

January 2009

# HOMELAND DEFENSE

## Actions Needed to Improve Management of Air Sovereignty Alert Operations to Protect U.S. Airspace



GAO

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# Report Documentation Page

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Highlights of [GAO-09-184](#), a report to congressional requesters

## Why GAO Did This Study

According to U.S. intelligence, the threat to U.S. airspace remains. The North American Aerospace Defense Command (NORAD) is to defend U.S. air space and the U.S. Air Force has 18 sites in the United States that conduct air sovereignty alert (ASA) operations. ASA operations support fighter aircraft in conducting homeland air defense operations. GAO examined the extent to which (1) NORAD has adopted a risk-based management approach to determine ASA operational requirements; (2) the Air Force has implemented ASA operations as a steady-state mission in accordance with Department of Defense (DOD), NORAD, and Air Force directives and guidance; (3) the Air Force assesses the readiness of units conducting ASA operations; and (4) the Air Force faces challenges in sustaining ASA operations for the future and what plans, if any, it has to address such challenges. GAO reviewed relevant ASA guidance, directives, and planning documents; and interviewed DOD officials, including the commanders of all 18 ASA sites.

## What GAO Recommends

GAO recommends that DOD conduct routine risk assessments, implement ASA as a steady-state mission, and develop plans to address future challenges. DOD agreed with some and partially agreed with other recommendations. GAO clarified the recommendations based on DOD comments on a draft of this report.

To view the full product, including the scope and methodology, click on [GAO-09-184](#). For more information, contact Davi M. D'Agostino at (202) 512-5431 or [dagostinod@gao.gov](mailto:dagostinod@gao.gov).

## HOMELAND DEFENSE

### Actions Needed to Improve Management of Air Sovereignty Alert Operations to Protect U.S. Airspace

#### What GAO Found

Responding to individual requests from DOD, NORAD has done some assessments to determine ASA operational requirements. NORAD has not adopted a risk-based approach to determining ASA requirements, including routine risk assessments. Although GAO previously reported on the benefits to organizations that routinely do risk assessments to determine program requirements, NORAD does not conduct such assessments because DOD does not require NORAD to do so. However, such assessments could enhance NORAD's ability to determine and apply the appropriate levels and types of units, personnel, and aircraft for the ASA mission.

The Air Force has not implemented ASA operations in accordance with DOD, NORAD, and Air Force directives and guidance, which instruct the Air Force to establish ASA as a steady-state (ongoing and indefinite) mission. The Air Force has not implemented the 140 actions it identified to establish ASA as a steady-state mission, which included integrating ASA operations into the Air Force's planning, programming, and funding cycle. The Air Force has instead been focused on other priorities, such as overseas military operations. While implementing ASA as a steady-state mission would not solve all of the challenges the units must address, it would help them mitigate some of the challenges associated with conducting both their ASA and warfighting missions.

NORAD has partially assessed the readiness of ASA units; however the Air Force has not evaluated personnel, training, and quantity and quality of equipment. Readiness measures are designed to ensure that DOD forces are properly trained, equipped, and prepared to conduct their assigned missions. For example, while NORAD evaluated the extent to which aircraft were maintained for ASA operations and the units' ability to respond to an alert and to locate and intercept aircraft, it did not evaluate training. Because the Air Force has not implemented ASA as a steady-state mission or formally assigned the mission to the units, it does not assess ASA readiness. By assessing the readiness of units that consistently conduct ASA operations, DOD would be better assured that these units are organized, trained, and equipped to perform ASA operations.

The Air Force faces two challenges to sustaining its ASA capabilities over the long term—(1) replacing or extending the service life of aging fighter aircraft and (2) replacing ASA units with equipment and trained personnel when they deploy. For example, if aircraft are not replaced by 2020, 11 of the 18 current air sovereignty alert sites could be without aircraft. The Air Force has not developed plans to mitigate these challenges because it has been focused on other priorities. Plans would provide the Air Force information that could assist it in ensuring the long-term sustainability of ASA operations and the capability of ASA units to protect U.S. airspace.

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## Abbreviations

AFB	Air Force Base
ANG	Air National Guard
ANGB	Air National Guard Base
ANGS	Air National Guard Station
ASA	Air Sovereignty Alert
DOD	Department of Defense
EXORD	Execution Order
NGB/ANG	National Guard Bureau/Air National Guard
NORAD	North American Aerospace Defense Command
NORTHCOM	U.S. Northern Command
PACOM	U.S. Pacific Command

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United States Government Accountability Office  
Washington, DC 20548

January 27, 2009

The Honorable Patrick Leahy  
United States Senate

The Honorable Christopher S. Bond  
United States Senate

The Honorable Gene Taylor  
House of Representatives

The Honorable Frank A. LoBiondo  
House of Representatives

In the hours after the tragic events of September 11, 2001, the North American Aerospace Defense Command (NORAD)<sup>1</sup> engaged in efforts to defend the air sovereignty of the United States against a new type of air attack—one that was initiated from within our own borders. Although federal agencies responsible for protecting domestic airspace have taken measures to deter such attacks, the *National Strategy for Aviation Security*, issued in March 2007, recognizes that air attacks are still a threat to the United States and its people.<sup>2</sup> U.S. intelligence agencies have also stated that the threat to U.S air sovereignty remains.

The commander of NORAD is charged with the missions of aerospace warning and aerospace control for North America.<sup>3</sup> To accomplish these missions, NORAD has fully fueled, fully armed aircraft and trained personnel on alert 24 hours a day, 365 days a year, at 18 air sovereignty

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<sup>1</sup> NORAD is a binational United States and Canadian organization charged with the missions of aerospace warning and aerospace control for North America. Aerospace warning includes the monitoring of man-made objects in space, and the detection, validation, and warning of attack against North America whether by aircraft, missiles, or space vehicles, through mutual support arrangements with other commands. Aerospace control includes ensuring air sovereignty and air defense of the airspace of Canada and the United States.

<sup>2</sup> The White House, National Security Presidential Directive 47/Homeland Security Presidential Directive 16 (NSPD-47/HSPD-16), *National Strategy for Aviation Security* (Washington, D.C.: Mar. 26, 2007).

<sup>3</sup> The current NORAD commander is also the commander of U.S. Northern Command (NORTHCOM).

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alert (ASA) sites across the United States. The Air Force provides NORAD with personnel and equipment for these operations including fighter aircraft, which include F-15 and F-16 aircraft as shown in figures 1 and 2.

**Figure 1: F-15s on Alert at Portland, Oregon ASA Site**



Source: U.S. Air Force photo by Staff Sgt John Hughel.

**Figure 2: F-16 on Alert at Atlantic City, New Jersey ASA Site**



Source: U.S. Air Force photo by Master Sgt Andrew Moseley.

ASA units, which include both Air National Guard (ANG) and active duty Air Force personnel, are dual tasked to conduct both expeditionary

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missions and ASA operations. ASA operations consist of ground operations that take place before fighter aircraft take off, including such activities as maintaining the fighter aircraft. They also include those activities that may take place after a unit receives an alert from NORAD but before the aircraft are airborne. For example, pilots and maintenance personnel may rush from their nearby lodging facility to the alert aircraft facility, where maintenance personnel conduct final preparations while the pilots sit in their aircraft awaiting further instruction (battle station). Alternatively, pilots may taxi the aircraft to the end of the runway and await further instruction (runway alert) or take off in response to the alert (scramble).

Once aircraft take off, “alert” operations end and the operation becomes a homeland defense air mission under Operation NOBLE EAGLE.<sup>4</sup> When this transition occurs, an ANG pilot converts from Title 32 status under the command and control of the state governor to federal Title 10 status under the command and control of NORAD.<sup>5</sup> If warranted, NORAD can increase personnel, aircraft, and the number of ASA sites based on changes in the threat conditions. According to DOD documents, day-to-day, or steady-state, operations consist of the current personnel and aircraft at the 18 ASA sites scattered throughout the United States. This report focuses on the 20 units at the 18 sites that were conducting these steady-state ASA operations up through September 2008.<sup>6</sup>

Given the importance of the capability to deter, detect, and destroy airborne threats to the United States, it is important that the Air Force address current and future requirements of the ASA mission to ensure its long-term sustainability. This includes ASA units’ ability to ensure that units conducting ASA operations are also able to train for and perform their expeditionary missions. Further, the Air Force should ensure that it has fighter aircraft available to conduct ASA operations, since the F-15s

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<sup>4</sup> DOD’s Operation NOBLE EAGLE was initiated after the terrorist attacks of September 11, 2001, to address asymmetric threats.

<sup>5</sup> Title 32 and Title 10 refer to sections of the United States Code.

<sup>6</sup> In October 2008, ASA operations transferred from Selfidge Air National Guard Base (ANGB), Michigan to Toledo Express Airport, Ohio, as a result of DOD’s 2005 Base Closure and Realignment process. Although we talked with unit commanders from Toledo, we did not include their responses in our analysis since the unit was not conducting ASA operations at the time of our discussion.

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and F-16s used for these operations are beginning to reach the end of their useful service lives.

We have previously reported that one widely accepted method to effectively determine requirements and manage risk for a mission or operation is through a five-phase risk management approach.<sup>7</sup> For example, one phase of this approach is a risk assessment phase, which includes evaluating threats, vulnerabilities, and consequences; another phase includes evaluating alternatives based on different costs and other factors.

In light of these issues, you asked that we review the management of ASA operations. In conducting our review, we examined the extent to which (1) NORAD has adopted a risk-based management approach to determine ASA operational requirements; (2) the Air Force has implemented ASA operations as a steady-state or ongoing and indefinite mission in accordance with NORAD, DOD, and Air Force directives and guidance;<sup>8</sup> (3) the Air Force assesses the readiness of units conducting ASA operations; and (4) the Air Force faces challenges in sustaining ASA operations for the future and what plans, if any, it has to address such challenges.

To determine the extent to which NORAD has adopted a risk-based management approach to determine ASA operational requirements, we

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<sup>7</sup> The five phases include determination of strategic goals, objectives, and constraints; risk assessment; evaluation of alternatives; management selection; and implementation and monitoring. See GAO, *Homeland Security: Key Elements of a Risk Management Approach*, GAO-02-150T (Washington, D.C.: Oct. 21, 2001); *Homeland Security: Further Actions Needed to Coordinate Federal Agencies' Facility Protection Efforts and Promote Key Practices*, GAO-05-49 (Washington, D.C.: Nov. 30, 2004); *High-Risk Series: An Update*, GAO-05-207 (Washington, D.C.: January 2005); *21st Century Challenges: Reexamining the Base of the Federal Government*, GAO-05-325 (Washington, D.C.: February 2005); *Defense Management: Additional Actions Needed to Enhance DOD's Risk-Based Approach for Making Resource Decisions*, GAO-06-13 (Washington, D.C.: Nov. 15, 2005); and *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other critical Infrastructure*, GAO-06-91 (Washington, D.C.: Dec. 15, 2005).

<sup>8</sup> Although DOD uses the term "steady state" in multiple documents, we were unable to find an official DOD definition. However, headquarters Air Force officials told us that DOD generally refers to a steady-state mission as one that is ongoing and indefinite. Implementing ASA operations into a steady-state mission would include a number of actions, including baselining the operations across the Air Force's Future Years Defense Program.

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compared a widely accepted risk-based management framework to assessments that NORAD conducted on ASA operations. To determine the extent to which the Air Force has implemented ASA operations as a steady-state mission, we reviewed NORAD, DOD, and Air Force guidance regarding how ASA operations are to be managed. We also interviewed DOD and Air Force officials and obtained ASA documents that contained information about the management of ASA operations, including oversight and funding of the operations. We then compared how the Air Force had implemented ASA operations to NORAD, DOD, and Air Force guidance. To determine the extent to which the Air Force assessed the readiness of units performing ASA operations, we obtained and analyzed DOD guidance and reviewed the readiness reports of all units that conduct ASA operations. We reviewed the readiness reports and interviewed unit officials and determined how well these reports reflected the extent to which these units were organized, trained, and equipped to conduct ASA operations. To determine the extent to which the Air Force faces challenges in sustaining ASA operations for the future and what plans, if any, it has to address such challenges, we interviewed DOD and Air Force officials and obtained and reviewed DOD reports that identified challenges the Air Force will face in sustaining future ASA operations. We also interviewed DOD and Air Force officials and obtained their views on the challenges they will face, and we requested any plans addressing these challenges. We also conducted structured interviews with the commanders of the 20 alert units located at all 18 ASA sites and asked them to respond to a variety of questions regarding aspects of all four objectives.<sup>9</sup> We conducted this performance audit from April 2008 to January 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Additional information on our scope and methodology appears in appendix I.

