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Sense-and-avoid technology rapidly maturing

General Atomics Tests Refined ADS-B On Border Patrol's MQ-9 Reaper

General Atomics is in the process of refining a surveillance system that would make it possible for unmanned aerial vehicles to safely fly in national airspace.

In a series of tests, some of which are still ongoing, the company is demonstrating a revised version of its Automatic Dependent Surveillance-Broadcast (ADS-B)-based surveillance system on an MQ-9 Reaper that belongs to the Department of Homeland Security. ADS-B, a technology that provides pilots with enhanced situational awareness, has been around for years, but the refined version of ADS-B is new, according to Chris Pehrson, General Atomics' director of strategic development.

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Series 3.5 upgrade examined at Edwards AFB

Early Test Results Point To Serious Improvement On C-130's T56 Engine

Recently completed flight testing on an upgrade to the C-130 aircraft's engine appears to show that the upgraded motor, known as a Series 3.5 engine, will improve performance and lower operating costs as advertized by manufacturer Rolls-Royce.

The Air Force's multiple C-130 variants all use Rolls-built T56 engines, and the bulk of the fleet -- the C-130H -- flies with a motor known as the T56 Series 3. Rolls-Royce has designed an upgrade kit meant to specifically improve fuel efficiency and reliability referred to as the T56 Series 3.5, and the service successfully completed ground testing and a series of nine test flights with the modernized engine on Oct. 12 at Edwards Air Force Base, CA.

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Raytheon building iteration 1.5

GPS OCX Receives Milestone B; Contractors Prepare For Next Exercise

The program meant to deliver next-generation Global Positioning System control capability recently reached a key acquisition milestone, and prime contractor Raytheon is implementing lessons learned from an August exercise ahead of a more complicated test early next year.

Raytheon is developing the next-generation GPS operational control segment, known as GPS OCX, in parallel with Lockheed Martin's development and production of GPS III satellites that will be controlled using OCX. In an Oct. 26 news release, the Air Force's Space and Missile Systems Center announced that GPS OCX has received a positive milestone B decision from the Office of the Secretary of Defense, giving the program the go-ahead to formally enter

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Small UAV used mainly in JIEDDO missions

BAE Official: Silver Fox Team Sets Standard For UAV Innovation

The success of a partnership between the Air Force Research Lab and BAE Systems to rapidly implement and field innovations on a mid-sized unmanned aerial vehicle could set the tone for future UAV programs, according to a company official.

Matt Pobloske, BAE's director of business development for unmanned aircraft programs, told *Inside the Air Force* in an Oct. 31 interview that the company's ongoing work with AFRL to develop and maintain a variant of the Silver Fox, a mid-sized UAV, is a good example of industry and the military working together to integrate new capabilities.

Pobloske said it can be difficult to introduce new capabilities into smaller Defense Department programs and those

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Stamp Of Approval

The Air Force has certified Lockheed Martin's HC-130J Combat King II and MC-130J Commando II aircraft as "effective, suitable and mission capable," according to a Nov. 1 company statement. The aircraft were certified by the Air Force Operational Test and Evaluation Center, headquartered at Kirtland Air Force Base, NM. The HC-130J is Air Combat Command's personnel recovery and search and rescue aircraft, and the MC-130J is used by Air Force Special Operations Command. Currently, the service is recapitalizing its C-130 aircraft with new C-130J variants.

MDD scheduled for March 2013

Air Force, Seeking Future ICBM Direction, To Hold Industry Day This Month

Air Force officials will be meeting with industry later this month to help mature potential concepts for the service's future intercontinental ballistic missile posture -- an enterprise known as Ground-Based Strategic Deterrent the Air Force is working to better define.

The Minuteman III, the Defense Department's current ICBM fleet, is scheduled to remain operational until 2030, but service officials have already begun to consider how to meet ground-based nuclear requirements after that period. The Air Force held an industry day in February to discuss capability gaps with potential contractors, and this month's event -- to be held Nov. 14-15 at Kirtland Air Force Base, NM -- will be geared toward informing the service's study guidance for an analysis of alternatives (AOA), which is planned for completion in fiscal year 2014.

The Ground-Based Strategic Deterrent (GBSD) industry day was announced on the Federal Business Opportunities website on Oct. 26.

In an Oct. 31 email provided by a Kirtland AFB spokesman, GBSD Provisional Program Manager Antonio Rendon said the Air Force has completed a number of activities since February, including reviewing more than 250 studies in an effort to properly leverage previous GBSD-related findings. Between that effort and a series of meetings with industry, Rendon said his team has progressed in narrowing and understanding the trade space the Air Force should consider in the near future.

Much of that work, as well as the industry input that should come out of the November meeting, is meant to facilitate the upcoming AOA, Rendon said. Rendon's position as the lead on GBSD concept development is located within the Air Force Nuclear Weapons Center's intelligence, program development and integration directorate, but Air Force Global Strike Command's plans, programs and requirements is the overall lead for future ICBM activities.

