

Modernizing the Department of Homeland Security's Aerial Fleets



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Executive Summary

When Congress created the Department of Homeland Security (DHS) in 2002, it brought together 22 separate government organizations ranging from the U.S. Coast Guard to the Border Patrol. A number of these had been operating fleets of maritime and aerial patrol platforms. The leadership of the new department recognized the importance of concentrating and integrating its assets, most particularly aircraft and marine vessels. To this end, DHS assigned Customs and Border Protection overall responsibility for management of air and maritime systems other than those belonging to the Coast Guard and within Customs and Border Patrol stood up the Office of Air and Marine (OAM) in 2005. OAM thus became the world's largest law enforcement air and marine service with around 280 aircraft and 100 marine vessels. Due to the manner in which it was created, OAM inherited a collection of some 20 different aerial systems, many even then quite old and most not equipped with the kinds of modern surveillance and communications capabilities commonly available on military aircraft. Together with the Coast Guard's air arm, DHS now operates an air fleet of nearly 500 fixed wing aircraft, helicopters and unmanned aerial systems.

The Coast Guard and OAM faced twin challenges: first, operating and maintaining a diverse and aging aerial fleet; and second, implementing a program to modernize that fleet. With respect to the first, both organizations have demonstrated remarkable success. However, they also face the enormous challenge of maintaining the utility of their aging fleets while also implementing major modernization programs. Both face difficulties due to the age of many of their systems. Nearly half of OAM's aircraft are more than 33 years old. While some aircraft such as the P-3 Orion are undergoing service life extension programs, most of the older systems are at the end of their expected service lives and must soon be replaced.

The Coast Guard air arm is stressed by heavy demands on the fleet. Like OAM, the Coast Guard has been struggling to modernize its air arm as part of the Deepwater program. Some older systems, such as the 95 HH-65B Dolphin helicopters, are being upgraded and others such as the HU-25 Falcon aircraft are being replaced.

Over the past several decades, there has been a revolution in military airborne intelligence, surveillance and reconnaissance. Integrated airborne reconnaissance has been one of the most decisive factors in U.S. military operations in Iraq and Afghanistan as well as in NATO's air campaign in Libya. DHS is just beginning to exploit this revolution for the purposes of securing the nation's airspace, borders and territorial waters. The Multi-role Enforcement Aircraft program will provide OAM with up to 50 advanced surveillance aircraft.

DHS's current aerial fleets are undersized, heavily engaged and aging. Both OAM and the Coast Guard would benefit from the recapitalization of their aging assets. However, even before the current budget crisis, funding cuts have set back modernization efforts. As a result, the security of the homeland is at increased risk. The Obama Administration and Congress must provide the necessary resources to insure the full and timely modernization of DHS's air systems, including the acquisition of modern aircraft and helicopters.

Modernizing the Department of Homeland Security's Aerial Fleets

Air power is essential to U.S. security both abroad and at home. Since the establishment of the Aeronautical Division of the Army Signal Corps in 1907, the U.S. military has experienced a continuing expansion in the role of aerial systems. The most obvious testament to the importance of air power was the creation of the United States Air Force in 1947. But aerial systems play a major role in the operations of the other military services as well.

The history of air power in the protection of the homeland is almost as long and storied as its military role. On August 29, 1916, President Woodrow Wilson signed into law an act establishing an "Aerial Coast Patrol." After several false starts, the U.S. Coast Guard finally acquired its first airplanes in the early 1920s. Today, the Coast Guard is one of the largest naval air forces in the world, operating more than 200 aircraft and helicopters from 26 air stations in the continental United States, Hawaii, Alaska and Puerto Rico.



Coast Guard aviation supports the full range of that service's missions. In addition, Coast Guard capabilities are tasked with supporting the National Military Strategy and other national-level defense and security strategies in the following areas: maritime interception and interdiction; military environmental response; port operations, security and defense; theater security cooperation; coastal sea control; rotary wing air intercept; combating terrorism; and maritime operational threat response support.