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<sup>9</sup> We also interviewed commanders from two additional sites that were scheduled to conduct ASA operations after fiscal year 2008 as a result of DOD's 2005 Base Closure and Realignment process. An ANG unit located at Toledo Express Airport, Ohio started conducting ASA operations in October 2008 and an ANG unit located at Barnes Air National Guard Station (ANGS), Massachusetts, is scheduled to take over ASA operations during fiscal year 2010. However, since the two units were not conducting ASA operations at the time of our discussion we did not include their responses with those from the 20 units that were conducting ASA operations at the time of our discussion. Therefore, throughout the report, we refer to 20 alert units located at 18 alert sites.

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## Results in Brief

While NORAD has performed some risk assessments, it has not adopted a risk-based management approach to determine ASA operational requirements. In our prior work on management practices, we noted that an on-going, risk-based management approach, which would include routine risk assessments, could help effectively manage risk and determine requirements for federal programs. NORAD has completed three assessments that we determined could be part of a risk-based management approach. NORAD completed the first of these assessments after the September 11, 2001, terrorist attacks, when it worked with other federal agencies and determined, based on vulnerabilities and criticality, which sites should be protected by ASA operations. This assessment could be considered to be part of the risk assessment phase of a risk management approach. NORAD did two other assessments, in 2005 and 2006, primarily in response to the 2005 Base Closure and Realignment Commission process and efforts to cut costs for Operation NOBLE EAGLE. On both of these occasions, NORAD conducted a cost evaluation, taking into consideration aviation security improvements—such as secured cockpits and enhanced passenger screening—that were made by the Transportation Security Administration since 2001. However, these assessments were not completed as a result of an established risk-based management approach intended to routinely manage risk and determine operational requirements for ASA operations. Instead, NORAD performed these assessments in response to individual DOD leadership inquiries about ASA operations. NORAD has not conducted similar assessments since 2006 because DOD does not require NORAD to manage ASA operations using a risk management approach, which includes routine risk assessments. By performing routine risk assessments, NORAD could better evaluate the extent to which previous threats have been mitigated by DOD or other government agencies, better evaluate current and emerging threats to determine which ones require the most urgent attention, and determine operational requirements to address changing conditions. Moreover, it could also help NORAD to evaluate alternatives to current operations, especially in a resource-restricted environment. Further, such assessments could enhance NORAD's ability to determine and apply the appropriate level and type of resources—including units, personnel, and aircraft—for the ASA mission. Therefore, we are recommending that the Secretary of Defense direct the Commander of the U.S. command element of NORAD to conduct routine risk assessments to determine ASA operational requirements.

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The Air Force has not implemented ASA operations as a steady-state (i.e., ongoing and indefinite) mission in accordance with current NORAD, DOD, and Air Force directives and guidance. In August 2002, the Air Force issued planning guidance to establish permanent ASA sites to support homeland defense rather than continuing to conduct ASA actions on a temporary basis,<sup>10</sup> as it had been doing since the terrorist attacks of September 11, 2001. Then, in response to a December 2002 NORAD declaration of a steady-state air defense mission, the Air Force took further action to establish ASA as a steady-state capability and issued a directive assigning specific functions and responsibilities to support the mission. According to the directive, the Air Force was to take 140 actions to implement a steady-state mission. For example, the directive required the Air Force Deputy Chief of Staff for Personnel to ensure that ASA active personnel requirements were included in the Air Force submission to the Future Years Defense Program.<sup>11</sup> The directive also required the Air Force major commands to develop the capability to report on the readiness of ASA activities in DOD's readiness system,<sup>12</sup> and the Deputy Chief of Staff for Personnel to work with the appropriate officials to limit adverse effects on the careers of personnel affected by the steady-state mission. Further, in December 2003 the Office of the Secretary of Defense directed the Air Force to assess and resource long-term ASA mission requirements in its submission for the 2006 through 2011 Future Years Defense Program.<sup>13</sup> However, the Air Force has not implemented ASA operations as a steady-state mission because, (1) according to headquarters Air Force officials, it has focused on other priorities such as overseas military operations, and (2) it believed that ASA operational requirements, such as

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<sup>10</sup> In August 2008, the Air Force issued an updated template in an effort to establish a standard for construction projects at ASA sites.

<sup>11</sup> The Future Years Defense Program is the program and financial plan for the Department of Defense, and includes a projection of costs data, manpower, and force structure at least 4 years beyond the budget year, as approved by the Secretary of Defense. It is provided to Congress in conjunction with the President's budget.

<sup>12</sup> DOD currently uses a readiness system called the Status of Resource and Training System to identify the adequacy of personnel, training, and equipment assigned to a unit to conduct its assigned mission. DOD announced plans to implement the Defense Readiness Reporting System in 2002. In 2006, we reported on this system and stated that while it contained usable information and functionality, it was in the early phases of implementation and data validation. See GAO, *Force Structure: DOD Needs to Integrate Data into Its Force Identification Process and Examine Options to Meet Requirements for High-Demand Support Forces*, [GAO-06-962](#) (Washington, D.C.: Sep. 5, 2006).

<sup>13</sup> DOD, Program Budget Decision No. 727 (Washington, D.C.: Dec. 12, 2003).

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number of sites, might be decreased to pre-September 11, 2001, levels at some point in the future. ASA units have thus far carried out these operations when called upon to do so, but have experienced difficulties since the Air Force has not implemented ASA as a steady-state mission. For example, officials at 17 of the 20 ASA units that we interviewed told us their units were adversely affected by short-term personnel assignments, uncertainty about the future of the mission, and limited opportunities for career advancement. According to ANG officials who coordinate ASA operations within the National Guard Bureau (NGB/ANG) and unit officials conducting ASA operations, while implementing ASA as a steady-state mission would not solve all of the challenges that the units must address, it would help them mitigate some of the challenges associated with conducting both their ASA and expeditionary missions, including uncertainties regarding personnel issues. Such uncertainties in employment have led to difficulty in recruiting and retaining personnel. Therefore, we are recommending that DOD establish a timetable to implement ASA as a steady-state mission, according to NORAD, DOD, and Air Force guidance; update the Air Force homeland defense policy, homeland operations doctrine, and concept of operations to incorporate and define the roles and responsibilities for ASA operations; and incorporate the ASA mission within the Air Force submissions for the 6-year Future Years Defense Program.

While NORAD and PACOM partially assessed the readiness of the units that carry out ASA operations, the Air Force, as the force provider, has not evaluated personnel, training, or quantity and quality of equipment. NORAD conducts two types of assessments that evaluate the extent to which aircraft are maintained for ASA operations and the units' ability to respond to an alert and to locate and intercept aircraft. However, these NORAD evaluations only assess personnel on duty at the time of the inspection; they do not assess and report the extent to which all of the unit's personnel involved in the conduct of ASA operations are adequately trained. Although the Air Force is responsible for measuring a unit's readiness to perform its missions by evaluating personnel, training, and quantity and quality of equipment, it does not assess these factors specifically with respect to ASA operations. The Air Force has not evaluated these aspects of readiness because it has not formally assigned ASA as a mission to the units and included it on the units' mission lists,<sup>14</sup>

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<sup>14</sup> The Air Force issues mission designed operational capabilities statements that identify the unit's mission(s) and related requirements (e.g., type and number of personnel). The unit's readiness is based on these requirements.

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which would be done as part of implementing ASA operations as a steady-state mission. Additionally, the Air Force has been focused on other priorities and headquarters Air Force officials believe that ASA operations might be decreased to pre-September 11, 2001, levels at some point in the future. In its comments on a draft of this report DOD pointed out that other military services could perform ASA operations when circumstances warrant. Therefore, we are recommending that DOD direct the military services with units that consistently conduct ASA operations to (1) formally assign ASA duties to these units and (2) ensure that the readiness of these units is fully assessed, to include personnel, training, equipment, and ability to respond to an alert.

The Air Force faces two significant challenges to the long-term sustainability of its ASA capabilities, and has not developed plans delineating the actions it will take to mitigate these challenges. First, according to Air Force documents and personnel, many of the service's aircraft are the oldest in Air Force history, and they have become more difficult and expensive to maintain over time. For example, if aircraft are not replaced within the next few years, our analysis of Air Force documentation indicates that 11 of the 18 current ASA sites could be without viable aircraft by 2020.<sup>15</sup> In comments on a draft of this report, DOD indicated that extending the service life of its F-15 and F-16 aircraft is also an option; however, the Air Force has yet to determine the extent to which such actions are viable. Second, while continuing to deploy units for overseas operations and supporting units that are receiving replacement aircraft, the Air Force must ensure that units are trained, available, and ready to perform ASA operations. Currently, when ASA units are deployed, unit commanders typically try to independently find units to replace them, and unit officials told us that this can be difficult to do. Similarly, 14 of the 18 current ASA sites will have to suspend ASA operations for a period of time between 2010 and 2020, as their aircraft reach the end of their useful service lives or they are equipped with new fighter aircraft. According to Air Force officials, the Air Force has not addressed these challenges because it has been focused on other priorities. Failure to develop detailed plans to address these challenges could jeopardize the Air Force's ability to protect U.S. airspace in the future. Therefore, we are recommending that DOD develop and implement a plan to address any projected capability gaps in ASA units due to the expected end of useful service lives of the F-15s and F-16s. We are also recommending that DOD develop and

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<sup>15</sup> By viable we mean aircraft that have not yet reached the end of their useful service life.

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implement a formal method to replace deploying units that still provides unit commanders flexibility to coordinate replacements. DOD provided written comments on a draft of this report. DOD agreed with some and partially agreed with other recommendations. However, in its comments, DOD did not commit to taking actions on the steps we were recommending. Therefore, we clarified some of our recommendations. We clarified our recommendation to use a comprehensive risk-based management approach in determining ASA operational requirements to specify the need to routinely conduct risk assessments to better ensure ASA operational requirements are appropriately determined. We also clarified our recommendation to implement ASA as a steady-state mission to suggest that the Air Force establish a timetable for implementing ASA since DOD's response did not set a timetable for doing so. Regarding assigning ASA duties to Air Force units performing ASA operations and ensuring their readiness, we clarified the recommendation to make it clearer that the military services that have units consistently conducting ASA operations formally assign ASA duties to these units and ensure their readiness to conduct these duties. Responding to our recommendation that the Air Force develop and implement a plan to address fighter capability gaps, DOD did not clearly agree to ensure the fighter gaps we identified would be addressed in Air Force plans. We continue to believe that our evidence supports the need to address these capability gaps in Air Force planning. Lastly, on our recommendation to develop and implement a formal method that includes ASA unit commanders' flexibility to replace deploying units, we believe DOD's plan should be responsive to our recommendation, if the ASA mission is formally assigned to the performing units. A summary of DOD's comments and a summary of our response to these comments follow the conclusion section of this report. DOD's written comments are attached to this report as appendix II.

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## Background

Protecting U.S. airspace has changed over the years. During the Cold War, DOD focused its air defense operations to protect U.S. airspace from air threats originating from the former Soviet Union. Today, several DOD organizations are involved in air defense and ASA operations, which have expanded to include the defense of U.S. airspace from air threats originating from within the United States. Because ASA operations are considered the last line of defense against air threats, it is crucial for this capability to be functioning.

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## History of ASA and Current Roles and Responsibilities

During the Cold War, NORAD positioned fighter aircraft across the United States and Canada to protect North America from a strategic attack by Soviet bombers. Alert fighter aircraft were manned by a dedicated force that was not assigned to other missions, and aircraft were armed, fueled, and ready at all times. As many as 5,800 aircraft were on alert in 1958, but the number of aircraft diminished over the years, as did the number of designated alert sites. By 1997 officials had suggested a “four corners” defense, maintaining alert sites in Massachusetts, Oregon, California, and Florida. By September 11, 2001, only 14 interceptor aircraft were sitting alert in the United States.

According to DOD’s 2008 *National Defense Strategy* and its 2005 *Strategy for Homeland Defense and Civil Support*,<sup>16</sup> protecting the U.S. homeland from direct attack is DOD’s highest priority. After the events of September 11, 2001, DOD initiated Operation NOBLE EAGLE, which shifted NORAD’s responsibilities to include protecting U.S. airspace from air threats originating from within the United States.

NORTHCOM is the military command responsible for executing DOD’s homeland defense and civil support mission within its area of responsibility—including the continental United States, Alaska, and territorial waters. The commander of NORTHCOM also commands NORAD. The NORAD commander is responsible for the command and control of homeland air defense and delegates much of this command and control function to one of its three regional commanders.<sup>17</sup> Although neither NORAD nor the Secretary of Defense specifies which military service must provide fighter aircraft to conduct ASA operations, the Air Force is currently providing 100 percent of the fighter aircraft. The Air Force is responsible for organizing, training, and equipping Air Force units. With regard to ASA operations, the Air Force has delegated the responsibility of organizing, training, and equipping combat-ready forces to its major commands. Specifically, Air Combat Command is responsible for providing air defense forces to NORAD and Pacific Air Forces

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<sup>16</sup> DOD, *National Defense Strategy* (Washington, D.C.: June 2008); and *Strategy for Homeland Defense and Civil Support* (Washington, D.C.: June 2005).

