the manner in which they are performed is likely to undergo substantial change. For some missions, Coast Guard resources will change with time and the advance of technology. The relative importance of some missions is also likely to change substantially in early years of the next century.

Fortunately, experience has made the multi-mission Coast Guard highly flexible. This quality should enable it to rapidly adapt and expand its mission set to meet new requirements imposed by major contingencies—as it has in the past.

Finally, the rapid pace of change in many areas of technology requires that the significance of new technologies be continuously monitored and constantly reevaluated for their applicability to Coast Guard missions.

3.2.1 Search and Rescue

Search and rescue will remain important for the Coast Guard in the 21st century, but the search aspects of this mission are likely to undergo dramatic changes. Finding mariners in distress will be simplified by new technologies, including improved emergency locating devices and search capabilities. In addition, new electronic navigation and tracking systems are likely to provide continuous, real-time

ship position data that could identify the precise location of ships in distress or ships available to provide assistance. Even if the number of potential emergencies grows with the anticipated increase in the number of vessels, most emergency response may require little or no wide-area, long-distance searching.

When searches are needed, the process will be enhanced by the availability of improved sensors capable of operating in all kinds of weather from remotely piloted platforms coupled with automated systems for identifying objects of interest. Although some of this technology will take time to enter service, by 2020 the Coast Guard will routinely use such tools.

The need to rescue mariners and others in distress will decline but not disappear. As a result, the Coast Guard will continue to need platforms (boats, cutters, and aircraft) to execute the rescue. Moreover, no technology will be available by 2020 that replaces the dangerous work of rescuing people. Thus, regardless of whether states or other bodies become more proficient at search and rescue operations, the Coast Guard will still be required to maintain a wide array of capabilities for SAR in unprotected waters.

3.2.2 Aids to Navigation

The Coast Guard has sole responsibility under U.S. law for maintaining maritime aids to navigation. Currently, the Coast Guard provides visual aids to navigation (including lighthouses, buoys, and day markers) and radionavigation services (such as LORAN C, Omega, and differential GPS).

Technology changes are likely to radically alter the Coast Guard's role in navigation. The introduction of highly

accurate satellite navigation, along with the development of electronic charting and integrated electronic navigation systems, is reducing the need for many traditional aids to navigation in most areas. This trend will accelerate in the future as satellite technology is more widely adopted by commercial and recreational users. It also suggests a major opportunity for the Coast Guard in the development of virtual navigation.

Over time, the Coast Guard will require fewer resources to maintain what will become a smaller inventory of buoys and fixed visual aids, but new requirements will arise to support virtual navigation including dGPS and vessel traffic separation.

3.2.3 Marine Safety

Ensuring safe use of the waterways will remain a high priority. The Coast Guard will continue to have oversight for commercial vessel safety and, perhaps to a lesser extent, recreational boating safety. The Coast Guard will retain its regulatory responsibilities for marine safety. It will remain responsible for conducting marine investigations, for oversight of ship licensing and mariner's documents, and for oversight of ship inspections. Nevertheless, we expect increased partnerships with other organizations, foreign and domestic, to result in greater sharing of these oversight functions.

Safe and efficient use of increasingly congested ports will mandate the installation of upgraded vessel traffic systems. The form such systems will take depends on a range of economic and technology assessments now being conducted.

This will become especially important given the likely concentration of shipping at a few "megaports."

We also believe that the job of ensuring marine safety is likely to become more complex as innovative new technologies are exploited in the maritime arena. Although new technologies can enhance the use of the maritime environment, they can also introduce new safety-related issues. To encourage mariners to use enhanced technology while simultaneously ensuring safety, the Coast Guard will have to expand its own understanding of evolving technologies.

We also believe that continued cooperation between the Coast Guard, Coast Guard Auxiliary and state and local agencies will be increasingly important for the safety of recreational boaters.