When Congress created the Department of Homeland Security (DHS) in 2002, it brought together 22 separate government organizations ranging from the Secret Service to the Border Patrol. A number of these in addition to the Coast Guard operated fleets of maritime and aerial patrol platforms. The leadership of the new department recognized the importance of concentrating and integrating its assets, most particularly aircraft and marine vessels. To this end, DHS assigned Customs and Border Protection (CBP) overall responsibility for management of air and maritime systems other than those assigned to the Coast Guard, and within CBP stood up the Office of Air and Marine (OAM) in 2005. The mission of OAM is:

... to protect the American people and Nation's critical infrastructure through the coordinated use of integrated air and marine forces to detect, interdict and prevent acts of terrorism and the unlawful movement of people, illegal drugs and other contraband toward or across the borders of the United States.¹

¹ Office of Air and Marine Overview, October 5, 2010, at http://www.cbp.gov/xp/cgov/border_security/air_marine/cbp_air_marine_overview.xml

Almost instantaneously, OAM became one of the world's largest law enforcement air and marine services with around 280 aircraft and 100 marine vessels. Due to the manner in which it was created, OAM inherited a collection of some 20 different aerial systems, many even then quite old and most not equipped with the kinds of modern surveillance and communications capabilities commonly available on military aircraft. One of the major sources for aircraft and helicopters was the Department of Defense which had a practice of providing used platforms exiting the inventory on long-term loan to civil agencies.

Together, U.S. Coast Guard aviation and OAM constitute one of the largest homeland security aviation forces in the world. In many cases, their air assets are used almost interchangeably. Both organizations conduct aerial surveillance along our coasts in support of drug interdiction operations, operate helicopters for interdiction, law enforcement support, and humanitarian assistance and also cooperate with other federal departments and agencies as well as foreign governments. OAM's Big Pipe program provides real-time video and sensor data from assets with advanced capabilities to federal, state, local and tribal law enforcement and public safety agencies.²

In addition to cooperating in field activities, the Coast Guard and OAM are exploring ways of more closely align the acquisition and sustainment of air assets. The "One DHS Air" initiative is intended to identify potential economic efficiencies. One concept being studied is the costs and benefits of collocating nearby operational units. Another is the creation of a unified information management system for existing aviation assets of both agencies. DHS hopes that the One DHS Air initiative will lead to interoperable training, operations, safety standards, and information management.³

The Evolution of DHS Aviation



From the time DHS was created, both the Coast Guard's air arm and OAM faced two challenges. The first was operating and maintaining diverse aerial fleets that had been acquired in a different era. This challenge was made all the more difficult because of the expanding set of missions both institutions were required to perform in the aftermath of September 11 and the creation of DHS. The demands for enhanced maritime domain awareness required closer surveillance of more vessels farther from U.S. shores. In addition,

criminal organizations were demonstrating increased technological sophistication in their efforts to transport illegal materials and individuals into the United States. For example, drug cartels are

² John S. Beutlich, Director, Northern Region Office of Air and Marine, *Testimony*, House Committee on Homeland Security Subcommittee on Emergency Preparedness, Response, and Communications, October 28, 2011

³ Rear Admiral Vincent Atkins (USCG), Assistant Commandant for Capability, *Testimony*, House Appropriations Subcommittee on Homeland Security, March 25, 2010

employing submersibles and even submarines in their efforts to circumvent sea-based interdiction efforts.⁴

The second challenge is to modernize its aging air fleets. Even before becoming part of DHS, it was generally recognized that the Coast Guard was heavily burdened by an air fleet that was expensive to operate and maintain, technologically obsolescing and not necessarily well-suited for performing the full breadth of missions.