<sup>17</sup> The three regional commanders include the Commander of the Continental NORAD Region, which includes the airspace over the 48 contiguous states; the Commander of the Alaskan NORAD Region, which includes the airspace over Alaska; and the Commander of the Canadian NORAD Region, which includes the airspace over Canada. Air sovereignty for Hawaii is the responsibility of U.S. Pacific Command (PACOM) and does not fall within the NORAD command structure.

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Command is responsible for providing air defense forces to Hawaii. Alert forces deployed in Alaska are provided by PACOM. NORAD has established a binational subcommand under the leadership of a general officer who is responsible for both NORAD and PACOM activities.

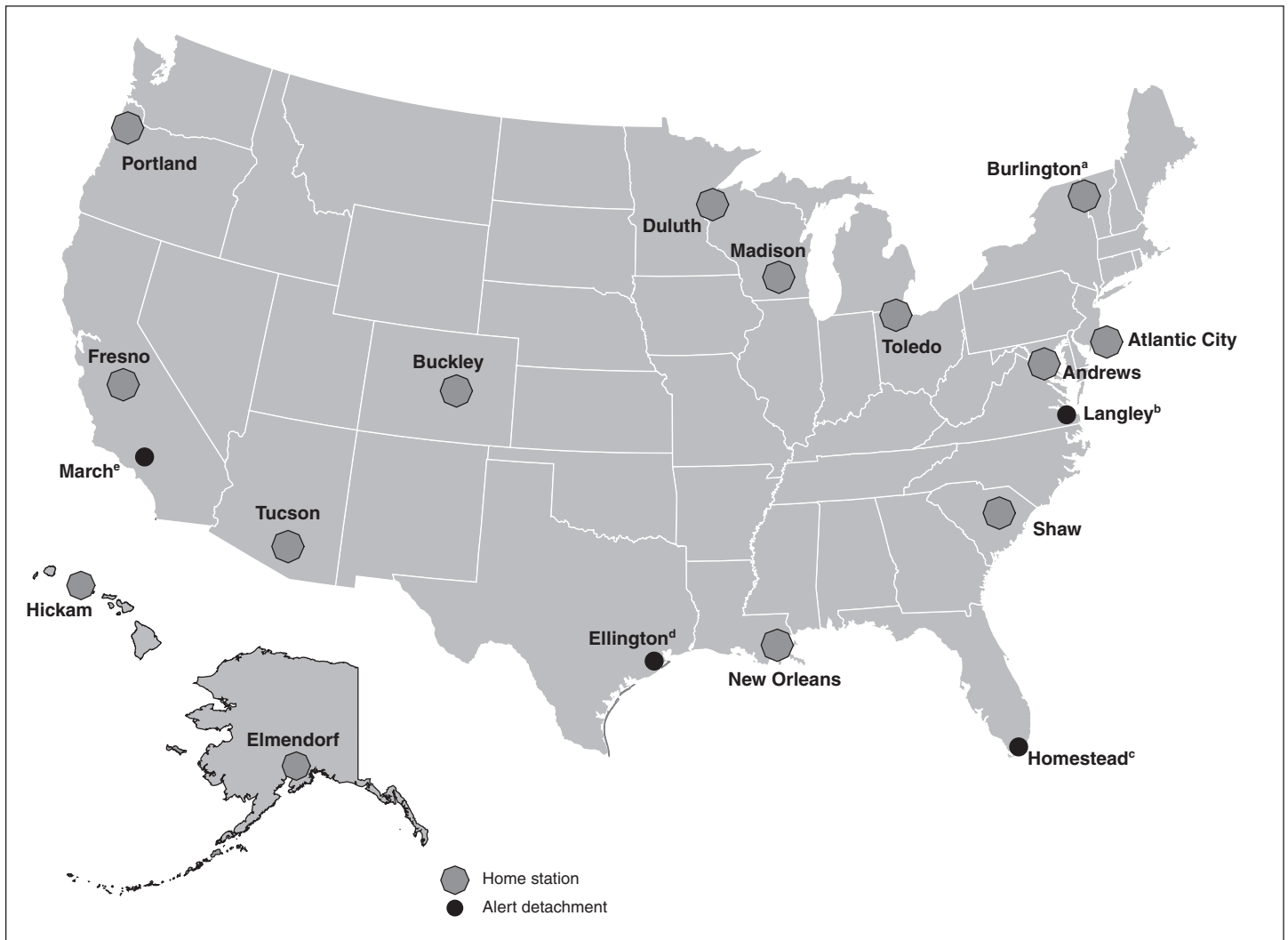
The commander of First Air Force is also the commander of the Continental NORAD Region and the Air Forces Northern Command. In each of these capacities, the commander has different responsibilities with regard to ASA operations. For example, as a numbered Air Force commander (i.e., First Air Force), the commander has the responsibility of ensuring the readiness of forces for air sovereignty and air defense of the continental United States. As the commander of the Continental NORAD Region, the commander is responsible for providing airspace surveillance and control and directing all air sovereignty activities for the continental United States. The role and responsibilities of being the commander of Air Forces Northern Command include air component planning, execution, and assessment of support to civil authorities (e.g., air operations during hurricane recovery) and command of air forces in support of NORTHCOM homeland defense missions. While the First Air Force, Continental NORAD Region, and Air Forces Northern Command have these responsibilities, the ASA units that conduct ASA operations are assigned to different numbered Air Forces within the Air Force's Air Combat Command, Air Education and Training Command, or Pacific Air Force Command for their expeditionary missions.<sup>18</sup>

There are currently 20 units at 18 designated steady-state alert sites in the United States, as shown in figure 3. The ANG provides the personnel and equipment at 16 of the 18 ASA sites while the active duty Air Force provides the personnel and equipment at the remaining 2 sites.

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<sup>18</sup> The Air Force has assigned a numbered air force to support each combatant command or major command. The intent is to have the units assigned to each numbered air force properly equipped and manned with trained personnel to conduct that particular commander's missions. Current ASA units are assigned to the following numbered air forces (and assigned combatant or major command): First Air Force (NORTHCOM), Ninth Air Force (U.S. Central Command), Eleventh Air Force (U.S. Pacific Command), Twelfth Air Force (Air Combat Command), and Thirteenth Air Force (U.S. Pacific Command).

**Figure 3: Locations of the 18 Steady-State ASA Sites in the United States as of October 2008**



Source: GAO analysis of DOD data.

<sup>a</sup>The Vermont ANG unit at Burlington International Airport is conducting ASA operations until the Massachusetts ANG unit at Barnes ANGWS assumes responsibility for ASA operations in fiscal year 2010.

<sup>b</sup>A detachment from the Vermont ANG conducts ASA operations at Langley Air Force Base (AFB), Virginia; the South Dakota ANG unit from Sioux Falls is assisting with ASA operations at this site until the Massachusetts ANG assumes responsibility for the New England ASA operations in fiscal year 2010.

<sup>c</sup>ASA operations at Homestead AFB, Florida are conducted by a detachment from the Jacksonville, Florida ANG unit.

<sup>d</sup>ASA operations at Ellington Field, Texas are conducted by a detachment from the Tulsa, Oklahoma ANG unit.

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<sup>a</sup>ASA operations at March Air Reserve Base, California are conducted by a detachment from the Fresno, California ANG unit.

ANG units fulfilling different roles are potentially subject to different authorities under the United States Code and state laws.<sup>19</sup> ANG units conduct ASA operations in a Title 32 status, meaning that they are under the command and control of the governor of the state but federally funded. However, pilots and aircraft of the same unit engage in an actual airborne air defense operation in a Title 10 status, because they are performing a federal mission under the command and control of NORAD. Active duty units are always in a Title 10 status, but command and control of pilots and aircraft conducting ASA operations passes from the local commander to NORAD when performing air defense operations, as shown in figure 4.

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<sup>19</sup> ANG units may operate under the authority of Title 10 or Title 32 of the United States Code, or fall under state laws. For a brief discussion of respective roles and responsibilities for each status, see Air Force Doctrine Document 2-8, *Command and Control* (Washington, D.C.: June 1, 2007); and GAO, *Homeland Security: Enhanced National Guard Readiness for Civil Support Missions May Depend on DOD's Implementation of the 2008 National Defense Authorization Act*, [GAO-08-311](#) (Washington, D.C.: Apr. 16, 2008).

**Figure 4: Differences Between ASA Operations and Homeland Defense Air Missions**



*F-16 sitting alert at Langley, VA ASA site.*

### **Air Sovereignty Alert Operations**

Fully fueled, fully armed fighter aircraft sitting alert 24 hours a day for 365 days a year.

- Command and control of personnel and equipment remains with the local commander.
- Costs to maintain alert are supposed to be funded through unit's normal funding methods.
- Air National Guard personnel are in Title 32 status. Active duty personnel are in Title 10 status.



*F-15 alert aircraft scrambles at Hickham, HI ASA site.*

### **Homeland Defense Air Missions**

An alert aircraft transitions from ASA operations to homeland defense air operations when it takes off in response to an alert or for scheduled and random air patrols at important national events and public gatherings.

- Command and control of personnel and equipment transition to NORAD command structure.
- Units pay for costs to scramble against "real world threats" while Air Force may reimburse units for training or scheduled air patrols, such as the Super Bowl.
- Air National Guard personnel transition to and active duty personnel remain in Title 10 status.

Source: GAO analysis; U.S. Air Force photos by (left) Technical Sgt William Parks, (right) Master Sgt Kristen Stanley.

Because ASA units are dual tasked for their expeditionary missions and ASA operations, other units fill in to conduct ASA operations when an ASA unit deploys. ANG units can, on their own, find replacements. Finding replacement for a unit's ASA operation can entail finding personnel and aircraft from multiple units.

## Risk-Based Management

GAO has previously reported that a risk-based management approach helps policymakers make informed decisions and prioritize resource investments. Risk-based management is a widely endorsed strategy for helping decision makers make decisions about allocating finite resources and taking action under conditions of uncertainty. We have previously recommended a five-phase approach to risk-based management as shown in table 1.

**Table 1: A Five-Phase Risk-Based Management Framework<sup>a</sup>**

Phase	Description	Example of elements
Strategic goals, objectives, and constraints	Addresses what the strategic goals are attempting to achieve and the steps needed to attain those results	<ul style="list-style-type: none"> <li>Overall results desired, i.e., "end state"</li> <li>Hierarchy of strategic goals and subordinate objectives related to those goals</li> <li>Specific activities to achieve results</li> <li>Priorities, milestones, and outcome-related performance measures</li> <li>Limitations or constraints that affect outcomes</li> </ul>
Risk assessment	Addresses identification of key elements of potential risks so that countermeasures can be selected and implemented to prevent or mitigate their effects	<ul style="list-style-type: none"> <li>Analysis of threat gained from available sources (This threat information will be used to develop scenarios. See below.)</li> <li>Estimation of vulnerability of an asset based on standards, such as <ul style="list-style-type: none"> <li>availability/predictability</li> <li>accessibility</li> <li>countermeasures in place, and</li> <li>target hardness</li> </ul> </li> <li>Identification of consequence of a terrorist attack on a specific asset and criticality, or the relative importance, of the asset involved</li> </ul>
Alternatives evaluation	Addresses the evaluation of alternative countermeasures to reduce risk being considered with associated costs	<ul style="list-style-type: none"> <li>Specific countermeasure(s) to reduce risk</li> <li>Use of external sources to improve decision making, such as consultation with experts and threat scenarios</li> <li>Cost-benefit analysis of countermeasure(s)</li> </ul>
Management selection	Addresses where resources and investments will be made based on alternatives evaluation and other management criteria, such as availability of funds	<ul style="list-style-type: none"> <li>Management's preferences and value judgments associated with expenditure of countermeasures and funds, such as distribution of antiterrorism measures over assets</li> <li>Organizational risk tolerance</li> <li>Resource allocations</li> <li>Documentation of decisions, including rationale</li> </ul>

Phase	Description	Example of elements
Implementation and monitoring	Addresses how countermeasures will be applied and mechanism to keep security measures updated	<ul style="list-style-type: none"> <li>• Implementation of countermeasures according to strategy</li> <li>• Periodic testing of countermeasures</li> <li>• Linkages to other risk management strategies, state, local, or private entities (horizontal)</li> <li>• Linkages to other strategies, both departmental and national (vertical)</li> <li>• Mechanisms for alterations in system based on current threat data</li> <li>• Periodic evaluation to assess efficiency and effectiveness of program</li> </ul>

Source: GAO.

<sup>a</sup>GAO, *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other Critical Infrastructure*, GAO-06-91 (Washington, D.C.: Dec. 15, 2005).