3.2.4 Marine Environmental Protection

The Coast Guard is currently responsible for marine environmental response. It is the lead agency for pollution response in coastal and certain inland areas. We believe that public concern about marine pollution will grow, and that the Coast Guard will need to maintain a leading role in preventing and responding to pollution spills. However, we also believe that greater enforcement of pollution laws, the development of more environmentally safe ships, and a more active pollution response role by private organizations will reduce the need for the Coast Guard itself to clean up pollution spills. Pollution problems should become less frequent but more severe, because of the growing volumes of shipments and more hazardous materials being shipped. We also expect that the Coast Guard will need to consider procurement

and operation of remote surveillance technologies for future pollution-related environmental monitoring.

3.2.5 Law Enforcement

The Coast Guard has broad authority to enforce U.S. law in waters subject to the jurisdiction of the United States. It is likely to remain the only armed service that also operates as a law enforcement agency.

The direction of the Coast Guard's law enforcement responsibilities will change over time, depending on the types of illicit activities taking place in waters for which it has cognizance. Nevertheless, we expect that drug interdiction, alien migrant interdiction, and fisheries law enforcement will continue to be important, although the relative importance and the level of required Coast Guard effort in each will vary.

The requirement for drug interdiction will depend on the effectiveness of efforts to reduce demand for illicit drugs, and on where those drugs come from. Shifts in drugs of choice will affect the origin and volume of drug flows and thus the Coast Guard's level of effort. A long-term shift to synthetic drugs, which can be produced domestically, might significantly reduce the need for maritime drug interdiction operations. So might a shift of preference to lower-volume drugs, such as heroin. Although our analysis suggests it is less likely, demand for cocaine could, in theory, grow; if that happens, it might substantially increase the Coast Guard's role in drug interdiction.

The United States will continue to be the destination of choice for many illegal immigrants. The Coast Guard will be called upon to interdict illegal migrants at sea, and to

deter those who facilitate the maritime movement of illegal migrants. When maritime mass-migration emergencies arise, the Coast Guard will be the nation's first line of defense.

Fisheries law enforcement will remain important. Although high-seas fish stocks will decline, the demand for fish will continue to grow. Thus U.S. fisheries' activities will be concentrated within the EEZ, and most laws to protect those fisheries will need to be enforced, there. There may also be some need to guard the approaches to the EEZ, and some opportunity to enforce international maritime agreements pertaining to fisheries and endangered species, and other international maritime agreements to which the United States is a party.

We believe that the Coast Guard will continue to require search capabilities to locate and identify lawbreakers who are trying to evade law enforcement authorities. Moreover, the Coast Guard will continue to require platforms that can transport law enforcement personnel to locations where suspect activities occur, and to maintain a forward presence as a deterrent to lawbreakers.

3.2.6 Ice Operations

Ice-breaking missions in the navigable waters of the United States will still be required, and will continue to be difficult and potentially dangerous. Some ice-breaking activities could be performed by other organizations, either private or governmental, under the supervision of the Coast Guard; we did not, however, examine the extent to which this is likely.

We believe that the relative importance of the Coast Guard's existing polar ice-breaking mission is more likely to

decline than to increase. Over the long run, the nation is unlikely to believe that the benefits from conducting this mission justify the associated expenses.

Technology could largely eliminate the need for current Coast Guard participation in the International Ice Patrol, which warns mariners of icebergs that pose a danger to navigation in the North Atlantic. This function will eventually be performed by satellite surveillance systems.

3.2.7 Defense Readiness

The defense role of the Coast Guard will evolve in the opening years of the 21st century. Although the United States may no longer need to protect against a major adversary capable of posing global challenges, we do not know precisely what military challenges we will face. Indeed, experts disagree considerably on the likely character of the future international security environment.

Nevertheless, four trends are clear. First, because of the growing sophistication of naval weapon systems, the Coast Guard will not perform many key warfighting missions. The Coast Guard's multi-mission cutters will lack the high-technology warfighting capabilities of the new generation of U.S. Navy destroyers and cruisers.