Similarly, the OAM faces enormous difficulties due to the age of its systems. According to Major General Michael Kostelnik (Ret.), Assistant Commissioner, Office of Air and Marine, U.S. Customs and Border Protection:

The age of CBP's assets is a growing concern. On average, nearly half of our aircraft are still more than 33 years old. While age alone does not determine aircraft safety, the office continues to experience age-related maintenance problems with some of its main-line aircraft. The office's 26 OH-light helicopters date back to the Vietnam War, and they are nearing the end of their service lives, with many experiencing engine problems, corrosion, and stress cracks. They are currently supported with a managed inspection program, and spare parts from retired aircraft. The 16 1970's vintage C-12/C-12M patrol aircraft are experiencing landing gear issues, limited parts availability, and need to be assessed for corrosion. The same goes for the 5 PA-42 patrol aircraft, another model near the end of its service life. In late 2009, OAM decided to retire all nine MD-600 light helicopters.⁵

In the late 1990s, the U.S. Coast Guard began a massive modernization program called Deepwater, focused primarily on improving its capabilities to operate farther from shore in deeper waters. The Deepwater program was envisioned as a single, comprehensive acquisition of new or modernized aircraft, helicopters and ships as well as the introduction of modern logistics, communications and command and control networks. Deepwater was intended to transform the Coast Guard's air fleet involving the introduction of new long-range maritime patrol aircraft equipped with advanced sensor suites and upgrades to rotary wing assets.⁶

Although the Integrated Deepwater program was formally terminated at the end of 2011, most of the specific programs associated with it are being continued including those intended to modernize the Coast Guard's air assets. This effort has two primary foci. The first is to enhance the capability for long-range maritime surveillance through the acquisition of new surveillance aircraft (C-130Js and HC-144 Medium-Range Surveillance aircraft) and the modernization and upgrading of older C-130Hs. The second focus is the modernization and upgrading of both the MH-60 Medium Range Recovery helicopters and the HH-65 Multi-Mission Cutter helicopters.

⁴ David Kushner, "Drug Sub Culture," *The New York Times*, April 23, 2009

⁵ Major General Michael Kostelnik (Ret.), Assistant Commissioner, Office of Air and Marine, CBP, "Testimony before the House Appropriations Committee, Subcommittee on Homeland Security, on Office of Air and Marine Operations and Investments," April 19, 2010

⁶ Ronald O'Rourke, *Coast Guard Deepwater Program: Background, Oversight Issues, and Options for Congress*, RL 33753, Congressional Research Service, June 22, 2007

OAM developed and is now implementing a long-term modernization. This plan involves both selective upgrading of existing platforms and the acquisition of modern systems. For example, the office's fleet of 16 P-3 Orion long-range patrol aircraft is completing a Service Life Extension Program which will add more than 20 years to the operational life of these aircraft. One of OAM's most significant modernization programs is the acquisition of up to 50 new King Air 350s equipped with a sophisticated array of modern sensors, communications collection equipment, and satellite communications capabilities.

Both the Coast Guard and OAM are introducing unmanned aerial systems (UAS) into their fleets. Since 2005, OAM has operated the Predator B long-duration UAS on both the southern and northern borders. The current plan is to acquire up to 24 Predator drones. In addition, OAM and the Coast Guard stood up a



joint program office to develop a maritime variant of the Predator, the Guardian UAS. Also, the Coast Guard is planning to acquire up to 45 vertical takeoff UASs for operation from shore and larger ships. It has conducted operational tests with both the Scan Eagle and Fire Scout UASs.

The Future of DHS Aviation

Over the past several decades, there has been a revolution in military airborne intelligence, surveillance and reconnaissance. Integrated airborne reconnaissance has been one of the most decisive factors in U.S. military operations in Iraq and Afghanistan as well as in NATO's air campaign in Libya. DHS's aerial fleets need to exploit this revolution for the purposes of securing the nation's airspace, borders and territorial waters. This means, in part, providing modern sensor suites on aircraft and helicopters. It also means deploying unmanned aerial systems when operating issues posed by the Federal Aviation Administration are resolved.

Currently, OAM operates 22 different types of aircraft. One of OAM's long-term goals is to reduce the types of aircraft while introducing aircraft with improved capabilities. This has been the rationale for the acquisition of the King Air 350 and the Eurocopter AS-350B. Even with these acquisitions, a large fraction of OAM's air assets will be older models that have been refurbished. Consequently, OAM faces a medium-term block obsolescence problem.