The framework should be considered a starting point, and the entire cycle of risk-based management activities should be viewed as a goal. The process is dynamic and new information can be entered at any phase. The framework can be used to inform agency officials and decision makers of the basic components of a risk-based management system or can be used as a stand-alone guide. The risk-based management approach as outlined above is designed to be flexible, in that the approach may be applied at various organizational levels from a department or a multiagency organization down to specific projects or operations such as ASA operations.

As we previously reported, because there is no one uniformly accepted approach to risk-based management, terms and activities may differ across applications. In addition, any approach that omits the substance of the steps may result in resources that are not targeted to the highest security needs. We also reported that failing to monitor the implementation of countermeasures, including those implemented by other agencies, may result in a misallocation of resources. Similarly, failing to conduct routine or periodic assessments of programs or operations could result in missed opportunities to increase their efficiency and effectiveness.

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## NORAD Has Assessed ASA Operational Requirements but Not on a Routine Basis as Part of a Risk-Based Management Approach

We identified three NORAD assessments of ASA operations; however, NORAD did not perform these assessments—or conduct other actions that would be part of a risk-based management approach—on a routine basis. According to our prior work, an ongoing risk-based management approach is a best practice that enhances an organization’s decision making, including determining operational requirements, and helps to guide the use of limited resources. A critical phase of implementing a risk-based management approach is the risk assessment phase, which helps decision makers identify and evaluate potential risks facing key assets or missions so that countermeasures can be designed and implemented to prevent or mitigate the effects of the risks. In addition to the risk assessment phase, alternatives to current requirements are evaluated while considering cost and other factors in the alternatives evaluation phase. Rather than performing these assessments as part of an adopted comprehensive management approach to manage risk or determine ASA operational requirements, NORAD performed these assessments in response to individual DOD leadership inquiries about ASA operations. While NORAD is not required to conduct risk assessments on a routine basis, doing so could allow it to enhance its ability to determine the appropriate level and types of resources—including units, personnel, and aircraft—for ASA operations.

In the first assessment we identified, after the terrorist attacks of September 11, 2001, NORAD, in working with other U.S. government agencies, developed a list of what it believed to be the most critical locations and infrastructure across the United States requiring its protection. We determined this assessment could be considered as part of the risk assessment phase of the overall risk management approach in which vulnerabilities and critical assets are evaluated. NORAD has not reevaluated this list since it created it in 2001 even though according to experts in the intelligence community, the type of threat has and continues to evolve, and other U.S. agencies have taken a number of measures to mitigate against aviation threats.

We identified a second assessment that NORAD conducted in 2005 that we considered could be part of the alternatives evaluation phase in which alternatives are considered. Specifically, NORAD’s air component—First Air Force—provided input to the 2005 BRAC process regarding which sites it would prefer to conduct ASA operations. First Air Force measured how long it would take a fighter plane to respond to a threat over a

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specific location—both from the current ASA site and from the proposed alternative sites—and the level of risk that would be posed under each alternative.<sup>20</sup> After the BRAC decisions were made in 2005, First Air Force assessed the impact of the commission’s decisions on ASA operations. For example, the commission recommended that ASA operations at Selfridge, Michigan, be transferred to Toledo, Ohio. First Air Force evaluated the impact of response times to cover high population centers and infrastructure in the area.

In the third assessment we identified, in 2006 the Office of the Secretary of Defense, requested that NORAD and other commands evaluate costs and identify measures to reduce Operation NOBLE EAGLE costs. We considered this assessment could also be included in the alternatives evaluation phase of a risk management approach. In this third assessment, NORAD identified a number of classified actions that it could take to reduce the cost of Operation NOBLE EAGLE but stated that in order to continue to fully support the homeland air defense mission, it would be necessary to maintain the current number of ASA sites based on proximity to critical infrastructure. NORAD’s assessment included a risk-based assessment of ASA requirements based on current and emerging threats. The assessment also took into consideration aviation security improvements that had been made by other federal entities since 2001, for example, the Transportation Security Administration’s use of Federal Air Marshals on selected flights. NORAD has not undertaken an assessment of alternatives since 2006.

In prior work, we have reported that the goal of risk-based management is to integrate systematic concern for risk into the existing cycle of agency decision making and implementation. Adopting such a risk-based management approach could help NORAD to better assess risk and determine operational requirements by addressing vulnerabilities and by presenting alternatives that could be implemented to address changing conditions. Adopting a risk-based management approach to include actions in all five phases, could also allow NORAD to evaluate the extent to which previous threats have been mitigated by DOD or other government agencies and to evaluate current and emerging threats to determine which ones require the most urgent attention. Routine risk assessments could help NORAD evaluate the extent to which current ASA

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<sup>20</sup> The assessment also evaluated the locations of aircraft, such as airborne early warning aircraft, that support ASA fighter aircraft.

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operational requirements—including the levels and types of sites, forces and equipment, and contributions from other DOD and non-DOD organizations—are needed to address threats as conditions change. NORAD officials stated that it has not adopted a risk-based management approach primarily because DOD does not require NORAD to use a risk-based management approach to determine ASA operational requirements. The use of a risk-based management approach could help NORAD to assure DOD, Congress, and others that it has considered risks in making decisions about how to apply the level and types of capabilities and resources needed to conduct the ASA mission in an increasingly constrained fiscal environment. Air Force and NORAD officials responsible for ASA operations acknowledged that an ongoing cycle of risk-based management, including a routine risk assessment of ASA operational requirements, would be beneficial to both the service and the command.

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## The Air Force Has Not Implemented ASA Operations as a Steady-State Mission in Accordance with NORAD, DOD, and Air Force Directives and Guidance

The Air Force has not implemented ASA operations as a steady-state mission in accordance with NORAD, DOD, and Air Force directives and guidance because it (1) has focused on other priorities and (2) believes that ASA operational requirements, such as the number of sites, might be decreased to pre-September 11, 2001, levels in the future. As a result, ASA units have experienced difficulties in conducting ASA operations and Congress and DOD lack cost visibility for decision making. Implementing ASA operations as a steady-state mission may help to mitigate these challenges. In addition, if ASA operations are not implemented as a steady-state mission, Congress and DOD leaders will not have visibility of costs and other important information to make decisions for these homeland defense operations.

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## The Air Force Does Not Operate ASA as a Steady-State Mission

Although its units are conducting ASA operations, the Air Force has not implemented these operations as a steady-state mission in accordance with NORAD, DOD, and Air Force directives and guidance. Specifically, in August 2002 the Air Force convened a working group that issued guidance for planning to establish permanent ASA sites in support of the mission in support of homeland defense rather than continuing to establish sites on a temporary basis, as it has since the terrorist attacks of September 11, 2001. In addition, in response to a December 2002 NORAD declaration of a steady-state air defense mission, the Air Force took further action in

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February 2003 to establish ASA as a steady-state capability by issuing a directive assigning specific functions and responsibilities to support the mission.<sup>21</sup> This directive identified 140 separate actions<sup>22</sup> to be taken by Air Force organizations to support the steady-state mission at all 18 ASA sites; these actions included addressing personnel, equipment, funding, and facility issues. For example, the directive required the Air Force Deputy Chief of Staff for Personnel to ensure that ASA active personnel requirements were included in the Air Force submission to the Future Years Defense Program. This program is one of the principal tools used to inform DOD senior leaders and Congress about resources planned to support various programs, and reflects DOD decisions regarding allocation of federal resources. The directive required the Air Force Major Commands to develop the capability to report on the readiness of ASA activities in DOD's readiness system, and the Deputy Chief of Staff for Personnel to work with the appropriate officials to limit adverse effects on the careers of personnel affected by the steady-state mission. In addition, it required the Deputy Chief of Staff for Air and Space Operations to provide policy and programming guidance and staff necessary issues through appropriate offices. Further, in December 2003, the Office of the Secretary of Defense directed the Air Force to assess and resource long-term ASA mission requirements in its submission for the 2006 through 2011 Future Years Defense Program.

Although NORAD, DOD, and the Air Force issued directives and guidance to establish a steady-state ASA mission, the Air Force did not take the steps needed to establish the mission. For example, although the Office of the Secretary of Defense directed the Air Force to program ASA operations across the 6 years of its Future Years Defense Program submission, the Air Force decided to program ASA operations in 2-year increments. Air Force, NORAD, and NGB/ANG officials told us that this decision has been the primary cause for the personnel difficulties ASA units are experiencing. Headquarters Air Force officials told us that they made this decision because they believed that the number of sites might decrease to the pre-September 11, 2001, levels and placing ASA operations

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<sup>21</sup> Headquarters U.S. Air Force Program Action Directive (PAD) 2003-01-XOH, *Homeland Air Defense for Steady State Alert Posture for Air National Guard, Air Force Reserve Command, Air Mobility Command, Air Education and Training Command, Air Force Materiel Command, Air Force Space Command, Pacific Air Forces, Air Force Special Operations Command, and Air Combat Command* (Washington, D.C.: Feb. 28, 2003).

<sup>22</sup> The directive did not identify specific time frames to accomplish these actions.

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across all 6 years would require the Air Force to offset another service program. However, Air Force officials also acknowledged that they could still have programmed it across the 6-year time frame since the Future Years Defense Program is a planning tool that could be modified if the number of sites were decreased in the future.<sup>23</sup> In addition, the Air Force did not fully fund ASA operations in the two previous 2-year programming cycles. For example, the Air Force did not program for 122 of the 922 ANG personnel (13 percent) identified as being needed to conduct ASA operations for fiscal years 2006 and 2007 and did not program for 150 of the 922 ANG personnel (16 percent) identified as being needed to conduct ASA operations for fiscal years 2008 and 2009. As a result, the Air Force had to use temporary funds and temporary orders to cover these personnel shortfalls since they are necessary to conduct ASA operations. According to headquarters Air Force officials, the Air Force focused on other priorities, such as overseas military operations; furthermore, it believed that future ASA operational requirements might be decreased to pre-September 11, 2001, levels. These officials stated that the lack of implementation was also attributable to a lack of clearly defined roles and responsibilities in Air Force homeland defense documents, and a limited corporate understanding of ASA operations and the units performing them. Our analysis showed that none of the Air Force's key homeland defense documents—the Air Force homeland defense policy directive, the Air Force homeland operations doctrine, and the Air Force homeland defense concept of operations—fully defines the roles and responsibilities for or accurately articulates the complexity of ASA operations.<sup>24</sup> For example, the Air Force's homeland defense policy directive, which is supposed to provide overarching guidance to enable the Air Force to organize, train, and equip by applying the principles, capabilities, and competencies of air and space power to homeland defense, does not mention or define ASA operations or outline the roles and responsibilities for managing these operations. In addition, the Air Force's homeland defense office, which was responsible for overseeing the implementation of the homeland defense directive, lost its general officer, was downsized,

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<sup>23</sup> In the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009, Congress directed the Secretary of Defense to submit a consolidated budget justification covering all programs and activities of the ASA mission for the Air Force, beginning with the fiscal year 2010 budget submission. Pub. L. No. 110-417, § 354 (2008).

<sup>24</sup> Air Force Policy Directive 10-8, *Homeland Defense and Civil Support*, (Washington, D.C.: Sep. 7, 2006); Air Force Doctrine Document 2-10, *Homeland Operations* (Washington, D.C.: Mar. 21, 2006); U.S. Air Force, *Homeland Defense and Civil Support (HDCS) CONOPS* (Washington, D.C.: Mar. 1, 2006).

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and organizationally realigned several times shortly after the directive was issued.