Second, Coast Guard assets may be better suited than higher-technology Navy vessels and aircraft for some operations other than war, such as maritime interception operations and migrant interdiction operations, and can help in engagement operations. These missions will persist irrespective of the overall shape of the future security environment. Moreover, the Coast Guard's experience in interacting with the civilian world may prove beneficial in

many of these non-traditional missions, allowing the Coast Guard to make a unique contribution to the nation's defense.

Third, we found that the size of the U.S. Navy's fleet of surface combatants is likely to shrink, perhaps significantly, even as the capabilities of the average ship grow. Thus, we believe that the Unified Commanders in Chief may want to draw on the Coast Guard's cutter fleet for some low-threat missions.

Finally, we believe that many Coast Guard assets and skills applied in peacetime will remain valuable for military operations. Coast Guard skills will be needed, especially because littoral operations are likely to grow in importance. As examples, the Coast Guard has considerable expertise in small boat operations, in port security, in waterways management, and in search and rescue—all areas that could prove important for certain types of military operations.

Accordingly, we believe that the Coast Guard will have a continued role in national defense, and that maintaining links to other military services, the regional CINCs, and the Department of Defense will require a focused Coast Guard effort that extends beyond its relationship with the U.S. Navy.

4. CG 2020

4.1 Organization

We believe that the Coast Guard should remain a multi-missioned humanitarian organization, which continues to provide the range of services that users of the nation's waterways find essential, and that it should remain an armed service. This means that it should retain responsibility for

most of its existing mission areas, but in different proportions. The public will continue to value the synergy and efficiency that the Coast Guard's multi-mission quality provides. It is desirable for the Coast Guard to retain most of its existing missions, because:

- All the existing roles are required public services, and therefore must be performed by someone. Devolution of particular roles assumes that another entity would be willing and able to take them on.
- All roles benefit from some degree of standardization, and therefore need some central direction or regulation. This implies that they are obviously a federal responsibility.
- Although the Coast Guard's missions may not obviously fit together, they are now together and have been for some time. Disaggregation would be difficult to manage, potentially litigious, and possibly expensive because other providers of similar services would not be likely to have the multi-missioned ships and crews the Coast Guard provides. Any initial savings from disaggregation could be more apparent than real because the general public, or some particular user group, would still have to pay for the services provided.
- Breaking these functions apart means changing the legislated authority for their performance, and modifying the complex body of regulations and arrangements that support legislation and reflect ongoing relationships between the Coast Guard and other agencies, foreign governments, and state, local, and private bodies.

4.2 Why a New Vision?

The future vitality of the Coast Guard depends on its ability to formulate a future vision of itself that is broader than just a modernized and adapted version of today's Service. This vision should articulate the purpose and enduring characteristics of the Coast Guard, along the lines proposed earlier in this analysis. Thus, it would identify the unique features of the Coast Guard that are of value to the nation. More broadly, the vision needs to articulate an objective that combines some substantial subset of Coast Guard missions into a greater role that the nation will recognize and appreciate. This role should incorporate a framework to help guide resource allocations and changes in organization. It also should be acceptable to the Coast Guard, other federal, state, and local organizations, and the American people.

The Coast Guard needs a broader vision because it may not successfully retain its existing multi-mission approach (or its current mission set) without some reevaluation and reordering of its future responsibilities. Without some broad concept that combines missions into a visible and desirable purpose, it risks dismemberment. Technology will create new opportunities for the Coast Guard and enable it to perform many of its existing missions more efficiently. Thus the Coast Guard will need to consider adding new responsibilities if it is to adapt and fully employ its capabilities.

The two new and broader Coast Guard roles, outlined in the plans described below are complementary and mutually reinforcing, although one could exist without the other.