In addition, OAM faces a particularly challenging long-term modernization problem. In essence, its current program is only a temporary fix. The current modernization program is unlikely to provide sufficient assets to cope with the increase in demand for surveillance and intelligence

information. OAM would benefit from being allowed to expand its air fleet with additional modern aircraft and helicopters equipped with advanced sensors.

The ability of both Coast Guard and OAM to implement their long-term modernization plans will be affected by a number of factors. One of the most obvious of these is the availability of sufficient resources with which to upgrade existing platforms or acquire new ones. The Government Accountability Office has warned that required funding for Coast Guard modernization programs is greater than that which is likely to be available.⁷ Coast Guard and OAM officials have noted that perturbations in planned funding could significantly disrupt efforts to modernize DHS's air fleets. In some cases, existing production lines could go dormant for some of the oldest platforms making it difficult to modernize or even maintain these systems.

A second factor is the increased demand on DHS's current aviation assets. The requirement to secure the more than 100,000 mile long U.S. land and sea border against long-standing and emerging threats has created new demands for aerial surveillance and tactical response. The current modernization program will not fully replace or upgrade current assets for years to come. As a consequence, there is increased wear and tear on aging platforms. This results in growing maintenance costs and, frequently, in reduced asset availability.



The demand for aerial surveillance assets to support homeland security and law enforcement missions is likely to grow just as it has in the military. The Big Pipe program is an example of the contribution that federal air surveillance assets can make to all levels of law enforcement. Only a portion of OAM's fleet has been upgraded with the types of sensor needed for the collection and transmission of surveillance and intelligence data.

A third factor will be the prospect of acquiring additional aviation platforms. Proposed budgets allow for a measured modernization of DHS's aviation assets. Additional capabilities may be obtained on loan or at reduced price from the Department of Defense. In the past, the Pentagon has been a major source of aerial platforms for OAM's predecessor organizations. With operations in Iraq and Afghanistan winding down and defense budgets declining, it is quite possible that the defense department will find itself with an excess inventory of helicopters. As in the past, this excess inventory could be offered to other agencies.

⁷ Government Accountability Office, *Coast Guard[:] Action Needed As Approved Deepwater Program Remains Unachievable*, GAO-11-743, July 2011, pp. 10-16

Such an offer would present DHS with a dilemma: whether to accept some of the defense department's excess or to pursue acquisition of new platforms. Although the offer of "free" helicopters appears quite appealing at first glance, there are unrecognized difficulties. The systems most likely to be offered will be its oldest and most battle worn. Consequently, they will require significant resources both to make them serviceable and to operate them as they age further. Moreover, even if they are refitted, older platforms may have much more limited operational capabilities than would be the case for more modern helicopters. A possible exception to the problem of accepting excess defense department air assets is the C-27. The Air Force is planning to decommission its fleet of nearly new C-27s tactical transports and sell them overseas. However, the Coast Guard reportedly is considering the possibility of acquiring these aircraft to augment its fleet of maritime surveillance aircraft. This would seem to make eminent sense, providing the Coast Guard with virtually new aircraft that could be readily equipped for a range of surveillance and rescue missions.

In making acquisition decisions, careful consideration must be given to the tradeoffs between relying on upgraded platforms with a limited life span, accepting used platforms from the Department of Defense or pursuing a strategy of acquiring the best new platforms available to meet the mission. While the modernization of older systems and the acquisition of used platforms provide a near-term surge in capability, it creates a bow wave effect that is likely to cause OAM problems in the future.

In summation, the Homeland Security Department's current aerial fleets are undersized, heavily engaged and aging. Both OAM and the Coast Guard, at a minimum, need to fully recapitalize their aging assets. However, even before the current budget crisis, funding cuts have slowed back efforts to modernize these aerial fleets as rapidly or fully as demand would dictate. As a result, the security of the homeland is at increased risk. The Obama Administration and Congress must provide the necessary resources to allow the full and timely modernization of DHS's air systems, including the acquisition of modern aircraft and helicopters.

Glossary of Terms

CBP	Customs and Border Patrol
DHS	U.S. Department of Homeland Security
MDA	Maritime Domain Awareness
OAM	Office of Air and Marine
UAS	Unmanned Aerial Systems



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