"[At the upcoming industry day], the GBSD team will present a summary of the GBSD Initial Capabilities Document (ICD) and threat environment," Rendon said. "We will also discuss the high-level concepts developed to date and ask industry to explore alternatives to refine our concepts to support AOA activities."

The gathering is timed to generate a wealth of information ahead of an important milestone in March 2013, a Materiel Development Decision led by Office of the Secretary of Defense acquisition officials. A successful decision marks a program's official entrance into the acquisition process, and the GBSD AOA is scheduled to begin immediately after that decision is passed down, Rendon said.

Over the last eight months, the Air Force has begun compiling concept characterization and technical description documents, called CCTDs, that will present the framework for that study.

"These high-level documents capture the preliminary analysis for each concept that will be considered during the AOA to help determine technical feasibility," he said. "CCTDs form the foundation for future acquisition documentation as the program matures."

In his email, Rendon noted -- as other Air Force officials have in the past -- that the service has not determined that developing a replacement for the Minuteman III is the best strategy going forward. Continuing to modernize the current ICBM fleet to meet future needs "is one of the courses of action being considered for GBSD," he said.

Minuteman III operations are coordinated by Air Force Global Strike Command through its missile wings at Malmstrom Air Force Base, MT, F.E. Warren Air Force Base, WY, and Minot Air Force Base, ND. -- *Gabe Starosta*

Air Force awarded initial funding Oct. 25

LM Exec Says Next Pair Of SBIRS Satellites Will Be Cheaper To Produce

As Lockheed Martin begins production on the fifth and sixth geosynchronous Earth orbit satellites in the Space-Based Infrared System constellation, the company and the Air Force are learning from past experience and are positioned for a cheaper, more efficient production process, according to a company official.

SBIRS Program Manager Jeff Smith told *Inside the Air Force* in a Nov. 1 interview that Lockheed, the Air Force's prime contractor for SBIRS, is working with the service to improve past processes and still produce the same level of quality in its future satellites. The company has developed, or is in the process of developing, four SIBRS GEO satellites and is on contract to produce two more in the coming years.

"We're looking at a significant reduction for GEO-5 and 6 compared to the previous satellites," said Smith, who is the vice president of the company's overhead persistent infrared mission area.

The Air Force on Oct. 25 issued Lockheed an $82 million award for initial work on GEO-5 and 6, which Smith said will fund some of the satellites' detectors, computers and processors. The next phase, which Lockheed expects to begin in November, will fund the completion of most of the critical non-recurring elements of the satellite. Lockheed anticipates the third phase of funding in February 2013 and then the last phase, the production phase, in December 2013.

The Air Force on Nov. 1 posted changes to the GEO-5 and 6 contract on Federal Business Opportunities. The changes expand the number of contract options from nine to 15. Those new options include space vehicle storage, launch and early on-orbit tests, acoustic testing and launch integration for both satellites.

Smith said the Air Force's current funding schedule is part of what helps the company develop more efficient processes. In the past, large gaps in funding, like the eight-year gap between GEO-2 and GEO-3 awards, have made it difficult for the company to hold on to past supplier relationships as vendors moved on or had shut down their lines.

"The Air Force, by funding these programs now, funding 5 and 6 now while 3 and 4 are still being built, enables us to really get some efficiencies and economies of scale here and make sure the vendor and supplier base is still going strong," Smith said.

The company and the service also are implementing other cost savings strategies, including block buys, reductions in oversight and testing where appropriate, streamlining certain activities, sharing resources across programs and studying opportunities for common parts buys. Smith said it also helps that GEO-5 and 6 will be "clones" of GEO-3 and 4, which means that besides some changes to accommodate parts obsolescence or new vendors, the technology and capabilities are the same.

"The fact that we have a stable design . . . and that we were able to leverage these lessons learned enables an efficient and affordable production of these next two [satellites]," Smith said. "Requirements are set, design is set, we're using, for the most part, the same core vendors throughout, so we shouldn't have an issues in terms of getting those parts or integrating the satellites." -- *Courtney Albon*

Lockheed preparing GEO-2 for March launch

SBIRS Constellation Meeting Production, Operational Milestones

As production begins on the next pair of Space-Based Infrared System satellites, the constellation's remaining satellites are moving swiftly through their various stages of production and operation, according to a Lockheed Martin official.

Jeff Smith, Lockheed's SBIRS program manager, told *Inside the Air Force* in a Nov. 1 interview that production and operation of its array of four -- and soon six -- geosynchronous Earth orbit (GEO) satellites is moving forward and deadlines are being met.

Lockheed Martin is the Air Force's prime contractor for SBIRS GEO satellites and was awarded initial funding to begin production on its fifth and sixth satellites on Oct. 25. The company has developed, or is in the process of developing, four other GEO satellites, the first of which was launched in May 2011.