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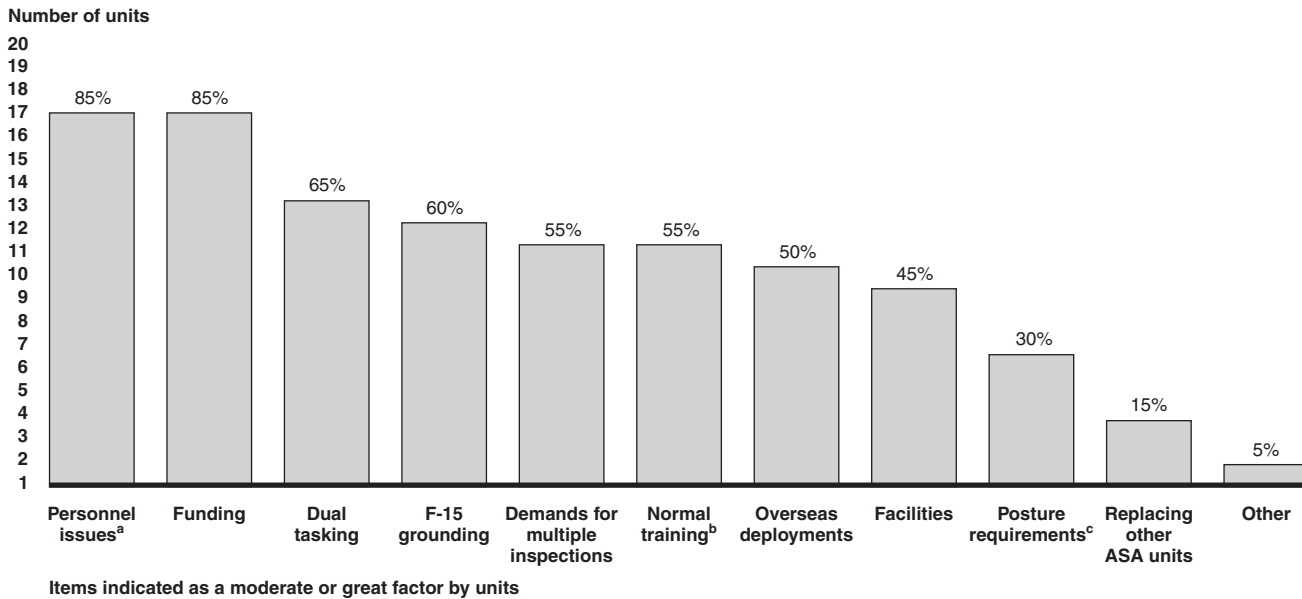
### Temporary Status of ASA Operations Creates Difficulties for Units and Hampers Cost Visibility and Oversight

Since the Air Force did not implement ASA operations in accordance with NORAD, DOD, and Air Force guidance, at the time of our review ASA units were experiencing a number of difficulties that challenged their ability to perform both their expeditionary missions and ASA operations. The unit commanders we interviewed identified funding, personnel, and dual tasking of responsibilities as the top three factors affecting ASA operations. Figure 5 depicts units' responses regarding difficulties they have experienced in conducting ASA operations. For example, during our structured interviews, officials from 17 of the 20 units<sup>25</sup> stated that personnel issues were a moderate or great concern and that recruiting, retention, and promotion limitations were the primary issues arising from the 2-year programming for ASA operations. Commanders at the ASA sites that we visited told us that they had lost some of their most experienced personnel due to job instability caused by the manner in which ASA operations are programmed. Similarly, commanders at 17 of the 20 units stated that the Air Force treats ASA operations as temporary and has not provided sufficient resources. This situation has resulted in an increase in the unit's administrative and support requirements. For example, units are required to issue temporary orders for personnel as funds become available. The need to issue such orders would not be necessary if the operations were not treated as temporary. Thirteen of the 20 units indicated that dual tasking—for their expeditionary mission and for ASA operations—was a moderate or great concern and that the Air Force was not adequately equipping units to conduct both missions. Headquarters Air Force and NGB/ANG officials acknowledged the units' difficulties in conducting ASA operations.

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<sup>25</sup> There are currently 20 units conducting ASA operations at the 18 steady-state sites.

**Figure 5: Factors Identified by ASA Unit Commanders as Moderately or Greatly Impacting Units' Ability to Conduct ASA Operations**



Source: GAO analysis of structured interviews with ASA units.

Note: The percentages shown represent the percentage of the 20 ASA units that identified the factors as moderate or great factors.

<sup>a</sup>Includes consideration of 2-year assignments, promotion opportunities, career progression, and other personnel issues as indicated by units.

<sup>b</sup>Normal training conducted for their expeditionary mission.

<sup>c</sup>Can include the number and quality of aircraft and personnel that are on alert 24 hours a day, 365 days a year as well as other posture requirements.

Because the Air Force has not programmed for ASA operations in its Future Years Defense Program submissions, the Office of the Secretary of Defense, NORAD, and Congress lack visibility into the costs of these operations.<sup>26</sup> Implementing ASA operations as a steady-state mission may help to mitigate these challenges. In addition, implementing ASA operations as a steady-state mission would provide Congress and DOD leaders cost visibility into ASA operations, which support DOD's high-priority homeland defense mission.

<sup>26</sup> Congress directed the Secretary of Defense to submit a consolidated budget justification covering all programs and activities of the ASA mission for the Air Force, beginning with the fiscal year 2010 budget submission. Pub. L. No. 110-417, § 354 (2008).

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## Readiness of Units Performing ASA Operations is Partially Assessed by NORAD and PACOM but Not by the Air Force

DOD is to evaluate personnel, training, and quantity and quality of equipment to determine the readiness of units to perform their missions. NORAD and PACOM partially assessed the readiness of the units that carry out ASA operations. For example, NORAD assessed the quantity and quality of available fighter aircraft and the ability of the personnel to respond to an alert on the day it conducted the assessment. However, NORAD only assessed personnel on duty at the time of the inspection and did not assess the extent to which all of the unit's personnel that are involved with ASA operations are trained to support and conduct these operations. Moreover, the Air Force, as the force provider, did not evaluate personnel, training, or the quantity and quality of equipment needed and used for ASA operations because it has not formally assigned the mission to the units.

NORAD conducts two separate assessments of ASA equipment (such as the condition of the fighter aircraft) and operations (unit's ability to respond to different types of alerts). The first is a preassessment conducted by the Continental NORAD Region commander. This preassessment evaluates the quality of alert aircraft, to include the overall condition of the aircraft, and the units' ability to respond to different air sovereignty scenarios, such as intercepting various types of aircraft. This preassessment is performed prior to the official ASA assessment that NORAD headquarters conducts. For example, in a March 2008 preassessment, Continental NORAD Region evaluated the New Orleans ASA site's aircraft condition and the unit's ability to respond to different scenarios within specified time frames. In the second type of assessment, NORAD officially evaluates, generally every 20 months, the sites using the same factors as the preassessment. In the April 2008 official assessment of the New Orleans ASA site, NORAD evaluated its ability to respond to aircraft flown by pilots who had not filed flight plans and were not responding to Air Force pilot signals to land. NORAD found that New Orleans site personnel were able to perform ASA operations under this and other scenarios. In examining these assessments, we observed that NORAD did not evaluate and report the extent to which all of the unit's personnel involved with ASA operations are trained to support and conduct these operations. PACOM conducts a similar assessment for the ASA unit located at Hickham Air Force Base (AFB), Hawaii. As a result, these assessments do not reflect the complete readiness of the units that conduct ASA operations.

The Air Force, as the force provider, is responsible for measuring readiness for its missions by evaluating personnel, training, and quantity and quality of equipment; however, it did not assess these factors specific

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to ASA operations.<sup>27</sup> NORAD officials stated training for ASA operations is especially important given the differences in conducting wartime flight operations overseas versus conducting ASA operations in the United States. ASA commanders stated that ASA training includes specific tactics, techniques, and procedures that are not always included during their wartime training. As a result, they stated that many of the units have constructed their own ASA training plans to ensure their personnel are adequately trained to perform ASA operations. In addition, the Air Force has not evaluated the number of personnel it needs for ASA operations; however, NGB/ANG officials told us they are reviewing the number of personnel the ANG needs to perform ASA operations. The officials told us that they were uncertain as to when this assessment would be completed.

Our structured interviews with the commanders of units that conduct ASA operations showed that they did not evaluate and report the personnel, training, or quantity and quality of equipment to perform ASA operations because the Air Force has not formally assigned ASA as a mission to the units and it has not declared the operations as a steady-state mission.<sup>28</sup> Additionally, according to headquarters Air Force officials, the Air Force has been focused on other priorities, such as overseas military operations and it believed that ASA operational requirements, such as number of sites, might be decreased to pre-September 11, 2001, levels. Formally assigning ASA operations to the units would require the units to fully assess their readiness—personnel, training, and quantity and quality of equipment—to perform ASA operations. DOD officials told us that other military services could perform ASA operations when circumstances warrant. By assigning the mission to those units that consistently conduct the mission—regardless of the services they represent—and assessing the extent to which they have the personnel, training, and equipment to conduct this mission, DOD would be better informed about the readiness of ASA units.

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<sup>27</sup> The Air Force and other military services use DOD's Status of Resource and Training System to evaluate the adequacy of unit personnel, training, and quantity and quality of equipment.

<sup>28</sup> The Air Force issues mission designed operational capabilities statements that identify the unit's mission(s) and related requirements (e.g., type and number of personnel). The unit's readiness is based on these requirements.

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## ASA Operations Face Significant Challenges to Long-Term Sustainability, but the Air Force Has Not Developed Plans to Mitigate These Challenges

We identified two key challenges to sustaining ASA operations over the long term. However, the Air Force does not have plans to manage or deal with these key challenges. First, our analysis of Air Force documents and statements from Air Force officials familiar with the service's recapitalization efforts indicates that even if aging aircraft are replaced according to Air Force aircraft schedules, gaps in fighter aircraft at current ASA sites will arise within the next 7 years. Specifically, by fiscal year 2020, 11 of the 18 current ASA sites could be without viable<sup>29</sup> aircraft to conduct ASA operations.<sup>30</sup> Second, the Air Force must ensure that units are available and ready to perform ASA operations and support units receiving replacement aircraft, while simultaneously continuing to deploy units for overseas operations. Currently, when ASA units are deployed, the ANG must find units to replace them, which officials told us can be difficult. While Air Force officials have acknowledged the challenges we identified to the long-term sustainability of ASA operations, they have not developed plans to address them because the service has been focused on other priorities, such as overseas operations. Plans would provide the Air Force with information that could assist it in its efforts to ensure long-term sustainability of ASA operations and the capability of ASA units to protect U.S. airspace.

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## Expected Retirements of Aging Aircraft Will Create a Challenge in Sustaining the ASA Mission

According to Air Force documents and personnel, many aircraft in the service's current inventory are the oldest in Air Force history, and the older they get the more difficult and expensive they are to maintain. According to NGB/ANG, F-15s and F-16s are aging aircraft that cost more to maintain as they age. Of the 18 ASA sites, 12 are currently equipped with F-16s, which will reach the end of their useful service lives between fiscal years 2015 and 2020. One option is to replace the F-16s with either F-22s or F-35s, both of which the Air Force is acquiring. However, according to the current F-22 and F-35 fielding schedules, only 1 of the 12 units—Shaw AFB, South Carolina—will receive the new aircraft before its fleet of F-16s

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<sup>29</sup> By viable we mean aircraft that have not yet reached the end of their useful service life.

<sup>30</sup> The following ASA sites are scheduled to be equipped with viable fighter aircraft after 2020: Elmendorf AFB, Alaska, and Hickham AFB, Hawaii, will have F-22s; Homestead AFB, Florida, Barnes ANG, Massachusetts, New Orleans Naval Air Station Joint Reserve Base, Louisiana, and Portland International Airport, Oregon, will have F-15s; and Shaw AFB, South Carolina, should have switched from F-16s to the F-35s. While the associated active-duty units at Langley AFB, Virginia (1FW and 192FW) will have F-22s, these units do not currently conduct ASA operations. The Vermont ANG unit that conducts ASA operations at Langley AFB (158FW) is not currently scheduled to have viable aircraft after 2018.

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reaches the end of its useful service life. The House report accompanying the National Defense Authorization Act for Fiscal Year 2008 directed the Secretary of the Air Force, in consultation with the Chief of the National Guard Bureau and the Secretary of Homeland Security, to conduct a study on the feasibility and desirability of equipping certain ASA units with F-35s.<sup>31</sup> Although the House report directed the Air Force to submit the results of its study to Congress by October 1, 2008, the Air Force had not issued the study by that date, and we were unable to obtain a draft copy.

Another option for the Air Force is to replace the F-16s with some of the more modern F-15 models. However, F-15s, like F-16s, are beginning to reach the end of their useful service lives. Also, all F-15s, including those flown by five ASA units, were grounded for 3 months in late 2007 and early 2008 after an F-15 broke apart during a normal flying operation in November 2007. The Air Force found a structural problem in one of its F-15 models and retired the aircraft that they found with structural problems. The remaining F-15s returned to service by spring 2008, but Air Combat Command officials told us that in light of the accident and subsequent grounding they are concerned about the number of F-15s that will be able to remain in service and meet the Air Force's operational needs up to their scheduled retirement date in 2025. When we discussed this issue during the exit conference of our review, Air Force and NGB/ANG officials acknowledged that the end of the F-15s' useful service lives could occur earlier than 2025 if the aircraft are increasingly used for overseas deployments or other missions. During discussions for the fiscal year 2010 programming cycle, the Air Force sought approval from the Office of the Secretary of Defense to retire 137 F-15s and 177 F-16s earlier than originally planned. Depending on when and where the Air Force retires these F-15s, removing them from service early could further affect the number of aircraft that will be available for units performing ASA operations. In comments on a draft of this report, DOD indicated that extending the service life of its F-15 and F-16 aircraft is also an option; however, the Air Force has yet to determine the extent to which such actions are viable.

Figure 6 shows the projected number of current ASA sites that may or may not have viable aircraft to conduct ASA operations through 2032. As the figure reflects, unless the Air Force modifies its current fielding schedules,

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<sup>31</sup> Congress did not request a corresponding F-22 study. H.R. Rep No. 110-146 at 111-112 (May 11, 2007).