4.2.1 National Marine Transportation Plan

The growing volume and variety of waterborne trade has highlighted inadequacies in the U.S. infrastructure supporting the movement of maritime commerce into and out of U.S. ports, and through those ports to roads and railheads. The United States needs to ensure the safe transit of vessels and cargo through improvements in navigation, port utilization, waterways management, and intermodal transportation facilities and standards. This will require a synergistic approach involving partnership with industry and with federal, state, and local authorities, and with entities abroad.

No one agency has full responsibility for the range of issues that directly affect maritime commerce. Nor is it likely—or desirable—that any one federal organization would actually be assigned such broad responsibilities at the initiative of some administration or by Congress. But unless all entities responsible for individual elements of the system work in unison, it will not be possible to ensure that ships and cargoes can move efficiently into and out of U.S. ports; domestic prices will rise, and, in the long run, U.S. global competitiveness will drop.

To facilitate development of an integrated approach to such concurrently arising problems, we believe that the Coast Guard should take the lead in establishing and coordinating a National Marine Transportation Plan. The plan's objective would be to enhance safe, efficient transit of vessels and cargo through improvements in navigation, surveying, dredging, port utilization, and intermodal connections. Implementation of this plan would require the coordinated activity of various federal, state, local, and private

agencies. Accordingly, we believe that its implementation could require the creation of a coordinating board that would include other organizations with a stake in the implementation of the plan.

The Coast Guard is uniquely qualified to design, promote, facilitate, and coordinate such a management plan. It already maintains contact with virtually all of the maritime organizations here and abroad that could potentially be involved. In addition, operating under auspices of this plan, the Coast Guard would be assigned primary responsibility for implementation of certain functions, largely consistent with traditional Coast Guard missions. Under auspices of the plan, the Coast Guard would have primary responsibility for the following: setting federal maritime standards; providing a national voice in negotiating international standards and rules of the road; acting as the dominant voice in maritime aspects of GPS; setting standards for, and, where necessary, operating visual ATON, virtual ATON, VTS, and differential GPS; establishing, and where necessary, enforcing pilotage standards; establishing technology-based vessel traffic monitoring centers; negotiating and enforcing standards of navigation; influencing vessel construction standards, especially those related to marine safety; negotiating conformity with international practice, where appropriate; and retaining responsibility for environmental protection, marine safety and licensing, and domestic icebreaking.

The National Maritime Transportation Plan would also specify national priorities in areas where other federal, state, local, or international organizations might have primary responsibility for implementation. These priorities

would be developed through a collaborative process involving the participation of those agencies with a stake in the outcome. The plan would suggest setting national priorities and standards for harbor and waterway dredging, coordinating lock operation and waterway management, facilitating standardization of national intermodal freight handling, and formulating national plans to improve electronic charting.

4.2.2 National Ocean Policy Plan

The United States may in the future require a coordinated national oceans policy. The efficiencies suggested by this concept imply that a single entity should formulate policy for inter-agency approval on all non-defense, ocean-related issues within and beyond the EEZ, and that, once approved, the entity should monitor and, where appropriate, execute that policy or coordinate its execution. This approach would involve partnership with federal, state, and local authorities, with international agencies, and with industry. Such a National Ocean Policy Plan would stress coordination of maritime safety efforts; pollution prevention; protection of living marine resources; international and national coordination of U.S. and international law, including Law of the Sea enforcement; and would foster appropriate polar navigation. It would assure that new technologies were cooperatively adapted to speed vessel identification for rescue or law enforcement purposes, and to process cargo information efficiently, looking toward optimal intermodal movement and early identification of potential dangers to vessels, crews, or waterways. It would increase cooperation between national and international law enforcement bodies, looking toward protection of fisheries

and endangered species, apprehension of smugglers, and increased interdiction and return of seaborne migrants.