Smith said GEO-1 is exceeding performance expectations and "delivering critical data to the warfighter." GEO-2 is being prepared for launch and GEO-3 and 4 are still moving through the production phase.

GEO-2 is scheduled for launch in March 2013 and Smith said the satellite may be on track for an early launch. Lockheed removed the satellite from storage in August and is doing some of the final factory work at its site in Sunnyvale, CA, to prepare the satellite to be shipped to Cape Canaveral, FL, in January where, before it is launched, it will undergo additional testing.

"We do very thorough testing on all these satellites. And if we find something, we either repair it or replace the box, depending on what it is," Smith said. "It has to work in space. We can't bring it back."

GEO-3 and 4 are in production and on schedule, Smith said. Lockheed is currently installing propulsion modules which will then be sent to Sunnyvale to be integrated with the payload and communications panel. GEO-3 should be available for launch in late 2014 and GEO-4 in late 2015. -- *Courtney Albon*

First research project targets embedded software systems

Lockheed Martin Leads Newly Formed Cybersecurity Research Group

Several defense companies have banded together to improve cybersecurity and have made the security of embedded software systems, such as those found in the Air Force's remotely piloted aircraft, one of their top priorities.

The group, known as the Cyber Security Research Alliance (CSRA), went public in late October. CSRA, which consists of Advanced Micro Devices (AMD), Honeywell, Intel Corp., Lockheed Martin and the security division of commercial entity EMC, aims to create a secure path toward integrating cyber technology into the Defense Department's weapons. The companies have paired up to address national cybersecurity research and development (R&D) issues by bridging the gap between government-funded R&D and commercially available products and solutions, according to an Oct. 24 announcement.

CSRA members spoke to *Inside the Air Force* in an Oct. 26 telephone interview. During that interview, Lee Holcomb, vice president of strategic initiatives for Lockheed Martin's information systems and global services division, and Ron Perez, director of the security architecture organization at AMD, talked about the way forward for the private, non-profit research consortium.

Holcomb told *ITAF* that one of the group's top priorities is to identify cybersecurity issues and remedies related to embedded software systems in RPAs and other next-generation aircraft. Holcomb is president of the alliance.

"Interestingly enough, one of our first research projects is looking at securing embedded systems, and by that we open it up to any kind of a vehicle. It could be your laptop computer, your mobile hand-held device, or it could be a [remotely piloted aircraft]," he said. "So we are looking at measures to secure these embedded systems, embedded meaning the computers, kind of inside something else, from malicious activity."

'The plate, right now, is pretty open.'

-- Lee Holcomb, CSRA president

Holcomb said RPAs are of particular interest to the alliance because the aircraft "are going to be in an area where there are going to be a lot of bad actors and hostile forces."

In 2011, concern about cybersecurity and RPAs was at an all-time high after malware infected a Creech-based ground control system that supported RPA mission operations. Creech Air Force Base, NV, is home to bulk of the service's RPA pilots.

During that year, a virus entered the Air Force's ground control stations, most likely from the Internet, according to U.S. Strategic Command chief Gen. Robert Kehler. The virus, known as the "credential stealer," was designed to log details such as video game registration keys and online account information for multiplayer online role playing games. Cyber threats, like viruses, are a common occurrence for the Air Force.

"We see multiple deliberate attempts to try to get into our networks almost daily," Kehler said in an Oct. 12 Air Force statement. "If Cyber Command were sitting here they would confirm that the trend is, of course, increasing."

Securing embedded systems in RPAs is just one facet of a wide swath of cyber issues that CSRA plans to address, according to Holcomb. The group is also in the process of identifying additional research projects, he said.

"The plate, right now, is pretty open," he said. "We're still debating on what those topics might be."

Over the past few months, CSRA members have been firming up their relationship. Now that they have made that relationship public, they say they are are ready for additional companies to join them in their effort to solve cyber issues which have "become completely complex and sophisticated," Holcomb said.

"Right now, we're looking for any and all companies that are engaged in providing products and services in the [information technology] community . . . at the hardware and software fundamental device level," he said. "We're looking at folks in the computing systems level, overall solutions level, so our nets are wide right now."

AMD, Honeywell, Intel Corp., Lockheed Martin and EMC have, for the past several years, collectively toyed with the idea of officially forming an organization dedicated to cyber research, Perez told *ITAF*. That idea stemmed from a discussion DOD had with industry during National Cyber Leap Year 2009, he said. National Cyber Leap Year 2009 was hosted by the National Science Foundation via a request for information, which gave the defense community a venue for submitting ideas on how to address the nation's cyber issues, he said. Perez is treasurer for the alliance.