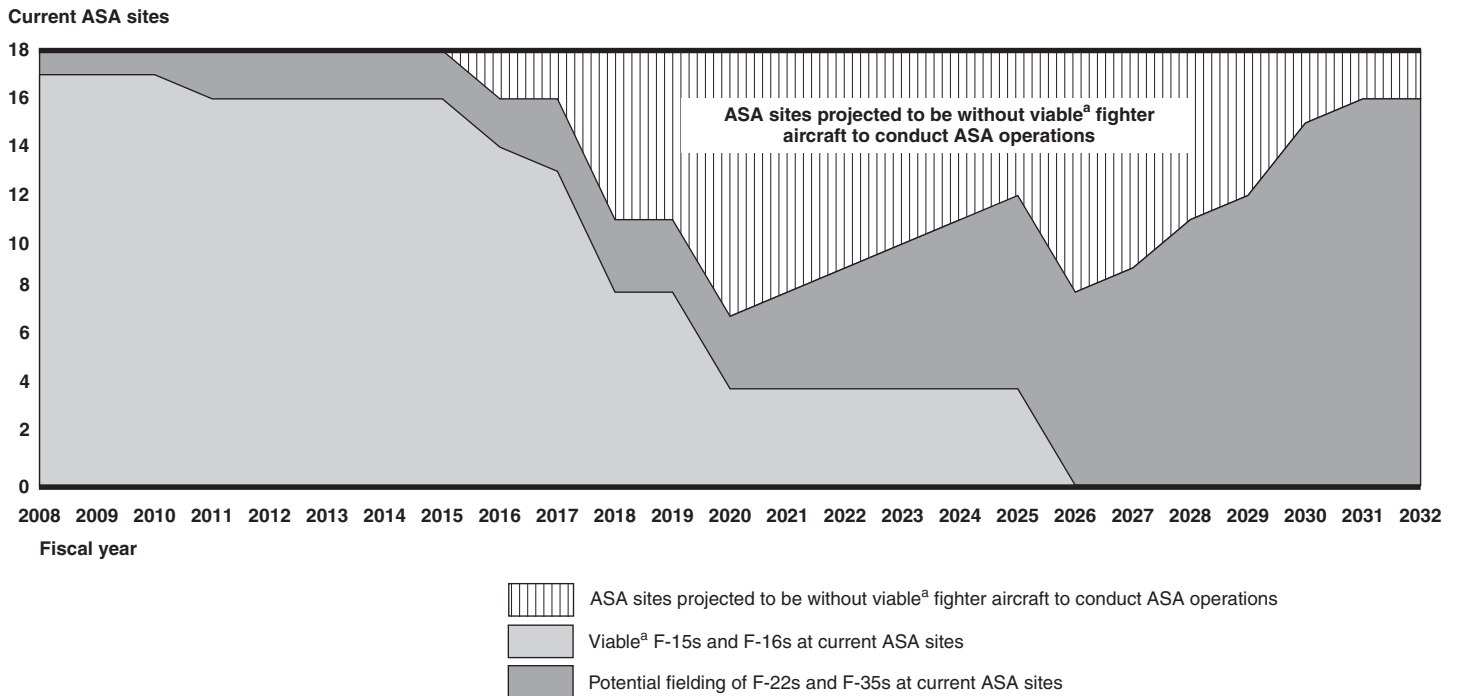
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it will lack viable aircraft to conduct ASA operations at all 18 current ASA sites after fiscal year 2015. The figure also shows that 2 of the current ASA sites will not be equipped with viable aircraft and thus will be unable to conduct ASA operations even after the Air Force fields all of its currently planned F-22s and F-35s. This figure is based upon our analysis of documentation on the expected service life of the F-15s and F-16s and the Air Force's fielding schedules for the F-22s and F-35s at the time of our review, and certain assumptions we made in our analysis of these data.<sup>32</sup> Our intent was to determine whether the new aircraft would be available before the F-15s and F-16s exceed their expected service life. See appendix I for the full methodology of our analysis.

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<sup>32</sup> Air Force officials told us that a fielding schedule reflects the projected fielding of equipment and that the fielding dates could be postponed if the equipment is not developed, tested, and produced according to schedule. Since the F-35 fielding schedule does not identify specific locations, for the purposes of our analysis we assumed that ASA units, given their homeland defense mission, would be the first ANG units to receive new aircraft. Our projection is also based on the assumption that none of the current ASA units will be adversely affected by the Air Force's proposal to retire the F-15s and F-16s earlier than originally planned. If any of these assumptions are inconsistent with Air Force actions, the number of current ASA sites without viable fighter aircraft could increase.

**Figure 6: Projected Number of Current ASA Sites with and without Viable Aircraft to Conduct ASA Operations between Fiscal Years 2008 and 2032 based on current F-22 and F-35 Fielding Schedules**



Source: GAO analysis.

<sup>a</sup>By viable we mean aircraft that have not yet reached the end of their useful service life.

In addition, as aging aircraft are replaced, ASA units will have to suspend their ASA operations to be trained and equipped to support the replacement aircraft. In order to maintain ASA operations without interruption, the Air Force will have to find another trained unit to conduct ASA operations while the home unit is being trained and equipped on the replacement aircraft. A NORAD official stated that the Air Force will need to ensure that replacement units are trained in tactics, techniques, and procedures that are unique to domestic air defense.

Air Combat Command officials responsible for providing fighter aircraft to Air Force units acknowledged that there is a gap between the expected end of the useful lives of aging aircraft and their replacement with next

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generation fighter aircraft.<sup>33</sup> Nonetheless, there are currently no plans to address this gap in aircraft, at least as it relates to ASA operations.

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Providing Personnel to Replace Deploying Personnel and Support Units Receiving Replacement Aircraft May Further Complicate Sustaining the ASA Mission

Providing personnel to replace deploying personnel is currently a challenge and replacing those personnel as they transition to different aircraft may further complicate sustaining the ASA mission. ASA units also are called on to deploy overseas to conduct combat operations. In our structured interviews, 17 of the 20 ASA unit commanders told us that their units had deployed at least once since January 1, 2005. When an active duty unit conducting ASA operations deploys, responsibility for ASA operations is transferred to other personnel and aircraft on the same base. For example, ASA commanders at Shaw AFB, South Carolina told us that when their units are deployed overseas or are in training for their expeditionary mission, they must leave some of their personnel and equipment at home to conduct ASA operations. When an ANG unit deploys, officials told us, its commander typically finds another ANG unit to either cover its ASA responsibilities or provide substitute personnel and equipment for its deployment. For example, the ASA unit at Andrews AFB, Maryland which is responsible for protecting the National Capital Region,<sup>34</sup> deployed to Iraq in 2006. The unit's commander asked commanders of other ASA units to provide F-16s and personnel to help him meet his deployment requirements, so that he could keep some of the unit's aircraft and personnel at Andrews AFB to conduct ASA operations in the National Capital Region. After contacting multiple commanders, he was able to both meet his deployment requirements and keep some of the unit's F-16s on alert for ASA operations. After considerable effort, substitutes were ultimately found from 22 different units.

Although the number of units providing substitutes was not typical, other ASA unit commanders told us that the process for finding replacements

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<sup>33</sup> As we previously reported, DOD has long-term plans to replace aging legacy aircraft with fewer, more expensive but more capable and stealthy aircraft. However, recapitalizing and modernizing tactical air forces within today's constrained budget environment is a formidable challenge. GAO, *Tactical Aircraft: DOD Needs a Joint and Integrated Investment Strategy*, [GAO-07-415](#) (Washington, D.C.: Apr. 2, 2007).

<sup>34</sup> The National Capital Region includes the Washington, D.C. metropolitan area and has additional air defense needs. In July 2005, we testified about the interagency coordination and information sharing that is necessary to address violation of restricted airspace, including airspace over the National Capital Region. See GAO, *Homeland Security: Agency Resources Address Violations of Restricted Airspace, but Management Improvements are Needed*, [GAO-05-928T](#) (Washington, D.C.: July 21, 2005).

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can be inefficient and burdensome. While Air Force officials said that Air Combat Command is responsible for finding replacements, there is no consistent formal process for doing so. ASA units requiring replacements to cover a deployment currently have two options available through Air Combat Command—i.e., to either decline or accept the entire mission. Unit commanders are reluctant to tell combatant commanders that their units cannot fully deploy—or deploy at all—because they feel obligated to fulfill their ASA responsibilities while also meeting their assigned expeditionary responsibilities. Thus, ASA unit commanders have often “volunteered” to find their own replacements, though they are not required to do so. ASA unit commanders told us that it would be useful for the Air Force to develop a process that allows unit commanders to turn over the process of finding replacements to the appropriate Air Force organization if it becomes too complicated for the unit to find a replacement using its informal networks.

Although we did not identify any instances in which either deployment or ASA requirements were not met, ASA unit commanders indicated that finding replacements will continue to be a challenge as aircraft age—even if overseas operations decrease. Fourteen of the 18 current ASA sites will have to suspend ASA operations for a period of time between 2010 and 2020 as their aircraft reach the end of their useful service lives or they are equipped with new fighter aircraft. For example, the ASA unit at Hickam AFB, Hawaii, is scheduled to suspend ASA operations for 3 months in 2010 so that the unit can transition from F-15s to F-22s. During this 3-month period, another unit will need to conduct ASA operations at the base. In order to meet ASA requirements, the Air Force would have to provide a trained ASA unit to remain on alert in Hawaii while also leaving aircraft and personnel at its home station to both sit alert and train for its expeditionary mission. For example, if the Duluth ASA unit sits alert at Hickam AFB, Hawaii when the Hawaii ANG unit transitions to its new fighter aircraft in fiscal year 2010, the Duluth ASA unit will still need to maintain aircraft and personnel in Duluth, Minnesota, to conduct ASA operations there while also training for its expeditionary mission. Officials from another ASA site told us that the transition period for their unit could be as long as 9 months to train on the replacement aircraft. The remaining 4 sites are currently equipped with F-15s and could have to suspend ASA operations as F-15s reach the end of their expected viable service lives in 2025. If the Air Force does not adequately plan for this transition, most of these units could have to suspend ASA operations at the same time during this time frame. This situation could be similar and possibly worse than late 2007 to early 2008, when 5 ASA units had to suspend ASA operations when the Air Force grounded the entire F-15 fleet for 3 months. Air Force,

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NORAD, and NGB/ANG officials told us that this situation created a significant burden on ASA operations, including the need to have Canadian fighter aircraft sit alert at a U.S. ASA site.

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## Conclusion

Conducting routine risk assessments to determine ASA operational requirements could help NORAD better determine the level and type of capabilities and resources needed to support ASA operations. Also, if the Air Force continues to treat ASA operations as a temporary mission and if ASA mission, roles, and responsibilities are not clearly defined in the Air Force's homeland defense policy, doctrine, and guidance, ASA units may continue to experience difficulties in conducting the ASA mission. Further, if the Air Force, or other service if assigned, does not formally assign the ASA mission to units performing ASA operations and ensure that the readiness of units performing ASA operations is fully assessed—to include training, personnel, equipment, and the ability to respond to an alert—opportunities may be lost to identify and resolve readiness issues. Unless the Air Force addresses the two challenges we identified, the long-term sustainability of ASA operations is questionable. For example, without plans to address the issue of aging aircraft, by 2020, 11 of the 18 ASA units may not have viable aircraft to perform ASA operations. Also, a method that provides personnel to replace deploying personnel and to support units receiving replacement aircraft—while allowing unit commanders the flexibility to independently find such replacements—could provide ASA units with a better tool to address this challenge.

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## Recommendations for Executive Action

We recommend that the Secretary of Defense direct the Commander of the U.S. command element of NORAD to routinely conduct risk assessments to determine ASA requirements, including the appropriate numbers of ASA sites, personnel, and aircraft to support ASA operations.

We recommend that the Secretary of Defense direct the military services with units that consistently conduct ASA operations to formally assign ASA duties to these units and then ensure that the readiness of these units is fully assessed, to include personnel, training, equipment, and ability to respond to an alert.

We recommend that the Secretary of Defense direct the Secretary of the Air Force to take the following five actions:

- Establish a timetable to implement ASA as a steady-state mission.

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- Implement ASA as a steady-state mission according to NORAD, DOD, and Air Force guidance by
    - updating and implementing the ASA program action directive;
    - updating the Air Force homeland defense policy, homeland operations doctrine, and concept of operations to incorporate and define the roles and responsibilities for ASA operations; and
    - incorporating the ASA mission within the Air Force submissions for the 6-year Future Years Defense Program.
  - Develop and implement a plan to address any projected capability gaps in ASA units due to the expected end of the useful service lives of their F-15s and F-16s.
  - Develop and implement a formal method to replace deploying units that still provides unit commanders flexibility to coordinate replacements.

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## Agency Comments and Our Evaluation

DOD provided written comments on a draft of this report and these comments are reprinted in appendix II. DOD concurred with some of our recommendations and partially concurred with others.