To facilitate the development of an integrated approach to such concurrently arising problems, the Coast Guard should take the lead in establishing and coordinating a National Ocean Policy Plan. The plan would ensure the development and implementation of a coordinated national oceans policy. Implementation of this plan would require the coordinated activity of various federal, state, local, and private agencies. Accordingly, we believe that its implementation could require the creation of a coordinating board including other federal agencies with a stake in the implementation of such a plan and that the Coast Guard would be the appropriate organization to act as executive agent for such a board. The National Maritime Transportation Plan could be a subset of the National Ocean Policy Plan, or the two could be totally separate.

Coast Guard mission areas affected by the proposed National Ocean Policy Plan, other than those in the National Marine Transportation Plan, include: Law of the Sea monitoring, review, and revision; implementation of new technology-based vessel traffic monitoring centers and cargo monitoring systems for safety and law enforcement; fostering of more international cooperation for maritime law enforcement; fisheries and marine mammal law enforcement; national and international search and rescue; environmental monitoring and response; offshore natural resource traffic regulation and pollution standards; and negotiation, regulation, and enforcement of polar navigation standards.

4.2.3 Other Changes in Responsibilities

Independent of a decision to adopt one or both of the alternative plans just described, the Coast Guard should consider adding responsibilities that are consistent with its purpose and defining characteristics.

The current Coast Guard has evolved through the integration of a number of different federal organizations. We believe that this process could continue in the future, as the federal government is reshaped to deal with changing mandates and to enhance efficiency. This suggests that the Coast Guard should assume responsibilities that are consistent with or complementary to its existing missions.

The Coast Guard also needs to consider whether it wants to retain responsibilities where it appears that the Coast Guard involvement is likely to decline.

Among the possibilities that the Coast Guard should explore—should they appear—are consolidation of fisheries enforcement, and assuming greater responsibility for monitoring and enforcement of evolving international agreements about living marine resources, and others to which the United States is or could become a party.

For continued involvement in navigation, the Coast Guard may want to explore whether Coast Guard ships could add some charting operations to their current responsibilities. Buoy tenders could perform some charting and surveying tasks as virtual ATON reduces their existing visual ATON responsibilities. Similarly, the Coast Guard could become the executive agent for GPS and other maritime-oriented non-military space assets.

The Coast Guard also may want to examine whether it could more effectively perform certain maritime law enforcement operations now exercised by other agencies. It could become the federal maritime drug interdiction coordinator or could further consolidate maritime drug interdiction activities by acquiring Customs air and marine missions and assets.

More important, the requirements of the maritime community are likely to place new demands on the Coast Guard. For example, we already see the emergence of an international maritime information system. Its development will reflect interactions between many willing participants inside and outside the federal government, many of them foreign. We believe that the Coast Guard is uniquely placed to operate as a national and international leader in the emergence of a standardized maritime information system. The Coast Guard is already a player, and will become a more significant one in the future. Moreover, the Coast Guard is positioned to build on its existing, less sophisticated information systems (such as AMVER and VTS) to develop capabilities needed to better perform its own functions.

Finally, in the defense area, the Coast Guard could examine opportunities to expand its activities, including expanding its contribution to harbor defense; participating in the naval control of shipping; and operating and providing patrol craft, aircraft, or other assets, and skilled personnel to support naval operations in littoral waters.

4.3 Potential Implications for Coast Guard Assets

Rapidly evolving technology poses particular challenges for the Coast Guard as it enters the 21st century.

First, the Coast Guard must carefully select proven technologies that it can adopt and use economically. Thus, it should rely heavily on proven commercial technologies, and should invest in technology development only when it needs to adapt a technology to meet Coast Guard needs. It should rely on the research and development of other organizations, whether public or private, but needs to ensure that it retains people who have the skills and understanding to identify and adapt such technologies to suit the needs of the Coast Guard.