"Industry members got together about six months after [National Cyber Leap Year 2009] to start discussing what we could do as far as the government's call for more . . . partnerships right around cybersecurity," he said. "So we've been working as an industry -- ad hoc industry group -- since that time frame on what would an organization look like, what would we pursue and, during that whole time, talking to various agencies, various folks within the government right at all different levels."

Cybersecurity has been at the forefront of the DOD's priorities this year, with concerns ranging from how to best protect the weapon systems of the various services to how to broach the barriers that hinder DOD from sharing cybersecurity threat intelligence with defense contractors. Even Defense Secretary Leon Panetta, in early October, issued a public warning on cybersecurity, urging the country to prepare for impending cyber attacks. -- *Maggie Ybarra*

Effort will extend life of aging trainer

T-38 Trainer Sustainment Effort Moves Into Second, Final Phase

The Air Force is taking steps to move forward with the second phase of its T-38 modification program.

The service in early October issued a request for information to gather feedback from small businesses that may be potential sources for the second phase of its Pacer Classic III (PC III) modification work. On Nov. 6 and 7, the Air Force will hold an industry day at which interested vendors may learn more about the program.

Stacy Draney, lead program manager for PC III, told *Inside the Air Force* in an Oct. 29 email that the program is designed to replace certain structural components and ensure airworthiness of 125 T-38C trainers at risk of being grounded in the next decade. Modifications include replacing major longerons, bulkheads/formers, internal skins and structural floors within the aircraft's fuselage.

Draney said an important driver of the sustainment program is keeping the aircraft in flight while the service works to develop and acquire its next-generation trainer, known as T-X.

"As the Air Force moves toward replacing the T-38 Talon trainer aircraft, current T-X funding and schedule uncertainties require further investment to keep the aged T-38s flying for at least another 15 years," Draney said.

PC III acquisition began in fiscal year 2010 and will continue through FY-17. The first phase of that acquisition involved a sole-source contract with Northrop Grumman to provide up to 51 upgrade kits, which the Air Force will begin installing in FY-13 at Randolph Air Force Base, TX. Those installations are scheduled to be completed in FY-20.

The second phase of the modification program involves a competitive small business set-aside to complete the acquisition of the remaining kits. Draney said the industry day will help the Air Force get an idea of which businesses might be interested in PC III's second phase.

"We have heard from a number of small businesses including aerospace systems engineering firms, structural component manufacturers, and kit integrators," Draney said.

The T-38 has undergone a number of structural retrofit programs since it was first deployed in 1961, including Pacer Classics I and II and a Propulsion Modernization Program. Each of these was intended either to replace or repair major components of the aircraft.

The trainer is used by Air Education and Training Command to ready pilots to fly front-line fighter aircraft including the F-15, F-16, B-1 and A-10.

In February, the Air Force announced it would delay from FY-17 to FY-20 plans to field a replacement for the T-38 due to funding concerns. The Defense Department's FY-13 budget request includes $1.6 million for T-X to fund "studies and acquisition activities to support future technology, engineering and manufacturing development."

In March, AETC Commander Gen. Ed Rice told reporters the delay will not create sustainment issues for the existing T-38.

"We have looked very closely at the [T-38] airframe and I'm comfortable that we've got space here to make this T-X decision without running into a situation where the airframe is going to become a problem for us," Rice said. -- *Courtney Albon*

CSRA focusing on 'long-term, leap-ahead' technology

Cybersecurity Research Group Talks Up Needs Of Cyber Specialists

A newly formed cybersecurity research group has been communicating with the Air Force's cyber warfare specialists about some of the difficulties they face, hoping to address the service's cybersecurity needs.

The group, which was formally stood up in October, is comprised of Advanced Micro Devices, Honeywell, Intel Corp., Lockheed Martin and the security division of EMC. The companies are calling themselves the Cyber Security Research Alliance (CSRA) and say that they plan to focus on cybersecurity challenges which are bigger than any one company, consortium, sector or nation and on ensuring that government, industry and academia can understand and define those challenges, according to an Oct. 24 statement on the creation of CSRA.

Alliance members Lee Holcomb, vice president of strategic initiatives for Lockheed Martin's information systems and global services division, and Ron Perez, director of the security architecture organization at AMD, talked to *Inside the Air Force* about the conversations CSRA has been having with the Air Force's cyber arm, the 24th Air Force, and with Defense Department officials, regarding its cybersecurity concerns.

"We've had a lot of dialogue with the Air Force and DOD about their challenges," Holcomb told *ITAF* during an Oct. 26 telephone interview. "What we hope to offer is a catalyst for long-term, leap-ahead technology -- real game-changing technology -- that will offer the government, as well as citizens, those that operate our critical infrastructure, systems that are a lot more secure than they are today."

Holcomb, president of CSRA, said that progressive discussions with both the service and DOD have taken place this year, most recently at an informal workshop in April.