DOD stated that it partially concurred with our draft report recommendation to employ a risk-based management approach. However, DOD also stated that it believes that sufficient guidance and a long-standing risk-based process currently guide its decisions on ASA operations and, therefore, it does not plan on taking any additional actions until additional requirements are identified through its current process. The process described in DOD's response does not include a critical component of a risk-based management approach—the use of routine risk assessments that incorporate threat, vulnerability, and consequence, and is used to develop scenarios and help inform actions that are best suited to prevent an attack or mitigate vulnerabilities to a terrorist attack. As such, we adjusted our recommendation to clarify the need to routinely conduct a risk assessment specific to ASA operations. Specifically, we have revised the recommendation to suggest that DOD routinely conduct risk assessments to determine ASA requirements, including the appropriate numbers of ASA sites, personnel, and aircraft to support ASA operations. We believe that this clarification would be consistent with NORAD and Air Force officials responsible for ASA operations, who told us that a routine risk assessment that considers threats, vulnerabilities, and criticality would be beneficial to enhance their ability to determine the appropriate level and types of resources—including units, personnel, and aircraft—for ASA operations. We also continue to believe our work shows that such assessments would benefit DOD, Congress, and the National Guard

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Bureau by clearly demonstrating the basis for future investments in ASA operations.

DOD concurred with our recommendation to implement ASA as a steady-state mission, but its comments did not state whether the Air Force will implement the ASA program action directive, nor did it address specific actions to implement ASA as a steady-state mission—an important step in helping to resolve ongoing difficulties that we identified in our report. Rather, DOD’s response indicated that the Air Force would review and update the ASA program action directive and other key policy documents by the end of fiscal year 2009. DOD also commented that it plans to identify, in the Future Years Defense Program, the impact of any changes to future plans and resources. DOD also commented that it would include a detailed budget display for the ASA mission to comply with §354 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009.<sup>35</sup> However, since DOD did not include in its comments a time frame for implementing ASA as a steady-state mission, including implementing the ASA program action directive, we modified the recommendation to suggest that the Secretary of Defense direct that the Secretary of the Air Force establish a timetable for this purpose. DOD also commented that it plans to review and update, as required, policy, operations, doctrine, steady-state alert requirements, and concept of operations for the ASA mission, pending a review of the Operation NOBLE EAGLE Execution Order (EXORD). We acknowledge that the EXORD would impact ASA operations. However, since (1) DOD did not provide a timeframe for these different reviews and ASA units are currently experiencing difficulties conducting ASA operations as discussed in this report and (2) the Air Force could implement ASA operations as a steady-state mission without changing the EXORD, we continue to believe the Air Force needs to implement ASA as a steady-state mission.

DOD stated that it partially concurred with our recommendation that the Secretary of Defense direct the Secretary of the Air Force to formally assign ASA duties to units that consistently conduct ASA operations and ensure their readiness is fully assessed. DOD commented that the Secretary of Defense is furnishing clear direction through the EXORD, which it says formally assigns supported and supporting roles to multiple

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<sup>35</sup> Congress directed the Secretary of Defense to submit a consolidated budget justification covering all programs and activities of the ASA mission for the Air Force, beginning with the fiscal year 2010 budget submission. Pub. L. No. 110-417, § 354 (2008).

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agencies. Further, DOD commented that the exclusive assignment of any specific Air Force units and sites would appear to be inconsistent with the flexibility and capabilities under the EXORD. Our original recommendation did not suggest that DOD modify the EXORD to assign the ASA mission exclusively to the Air Force; the EXORD does not replace the mission document statements issued by services to their operational units. Moreover, without a mission document statement and formal assignment of the mission to units, ASA readiness will not be assessed. DOD also commented that it wants to retain the flexibility to use military services other than the Air Force to conduct ASA operations. We had initially focused this recommendation on the Secretary of the Air Force because, at the time of our review, the units conducting ASA operations had historically been Air Force units. The intent of this recommendation is to ensure that such missions are clearly assigned to performing units and that readiness for these operations be fully assessed, regardless of which service performs them. Therefore, we have modified our recommendation to make it clearer that the Secretary of Defense should direct any of the military services that have units consistently conducting ASA operations to formally assign ASA duties to these units and ensure their readiness to conduct ASA operations is fully assessed.

DOD partially concurred with our recommendation that the Air Force develop and implement a plan to address fighter capability gaps in ASA operational units that we identified based on our analysis of Air Force data and plans. In its comments, DOD discussed the capabilities needed for the broader, multiservice air defense mission, but did not clearly agree to ensure the fighter gaps we identified would be addressed in Air Force plans. Our recommendation is directed specifically at the issue of future fighter aircraft capabilities for ASA operations, which are currently conducted by the Air Force and the ANG. We continue to believe that our evidence supports the need to address these capability gaps in Air Force planning.

DOD concurred with our recommendation to develop a formal method to include ASA unit commanders' flexibility to replace deploying units. If the ASA mission is formally assigned to the performing units, DOD's plan should be responsive to our recommendation.

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We are sending copies of this report to the Secretary of Defense and other interested parties. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-5431 or [dagostinod@gao.gov](mailto:dagostinod@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

A handwritten signature in black ink, reading "Davi M. D'Agostino". The signature is stylized with large, flowing loops and a cursive script.

Davi M. D'Agostino  
Director, Defense Capabilities and Management

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# Appendix I: Scope and Methodology

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To determine the extent to which North American Aerospace Defense Command (NORAD) has adopted a risk-based management approach to determine air sovereignty alert (ASA) operational requirements, we reviewed prior GAO reports that recommended organizations use risk assessments to manage risk and determine operational requirements.<sup>1</sup> We then interviewed officials and reviewed documents from the Office of the Secretary of Defense, Joint Chiefs of Staff, Air Force, and NORAD to determine the extent to which NORAD was required to routinely conduct such an assessment to determine ASA operational requirements. During our discussions, we asked these officials if they routinely used risk assessments to determine ASA requirements and how ASA requirements were assessed. We obtained and reviewed their ASA assessments and compared them to the elements used to conduct risk assessments.

In determining whether the Air Force had established ASA as a steady-state mission according to the Department of Defense (DOD), NORAD, and Air Force guidance, we reviewed documents and interviewed officials from a range of DOD organizations involved in conducting, managing, or overseeing ASA activities and funding. (See tables 2 and 3 for a list of organizations and units that we interviewed during this review.) Specifically, we reviewed NORAD, DOD, and Air Force policy documents and statements, and interviewed officials to determine guidance and directives related to ASA operations, and whether the guidance and directives had been fulfilled; reviewed documents and interviewed officials to determine the steps taken to fulfill guidance and directives and the causes for not fulfilling any specific actions listed in DOD guidance or directives; conducted site visits to designated ASA sites; and interviewed officials from every unit conducting ASA operations to determine what impacts, if any, may have resulted from efforts to fulfill DOD guidance and directives related to ASA operations.

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<sup>1</sup> See GAO, *Homeland Security: Key Elements of a Risk Management Approach*, [GAO-02-150T](#) (Washington, D.C.: Oct. 21, 2001); *Homeland Security: Further Actions Needed to Coordinate Federal Agencies' Facility Protection Efforts and Promote Key Practices*, [GAO-05-49](#) (Washington, D.C.: Nov. 30, 2004); *High-Risk Series: An Update*, [GAO-05-207](#) (Washington, D.C.: January 2005); *21st Century Challenges: Reexamining the Base of the Federal Government*, [GAO-05-325](#) (Washington, D.C.: February 2005); *Defense Management: Additional Actions Needed to Enhance DOD's Risk-Based Approach for Making Resource Decisions*, [GAO-06-13](#) (Washington, D.C.: Nov. 15, 2005); and *Risk Management: Further Refinements Needed to Assess Risks and Prioritize Protective Measures at Ports and Other Critical Infrastructure*, [GAO-06-91](#) (Washington, D.C.: Dec. 15, 2005).

To determine the extent to which the Air Force assesses the readiness of units performing ASA operations, we analyzed Air Combat Command's Operational Readiness Inspections, the Continental NORAD Region Command Alert Force Operational Assessments, Pacific Air Force's Alert Force Operational Assessments, and NORAD's Fighter Alert Force Evaluations and compared them to readiness requirements in DOD guidance. From this comparison we determined the extent to which each report reflected the units' readiness to conduct ASA operations. We formed conclusions as to the completeness of the readiness assessments based on this comparison, and visited four ASA sites, interviewed 20 ASA units, and met with the relevant Air National Guard (ANG) officials. We also interviewed commanders from two sites that were scheduled to conduct ASA operations after fiscal year 2008 due to DOD's 2005 Base Closure and Realignment process; however, since the two units were not conducting ASA operations at the time of our discussion we did not include their responses with those from the 20 units that were conducting ASA operations at the time of our discussion. In general, we compared the readiness requirements contained in DOD's guidance with current readiness assessments—graded and ungraded—used to evaluate the units conducting ASA operations, and the overall effect, if any, these assessments have had on the units' ability to meet ASA operations readiness requirements. We analyzed DOD guidance, interviews, and readiness reports to determine if ASA operations readiness requirements were being fully captured in one or more currently used readiness assessments.

In identifying the challenges to the long-term sustainability of the Air Force's ASA operations and the extent to which the service had plans to address these challenges, we reviewed documents and interviewed officials from a range of DOD organizations involved in conducting, managing, or overseeing ASA activities and funding. (See tables 2 and 3 for a list of organizations and units that we interviewed during this review.) Specifically, officials with whom we met and conducted structured interviews identified a number of challenges that they believed could affect the long-term sustainability of ASA operations. Based on these discussions, we were able to identify those issues that were frequently identified. We then reviewed NORAD, DOD, and Air Force documents pertaining to these challenges. For example, in addition to discussions we had with officials knowledgeable about the lifespan of the F-15s and F-16s, we reviewed and analyzed documents that reflected the expected lifespan of these aircraft. We assumed that units will cease to be viable in terms of conducting the ASA mission half-way through the 3-year drawdown period, at which time the ASA units will not have enough aircraft to fulfill

both their ASA and expeditionary missions. We then reviewed and analyzed the Air Force’s F-22 and F-35 fielding schedules to determine whether those aircraft would be available before the F-15s and F-16s exceed their expected lifespan. The F-35 fielding schedule did not identify the specific ANG bases that are expected to receive the F-35s, so for the purposes of our analysis we assumed that the Air Force would provide the F-35s to those sites conducting ASA operations before equipping ANG units not conducting ASA operations. Air Force officials told us that a fielding schedule reflects the projected fielding of equipment and that the fielding dates could be postponed if the equipment is not developed according to schedule. We also reviewed NORAD, DOD, and Air Force documents and statements to determine which organizations or offices were responsible for addressing these challenges and subsequently asked each of these organizations or offices to provide us with plans that they had developed to address these or any other challenges that could affect the long-term sustainability of ASA operations.

**Table 2: DOD Commands and Organizations That We Visited During This Review**

Office of the Secretary of Defense	<ul style="list-style-type: none"> <li>Office of the Assistant Secretary of Defense for Homeland Defense</li> </ul>
Headquarters Air Force	<ul style="list-style-type: none"> <li>Office of the Assistant Secretary of the Air Force for Financial Management</li> <li>Office of the Air Force Deputy Chief of Staff for Air and Space Operations</li> <li>Office of the Air Force Deputy Chief of Staff for Logistics Installations and Mission Support</li> <li>Office of the Air Force Deputy Chief Of Staff for Plans and Requirements</li> <li>Office of the Air Force Deputy Chief Of Staff for Strategic Plans and Programs</li> <li>Homeland Defense Office</li> </ul>
NORAD/ U.S. Northern Command (NORTHCOM)	<ul style="list-style-type: none"> <li>Office of the Chief of Staff</li> <li>Directorate of Personnel</li> <li>Directorate of Intelligence</li> <li>Directorate of Operations</li> <li>Directorate of Logistics</li> <li>Plans</li> <li>Programming/ Financial Management</li> <li>Analysis</li> <li>NORAD/NORTHCOM Command and Control Center</li> </ul>
National Guard Bureau/ANG	<ul style="list-style-type: none"> <li>Director, ANG</li> <li>Directorate of Personnel</li> <li>Directorate of Operations</li> <li>Directorate of Programming</li> </ul>

**Appendix I: Scope and Methodology**

Air Combat Command	<ul style="list-style-type: none"> <li>• Office of the Chief of Staff</li> <li>• Directorate of Personnel</li> <li>• Directorate of Intelligence</li> <li>• Directorate of Operations</li> <li>• Directorate of Logistics</li> <li>• Plans</li> <li>• Programming</li> <li>• Financial Management</li> </ul>
First Air Force/Air Forces Northern Command/NORAD Continental Region Command	<ul style="list-style-type: none"> <li>• Office of the Chief of Staff</li> <li>• Directorate of Personnel</li> <li>• Directorate of Intelligence</li> <li>• Directorate of Operations</li> <li>• Directorate of Logistics</li> <li>• Plans</li> <li>• Infrastructure and Contracting</li> <li>• Financial Management</li> <li>• 601st Air Operations Center</li> </ul>
ASA sites	<ul style="list-style-type: none"> <li>• Andrews Air Force Base (AFB), Maryland</li> <li>• Buckley AFB, Colorado</li> <li>• Duluth International Airport, Minnesota</li> <li>• Langley AFB, Virginia</li> </ul>

Source: GAO.