Second, the Coast Guard will continue to require operational platforms that can ensure presence in the waters where it has responsibilities. This means that it will still need cutters capable of operating in the high seas, as well as aircraft and small boats for rescue, surveillance, and interdiction operations. We believe, however, that some current functions requiring cutters and aircraft, including the search component of the search and rescue mission and some part of the surveillance function for law enforcement, will be performed differently in the future. Thus, the mix of platforms needed may also differ in the future.

4.4 Suggested Steps Toward CG 2020

The Coast Guard should consider certain steps to ensure that it can retain its current set of missions and add new missions, to best serve the public interest. We understand that these steps need to take into account fiscal realities and competing priorities.

- First, formulate a consistent vision that is broader than just a modernized and adapted version of today's service. This vision should express the purpose and enduring

characteristics of the Coast Guard and articulate some broad objective that ties a substantial subset of Coast Guard missions into a broad, visible role that the nation values. Unless such a vision emerges, the Coast Guard will remain an adaptable but vulnerable collection of missions that fit together largely for reasons of efficiency and habit. Such a Coast Guard is subject to abrupt changes induced by major contingencies or other external considerations. The above-mentioned National Maritime Transportation Plan and National Ocean Policy Plan are two possible approaches.

- Second, determine whether any non-Coast Guard mission areas should be acquired to implement such plans, and which new responsibilities should be sought for the same purpose.
- Third, identify other responsibilities not necessarily related to these broader plans, which would logically complement or expand the Coast Guard's existing mission set.
- Finally, continuously review developments in science and technology, looking toward the exploitation of anticipated changes in technology to the Coast Guard's advantage and the public good.

In examining the existing mission set for potential divestiture opportunities:

- Consider the option of geographic rather than functional divestiture. This means retaining responsibilities for setting standards and for oversight, as required, but devolving actual functions onto third parties in those particular geographic areas where alternatives are locally available.

- Accept the growing divergence in the technological capabilities between high-endurance cutters and U.S. Navy vessels of comparable size, and the related need to think more broadly about its defense role. That means recognizing that Coast Guard cooperation with DOD is broader than its naval mission, and not solely an afloat procedure.

5. Appendices

5.1 Study Methodology

This capstone support analysis concerning the Coast Guard's future was based on CNA analysis. First, we attempted to identify the Coast Guard's characteristics, purpose, and worth, since we believe that any future direction for the Coast Guard should be consistent with the Coast Guard's traditions and values.

Second, we attempted to identify all the Coast Guard's responsibilities, as enshrined in law, and identified those that the Coast Guard performs alone, those in which it has the lead, those in which it participates, and those in which it is only present.

Third, we attempted to learn about the Coast Guard and its varied responsibilities and relationships with other agencies, private and international bodies, and foreign governments.

Fourth, we identified likely trends out to the year 2020 that could increase, diminish, or eliminate existing Coast Guard responsibilities, or suggest new ones. Coast Guard responsibilities examined were those legally mandated. Trends selected for this analysis were currently identifiable

external phenomena that could affect Coast Guard responsibilities.

Finally, we developed potential end states for the Coast Guard of 2020, considering the impact of trends and contingencies. After the Coast Guard leadership discussed its preference for an end state, we wrote the preceding analysis to support the Coast Guard's own formulation of a capstone vision document.

5.2 Contract Task

This document responds to a request by the Coast Guard that CNA derive principles and guidelines for future Coast Guard operations. Specifically, we were requested to assist the Coast Guard to support its formulation of a capstone publication that is based on an analysis of future trends but also is consistent with the enduring Coast Guard characteristics we identified.

6. Supporting Documents

6.1 Coast Guard Future Directions (CAB 96-96)

CAB 96-96 presents our initial briefing to the Coast Guard leadership concerning Coast Guard core values, future trends, and proposed notional end states.

6.2 Trends (CIM 499)

CIM 499 presents a more detailed description of the trends discussed in this document.

6.3 CG Enduring Characteristics (CRM 97-17)

CRM 97-17 presents a more detailed description of the enduring characteristics discussed in this document.

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