An Air Force official told *ITAF* that the 24th Air Force has likely had discussions with individual companies but has yet to engage in dialogue with CSRA as an entity. To date, the service has engaged in "individual partnerships with

different companies using the legal avenues to do so," the official said.

Located at Lackland Air Force Base, TX, the 24th Air Force is part of the service's premier cyber warfighting organization. Maj. Gen. Suzanne Vautrinot, who oversees the numbered Air Force, announced earlier this year that the service would be revamping the way it acquires cyber capabilities by launching a pilot program that will bring all parties involved in cyber acquisition together in a single location and provide them the latitude to pursue the rapid development and procurement of cyber technology.

For the Air Force and the Defense Department, CSRA feels that it can present an opportunity to address a "complex and sophisticated" threat, Holcomb said.

"DOD has been very open, talking about the threat being much more sophisticated, and I think that the risk, on the country as a whole . . . it's quite significant. And I think we're now appreciating it, and I think that's the environment DOD sees and has led the government to establish a number of initiatives in this area," he said.

CSRA, which plans to expand its partnerships with defense industry members, academia and the government, hopes to also move toward a future where it can address the cybersecurity threat to commercial space, according to Perez, the alliance's treasurer. The "explosion" in the number of devices that the United States is dependent on, be it an electric meter, water meter or in-vehicle system, could all be critically impacted if they are not secure, he said. Identifying cybersecurity solutions is not only critical to the Air Force and DOD but also to the infrastructure of the United States, he said.

CSRA members also discussed with *ITAF* the importance of supply chain security for DOD's weapon systems. The security of that supply chain was a major issue for the Senate Armed Services Committee in 2011. Supply chain security issues are almost as important as the nation's cybersecurity issues, Perez said.

"In DOD there's a lot of interest, obviously, in supply chain security, but it's mostly focused on process and procedures at this point," he said. "Anybody would like to get to this level on, what can we say about the technologies that we're buying and replacing in these systems? That have been used by these folks? What can we say after the fact?"

Tracing the origin of the components that comprise those technologies is only half the battle, Holcomb said.

"I would say that is one of the highest areas of concern in the Department of Defense, and we certainly worry about it all the way up to the full vehicle that we supply," he said. "An F-35, for instance, that's composed of many, many parts from around the world." -- *Maggie Ybarra*

RFP release pushed back to November/December

Industry Wants Clarity On F117 Competition Cost Expectation, Bid Process

The Air Force and industry are working together to clearly define expectations for the service's future sustainment plan on the C-17 cargo aircraft engine and a request for proposals is planned for release before the end of the year.

The service today relies on Boeing and its main engine subcontractor, Pratt & Whitney, to maintain F117 engine availability through the C-17 Global Integrated Sustainment Program, or GISP. But the Air Force is altering that construct in an effort to take on more program management functions itself and to generate greater competition, and thus cost savings, related to engine maintenance.

Pratt & Whitney is the F117 engine's original manufacturer. As part of this new contracting structure, the Air Force intends to award two contracts -- one overarching contract for engine overhauls and supply chain management, and a sole-source award to P&W for two years of supply chain activities to give a potential second contractor time to set up its own supplier base.

In a question-and-answer document posted on Federal Business Opportunities on Oct. 30, the Air Force revealed that it now intends to issue a request for proposals (RFP) in November or December. That represents a slight delay from an earlier timetable that called for an RFP release last month.

In that same document, industry repeatedly asked that the Air Force clear up how it plans to build expected savings into firm fixed price (FFP) portions of the F117 contract structure. The service expects to derive a large percentage of cost savings through its source approval request (SAR) process, aimed at certifying more parts for use on the C-17 engine and thus increasing opportunities for competitive sourcing. That process is a continuing one, though, and it will be far from complete at the time that offerors submit their bids to the Air Force in 2013.

After parts are certified through the SAR process, it will be up to the contractors to buy the parts they need, and a full list of SAR-approved parts will not be available until well after a contract is awarded late next year. Execution of the new F117 overhaul contracts is scheduled to begin in 2014.

According to the question-and-answer paper, industry will have to decide what savings it believes can be generated through alternate part sources under the proposal it submits to the Air Force.

"The contractor will be held to their proposed FFP regardless of whether potential savings are realized or not," the document states. "There will be no penalties assessed for any further savings not realized. In the competitive contract, it will be up to each Offeror whether to build into their FFP proposal savings for potential approvals of alternate parts/repairs."

The service added in its responses that this competitive contract will be performance-based, rather than a "part by

part acquisition." That means industry would benefit from lowering total acquisition costs under its FFP contract, rather than the Air Force setting expected cost levels for each and every part required for F117 maintenance.

An official at the Oklahoma City Air Logistics Complex, which is coordinating this competition, told *Inside the Air Force* this summer that the Air Force's F117 Heavy Maintenance Center in Oklahoma City will overhaul at least six engines per month under the new award. A draft performance work statement, also posted on FedBizOpps on Oct. 30, sets a goal of 10 overhauls per month once the new contract is fully implemented.