**Table 3: ASA Units That We Contacted During Our Structured Interviews**

	<b>ASA site</b>	<b>Air Force unit</b>	<b>Active duty/ANG unit</b>
<b>Sites conducting ASA operations at the time of our structured interviews</b>	Andrews AFB, Maryland	113WG 121FS	District of Columbia ANG
	Atlantic City International Airport, New Jersey	177FW/119FS	New Jersey ANG
	Buckley AFB, Colorado	140WG /120FS	Colorado ANG
	Burlington International Airport, Vermont	158FW /134FS	Vermont ANG
	(Site will deactivate in fiscal year 2010 when Barnes Air National Guard Station (ANGS), Massachusetts, becomes an active ASA site.)		
	Duluth International Airport, Minnesota	148 FW/179FS	Minnesota ANG
	Ellington Field, Texas	138FW/125FS	Oklahoma ANG detachment

**Appendix I: Scope and Methodology**

<b>ASA site</b>	<b>Air Force unit</b>	<b>Active duty/ANG unit</b>
Elmendorf AFB, Alaska	3WG/19FS	Active duty unit
	3WG/90FS	Active duty unit
Fresno Yosemite International Airport, California	144FW/194FS	California ANG
Hickam AFB, Hawaii	154WG/199FS	Hawaii ANG
Homestead Air Reserve Base (ARB), Florida	125FW/159FS	Florida ANG detachment
Langley AFB, Virginia	158FW/134FS	Vermont ANG detachment
	114FW/175FS	South Dakota ANG detachment
(Madison) Dane County Regional Airport, Wisconsin	115FW /176FS	Wisconsin ANG
March ARB, California	144FW/194FS	California ANG detachment
New Orleans, Naval Air Station Joint Reserve Base, Louisiana	159FW/122FS	Louisiana ANG
Portland International Airport, Oregon	142FW/123FS	Oregon ANG
Selfridge Air National Guard Base (ANGB), Michigan (ASA mission transferred to Toledo, Ohio in October 2008.)	127WG/107FS	Michigan ANG
Shaw AFB, South Carolina	20FW	Active duty unit
(Tucson) Davis-Monthan AFB, Arizona	162FW/152FS/148FS/195FS	Arizona ANG
<b>Sites that received the ASA mission as a result of the 2005 DOD Base Closure and Realignment process.</b>	Toledo Express Airport, Ohio (Site became active in October 2008.)	180FW/112FS Ohio ANG
	Barnes ANG, Massachusetts (Site is scheduled to become an active ASA site in fiscal year 2010.)	104FW/131FS Massachusetts ANG

Source: GAO.

# Appendix II: Comments from the Department of Defense

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



HOMELAND DEFENSE  
& AMERICA'S SECURITY AFFAIRS

ASSISTANT SECRETARY OF DEFENSE  
2600 DEFENSE PENTAGON  
WASHINGTON, D.C. 20301-2600

DEC 18 2008

Ms. Davi M. D'Agostino  
Director, Defense Capabilities and Management  
U.S. Government Accountability Office  
441 G Street, N.W.  
Washington, DC 20548

Dear Ms. D'Agostino:

This is the Department of Defense (DoD) response to the GAO draft report, "Homeland Defense: Actions Needed to Improve Management of Air Sovereignty Alert Operations to Protect U.S. Airspace," (GAO Code 351186/GAO-09-184). DoD concurs with two recommendations and partially concurs with three recommendations. Our response to your recommendations is enclosed (Enclosure 1) as is our technical response (Enclosure 2).

Our point of contact is Mr. Gary Betourne, Office of the Assistant Secretary of Defense for Homeland Defense and America's Security Affairs, (703)693-1248, or [gary.betourne@osd.mil](mailto:gary.betourne@osd.mil).

Sincerely,

A handwritten signature in black ink, appearing to read "Peter F. Verga".

Peter F. Verga  
Principal Deputy

Enclosures:  
As stated



GAO DRAFT REPORT – DATED NOVEMBER 26, 2008  
GAO CODE 351186/GAO-09-184

“HOMELAND DEFENSE: Actions Needed to Improve Management  
of Air Sovereignty Alert Operations to Protect U.S. Airspace”

DEPARTMENT OF DEFENSE COMMENTS  
TO THE RECOMMENDATIONS

**RECOMMENDATION 1:** The GAO recommends that the Secretary of Defense direct the Commander of the U.S. command element of the North America Aerospace Defense Command (NORAD) to adopt and implement a risk-based management approach to determine air sovereignty alert (ASA) operational requirements, in order to better inform decisions on the provision and placement of capabilities and resources – including the levels and types of ASA sites, personnel, and aircraft – to support these operations.

**DoD RESPONSE:** Partially concur. The Department has a long-established process to ensure US forces and capabilities are identified, resourced, and maintained consistent with national security priorities and the risks posed by threats to the homeland. The air sovereignty mission is no exception.

The process begins with the *Unified Command Plan (UCP)*. The current UCP, signed in 2006, provides direction for combatant commanders (COCOMs), to execute their respective missions, including the defense of the United States. In April 2008, the President approved and the Secretary issued (May 2008) the *Guidance for Employment of the Force (GEF)*, a document that consolidates guidance for contingency planning, global defense posture, and global force management. “Defend the homeland in depth” is identified as one of the priorities in the GEF.

Strategic priorities are also identified in the *Guidance for Development of the Force (GDF)*, also issued by the Secretary. The GDF covers the period 2010-2015 and identifies defending the homeland as one of the priority focus areas. In turn, the Military Services, guided by the COCOMs, participate in the Joint Capabilities Integration Development System (JCIDS) process to identify requirements based on mission assignments and responsibilities. Gaps in mission capabilities are identified, including air sovereignty—a broad mission area where each Service has a responsibility to train and equip, and multiple COCOMs (i.e., US Northern Command, US Pacific Command, US Southern Command, US Transportation Command, and US Joint Forces Command) are charged with execution should the need arise. This process utilizes intelligence assessments that characterize the threat for the air sovereignty mission. Within this mission area, the Air Force and Army are the principal contributors.

Once gaps in mission capabilities are identified and requirements are proposed to fill those gaps, risk is applied in the budget process and programs are resourced according to the priorities established by the Secretary during the Program Objective Memorandum (POM) process. Available funding is then applied to counter risk in the Future Years Defense Program (FYDP). The FYDP facilitates a crosswalk between DoD's requirements and the President's Budget, ultimately resulting in appropriations from Congress.

We believe that sufficient guidance and a long-standing risk-based process guide our decisions on air sovereignty alert operations.

**RECOMMENDATION 2:** The GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to implement air sovereignty alert (ASA) as a steady-state mission according to the North American Aerospace Defense Command (NORAD), DoD, and Air Force guidance, including:

- implementing the ASA program action directive;
- updating the Air Force homeland defense policy, homeland operations doctrine, and concept of operations to incorporate and define the roles and responsibilities for ASA operations; and,
- incorporating the ASA mission within the Air Force submissions for the 6-year Future Years Defense Program.

**DoD RESPONSE:** Concur. The *USAF Program Action Directive (PAD) 2003-01-XOH*, 28 February 2003, outlines the way ahead for homeland air defense for steady-state alert posture. Because the ASA PAD was created in 2003, the Air Force will review it for appropriate content and accuracy in concert with other key policy documents, including AFPD 10-8 (*Homeland Defense and Civil Support*) and homeland operations doctrine. We expect this review to be complete by the end of FY09. Additionally, we will determine if other Military Services should initiate a similar effort.

The air sovereignty alert mission consists of more than just the alert operation and far more than just fighter aircraft. Today, the alert operation is principally supported by the Air Force and the Army. The US Navy/US Marine Corps can participate in alert operations when circumstances warrant. A Marine unit entered into mission qualification training during the brief period when the F-15 force was grounded. Should there be a need to provide for the air defense of Guam, the Marines Corps would likely support that air defense operation.

The Department plans to review and update, as required, policy, operations, doctrine, steady-state alert requirements, and concept of operations for the air sovereignty mission pending a review of the Operation Noble Eagle Execution Order. If an update is required, it will address force requirements for: fighters, missile defense systems, air

See comment 1.

refueling tankers, airborne warning and control aircraft, and other support elements for each air sovereignty alert level, as well as identifying the supporting Military Services and COCOMS. Such an update would also reflect the impact of the most current threat assessment. In turn, the Military Services and COCOMs will identify the impact of any changes to future plans and resources in the FYDP.

For the FY10 budget submission, the Department plans to include a detailed budget display for the air sovereignty alert mission in compliance with §354 of the FY09 National Defense Authorization Act.

**RECOMMENDATION 3:** The GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to formally assign the air sovereignty alert (ASA) mission to units performing ASA operations at steady-state sites, and then ensure that the readiness of units performing ASA operations is fully assessed to include training, personnel, equipment, and the ability to respond to an alert.

**DoD RESPONSE:** Partially concur. The Secretary of Defense is furnishing clear direction through the Operation Noble Eagle Execution Order (EXORD). The EXORD formally assigns supported and supporting roles to multiple agencies (i.e., the Military Services, US European Command, US Northern Command, US Pacific Command, US Southern Command, US Transportation Command, and US Joint Forces Command). The exclusive assignment of only specific Air Force units and sites would appear to be inconsistent with the flexibility and capabilities under this EXORD. The Department will review the EXORD in the near future to determine if any changes are necessary.

**RECOMMENDATION 4:** The GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to develop and implement a plan to address any projected capability gaps in air sovereignty alert (ASA) units due to the expected end of useful service lives of the F-15s and F-16s.

**DoD RESPONSE:** Partially concur. This recommendation underscores the complexity associated with maintaining critical defense assets for future operations as well as the air sovereignty and alert operation missions. The report recognizes the challenges the Department has in reaching an acceptable balance between capabilities and risks. We will ensure that the air sovereignty force—which consists of air refueling tankers, airborne command and control aircraft, ground command and control systems, and space assets—remains mission ready. The Army and the National Guard also contribute significantly to this mission.

In 2008, the Secretary of Defense issued guidance and established priorities in the *Guidance for Employment of the Force* in conjunction with the *Guidance for Development of the Force*. In response, the Air Force, a principal provider and the focus of the aircraft-related portion of this report, has placed a high priority on recapitalizing its

See comment 1.

aging fleet of fighter aircraft. Part of this recapitalization effort will involve modernizing the aircraft that support the air sovereignty mission and its day-to-day alert component, as well as the other missions assigned to fighter aircraft. This work is underway and it will address the service life issue of the F-15 and F-16 aircraft. Fiscal constraints and environmental impacts will affect the final plan for replacement aircraft or the modernization of existing aircraft.

**RECOMMENDATION 5:** The GAO recommends that the Secretary of Defense direct the Secretary of the Air Force to develop and implement a formal method to replace deploying units that still provides unit commanders flexibility to coordinate their own replacements.

**DoD RESPONSE:** Concur. The Secretary of Defense has already established a formal process represented by the Global Force Management Implementation Guidance and operated under the Joint Staff Force Sourcing Business Rules and the Secretary of Defense Operations Book (SDOB). The US Joint Forces Command will examine the existence of informal elements of this process, highlight the existence of the formal process, and issue any validated changes, or emphasis as required, in the next edition of the SDOB.

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**GAO's Comment**

1. The Department of Defense's response further demonstrates the lack of consistency and clarity of concepts, definitions, and terms surrounding air sovereignty alert (ASA) we identified in our review and highlights the need for a commonly understood definition of ASA. As we discussed in our report and illustrated in Figure 4, and as defined by the North American Aerospace Defense Command and First Air Force, ASA operations are part of the broader air defense mission; that is, they are the ground operations that take place prior to a fighter aircraft lifting off in response to an alert, at which point the operation becomes a homeland air defense mission. However, the scope of our study was ASA operations, and we did not address the broader air defense mission.

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# Appendix III: GAO Contact and Staff Acknowledgements

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## GAO Contact

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## Acknowledgements

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*Reserve Forces: Actions Needed to Identify National Guard Domestic Equipment Requirements and Readiness.* [GAO-07-60](#). Washington, D.C.: January 26, 2007.

*Homeland Security: Agency Resources Address Violations of Restricted Airspace, but Management Improvements Are Needed.* [GAO-05-928T](#). Washington, D.C.: July 21, 2005.

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