The Air Force's decision to compete F117 sustainment at all has drawn some skepticism from Boeing and P&W, who were recently recognized by the Defense Department for their performance under GISP. Because the C-17 engine is derived from a commercial motor developed by P&W, the company owns most of the data rights for the F117. -- *Gabe Starosta*

DOD Seeks Contractor To Provide Key Support For Drone Programs, Plans

The Pentagon plans to hire a contractor with expertise in large unmanned aircraft systems and command and control issues to help the department plan, manage and develop high-priority drone capabilities.

The contractor will help the Defense Department prepare key documents laying out budget plans and military requirements, as well as briefings for senior defense officials and Congress, according to an Oct. 24 request for proposals for remotely piloted aircraft (RPA) issued by DOD's Intelligence, Surveillance and Reconnaissance Task Force. The notice reflects DOD's decision to compete work that had previously been sole-sourced to Scitor Corp.

The notice calls for contractor support for "high-demand ISR platforms and systems" -- the MQ-1 Predator, MQ-9 Reaper and RQ-4 Global Hawk, as well as RPA command and control. The contractor will help the ISR Task Force and the RPA Capabilities Division of the Air Force provide ISR and unmanned capabilities supporting combatant commands and theater requirements worldwide.

"This includes technical support to the broader management of ISR platforms, sensors, their associated processing, exploitation, dissemination (PED) and communication architectures, as well as the development and fielding of RPA ISR capabilities," the solicitation states. Responses are due Nov. 7. The period of performance is slated to begin by Dec. 1 and continue for at least a year, with three 12-month optional periods. The solicitation notes the effort depends on the availability of funding.

The contractor's "expertise will be applied to ISR TF critical and time-sensitive tasks including the rapid identification and fielding of RPA technologies and capabilities as well as advanced sensors and payloads that provide near-term utility for military use beyond current missions," the notice states. The Air Force's Capabilities Division will generally determine daily work priority; however, tasks associated with the ISR Task Force's near-term capabilities development and fielding will often take top priority over the service's near-term tasking, the RFP states.

The contractor will provide expertise on the systems and support government oversight of the programs, processes, operations, exercises and other activities. The work involves identifying and developing "recommended standards, procedures, policy, and enabling technology necessary to maximize" Predator, Reaper and Global Hawk capabilities in contested and non-contested airspace in support of emerging combatant command and service requirements, the notice states.

In addition, the contractor will provide recommendations on "future strategic assessments based on current agency personnel and equipment" based on research, review of concepts and other reports, the notice states, adding the work also includes supporting the Air Force's RPA Capabilities Division in its mission as the service lead for ISR RPA and small UAS capabilities.

This role involves working with the Office of the Secretary of Defense, the director of national intelligence office, the ISR Task Force and "other intelligence community authorities to translate higher-level guidance into recommendations for service-specific policy and guidance on the utilization" of the different systems, the RFP states. The contractor will support the creation of point papers and reports, build and present briefings that can be presented to senior leaders, and prepare post-event minutes and summaries for action officer and executive meetings, congressional hearings, seminars and related activities, the notice states. Presentations and briefings developed by the contractor will support programmatic actions and technology outreach.

The contractor will also monitor the "performance and effectiveness" of the Air Force drones, and serve as the senior expert to different service and DOD shops "providing detailed actionable strategic recommendations and deliverables on matters concerning" the systems' capabilities planning, technology assessment, programming and prioritization.

Further, the contractor will provide planning and programming expertise in the area of unmanned program management, test and evaluation, operational concept and doctrine development and technology transition. And the contractor will provide "expert strategic assessments" of current and planned UAS programs and joint concept technology demonstrations for "possible transition to service program of records," the notice states.

The contractor will also evaluate program issues and develop recommendations to "resolve substantive DOD, Joint

Staff and COCOM issues of providing increased ISR effectiveness and efficiency," the notice adds.

The work also includes supporting efforts to manage and accelerate the Global Hawk Block 40 program.

Further, the contractor will support government oversight of UAS and small UAS programs, processes, exercises and other activities related to RPA communications architecture. The contractor will also serve as the senior adviser for planning and identifying future UAS and small UAS requirements for electromagnetic spectrum capabilities and requirements, the senior adviser to the Air Force representative to the Office of the Secretary of Defense's frequency and bandwidth integrated product team, and as the Air Force expert in support of OSD's interoperability integrated product team.

This position is also to provide "subject matter expertise for development of Unmanned System Interoperability Profiles (USIPs) covering such key areas as line-of-sight full motion video, bandwidth efficient common data link, wide area sensor, and weapons interfaces," the notice states. -- *Jordana Mishory*

DOD: Military Faces Depot-Maintenance Shortfalls For Vehicles, Drones

The Army and Air Force are short nearly 1.4 million direct labor hours for depot maintenance, a senior Pentagon official tells lawmakers in a recent report.

The Army suffers core workload shortfalls in ground vehicles and ground support equipment, and the Air Force does not have enough core sustaining workloads in communications and electronics equipment -- primarily in unmanned aircraft systems' ground stations -- and ordnance, weapons and missiles, Alan Estevez, the assistant secretary of defense for logistics and materiel readiness, writes in the August report.

The Navy and Marine Corps do not face any workload shortfalls, the report states.

"The department has a total core depot-level maintenance requirement of approximately 69.5 million Direct Labor Hours (DLHs), which equates to an estimated accomplishment cost of approximately $11.7 billion," Estevez writes in the report, which was required in the Fiscal Year 2012 National Defense Authorization Act.

The Army's ground combat vehicle shortfalls are due to "a sustainment gap from FY 2013 through FY 2016 that is occurring because unit operations tempo rates are currently at low levels," Estevez writes. In addition, fleet ages have been reduced to an average of three to four years "due to the operations and maintenance, Army and procurement, Army overseas contingency operations funding provided in recent years to execute robust recapitalization upgrade and reset depot maintenance programs," Estevez adds.

"As a result, current depot overhaul and repair of ground combat vehicle systems and their major components are anticipated to be minimal" during this four-year period, Estevez adds, noting it relates to the Anniston Army depot in Anniston, AL.

The Army seeks to mitigate this shortfall through foreign military sales and other workloads, and assesses this as "a minimal risk to its overall core capability," the report states.

The Army is also suffering a tactical wheeled vehicle shortfall at Red River Army Depot in Texas. But the Heavy Expanded Mobility Tactical Truck and Heavy Equipment Transporter core workloads -- which are in excess of the core requirements at Red River -- will mitigate this shortfall, Estevez writes. He notes that the Army also sees a decrease in the overall tactical wheeled vehicle core requirements in the future "once planned force structure changes that reduce Army overall TWV are implemented."

Concerning the ground support equipment, the shortfall applies to the Rhino Passive Infrared Defeat System repaired at Letterkenny Army Depot in Pennsylvania and Floating Bridges repaired at Red River. In addition, the Tank and Pump Unit core shortfall applies to bulk petroleum, oil and lubricant distribution equipment required at Sierra Army Depot in California. And the chemical defense equipment core shortfall applies to the Biological Integrated Detection System at Letterkenny, Estevez states. Also, the shop set core shortfall applies to the Forward Repair Shelter System that is built and fixed by Rock Island Arsenal in Illinois.

"The Army will use analogous workloads to mitigate these shortfalls and assess its [ground support equipment] core shortfall as a minimal risk," Estevez writes.

To address the Air Force's communications shortfall in UAS ground stations, which is driven by MQ-1 and MQ-9, "workloads from the ground stations are being established within organic depots," the report states.

This organic depot stand-up will begin in the third quarter of FY-12 and "will incrementally complete for the associated workloads" through FY-16.

"The Air Force and Army are working in concert to activate the core sustaining workloads organically," Estevez writes. "The shortfall in electronics is to be addressed by activation of MQ-1 and MQ-9 workloads starting in 4Q FY-12 with workloads fully activated in 1Q FY-15."

The Air Force's other shortfall concerns missile components, but this is being addressed by "standing up organic depot capability from existing and new weapon systems such as the missile launchers and defensive missile systems for the KC-46, F-35, MQ-1 and MQ-9," Estevez writes.

The organic standup for the MQ-1 and MQ-9 starts in the fourth quarter of FY-12 and will be complete by FY-17, Estevez writes. -- *Jordana Mishory*

Demand For JSF Sustainment Industry Day 'Greater Than Expected'

More than 160 companies, including a handful of foreign firms, have registered interest in the Joint Strike Fighter program's lucrative life-cycle support work, a "greater-than-expected" response to the government's planned competition.

In a bid to rein in the F-35's estimated $1.1 trillion life-cycle sustainment and operations costs, the Pentagon last month announced plans to meet with industry on Nov. 14 and Nov. 15 to discuss competing new areas of the F-35 program -- including supply chain management, the Autonomic Logistics Information System, training systems and support equipment.

"The demand for Industry Day being held on 14 November 2012 was greater than expected," the F-35 joint program office said in a notice published Oct. 26 on the Federal Business Opportunities website. As a result, the government plans to limit attendance during the general information session to one representative per company.

According to the notice, the Defense Department has scheduled private meetings with 33 companies eying the chance to win a chunk of the F-35 program's life-cycle support work; for these meetings, two representatives will be allowed to attend, according to the notice.

DOD is concerned about the F-35's sustainment costs, which are projected to be significantly higher than those of the legacy aircraft it is intended to replace. Since 2010, the Pentagon has been actively seeking ways to pare back the projected operations and sustainment bill, forecast in April to be $1.1 trillion through the 2060s.

In addition, the bid to open the F-35 program to new competition is part of DOD's efforts to comply with the 2009 Weapon Systems Acquisition Reform Act, which calls on the Pentagon to find ways to ensure competition throughout a weapon's life cycle.

Lockheed Martin is the F-35 prime contractor, developing and building the aircraft as well as integrating the Pratt & Whitney F-135 engine -- a $397 billion effort to produce 2,443 aircraft. Lockheed's role in that capacity is not at risk, according to DOD.

Pentagon officials, however, are not pleased with the relationship between Lockheed and the F-35 joint program office. Maj. Gen. Christopher Bogdan, the presumed next director of the F-35 joint program office, recently criticized Lockheed Martin in public remarks on JSF. And negotiations over a fifth early production lot that began in December 2010 have not yet been finalized.

Lockheed's share of the life-cycle portion of the F-35 program is not expected to be as large as it is for the development and production portion of the program.

"Losing bits and pieces of this work won't diminish Lockheed's share of the production but it will severely constrain money the company could make from the long-term support of the aircraft," Roman Schweizer, a defense analyst for financial services company Guggenheim Partners, wrote in an Oct. 16 note to clients. -- *Jason Sherman*

USAF Monitors Sense-And-Avoid Progress . . . begins on page one

Pehrson, in an Oct. 31 interview with *Inside the Air Force*, said the refined ADS-B allows UAVs to see other objects in the surrounding airspace with a level of detail that was previously unavailable to the aircraft. To date, the company has poured about $750,000 of its own money into the capability, Pehrson said.

"We're excited. We see this as being integral to this system to enable it to integrate with national airspace eventually," he said.

During the testing process, which is taking place in Cape Canaveral, FL, General Atomics is, in part, perfecting the capability needed for its sense-and-avoid system. A sense-and-avoid system allows UAVs to sense other objects in the area and avoid them without the assistance of air traffic controllers. The Air Force this year has been seeking industry input on how to best enable drones to sense and avoid other aircraft and expects to issue a contract for the capability in early 2014.

That capability, once acquired by the service, would also need to be integrated onto all other aircraft, including commercial aircraft, Pehrson said. Aircraft with ADS-B will not be able to acknowledge aircraft without ADS-B, he explained. That said, once all aircraft have acquired the capability, the dynamics of air traffic with change, Pehrson said.

"When all the commercial airliners have ADS-B, they're not going to have corridors to fly in any more," he said. "There's not going to be traffic, like a highway system, where planes have to stick to planned routes. With ADS-B, they can use the most fuel efficient direct routing that they can, and the planes smartly avoid each other through the airspace."

In the future, air traffic controllers will evolve into airspace managers who assume a safety management role, Pehrson said.

That future is not too far in the distance. Congress made major strides in 2011 when it mandated in its Fiscal Year 2012 National Defense Authorization Act that the Defense Department establish a program to integrate unmanned aircraft systems into national airspace. Part of the bill requires DOD to supply Congress with a report on potential locations for test ranges and coordination efforts that would need to be forged in order to pave the road toward introducing unmanned

aircraft into the national airspace.

The Air Force, as well as the other services, have all contributed to the report and have been looking for the ways to facilitate the integration effort, according to service spokeswoman Lt. Col. Max Despain.

"The Department of Defense and the Air Force are working with [the Federal Aviation Administration (FAA)], NASA, [the Department of Homeland Security] and other federal agencies to develop non-material solutions to unmanned aircraft systems integration," she said in an Oct. 31 email to *ITAF*. "The 2012 FAA Reuthorization and Modernization Act tasked FAA to establish programs, policy and procedures to integrate unmanned aircraft systems into the national airspace system. Per the 2012 NDAA, DOD and Air Force are required by law to support the FAA in that effort.

"Air Force is the lead agency for Airborne-Sense-and-Avoid solutions and the Army is lead for Ground-Based Sense and Avoid," Despain continued. "The Air Force is also exploring a ground based solution that seeks to leverage existing radar infrastructure and incorporate technical developments from the Army program. This system will benefit unmanned system integration as well as mitigate the impacts of wind farm turbines on radar systems."

Air Force spokesman Ed Gulick told *ITAF* in an Oct. 31 email that the service has been keeping a close eye on General Atomics while the company is conducting tests in Cape Canaveral.

"The Air Force is cognizant of the results of the General Atomics' ADS-B testing activities related to the Department of Homeland Security's (DHS) interested in the capability," he said.

Sense-and-avoid technology is rapidly maturing, Pehrson said, noting that the company could complete its sense-and-avoid radar in less than two years. But the technology is only half the battle, he said.

"ADS-B is done already, but the limiting factor is going to be the policy," he said. "It's going to be getting the FAA and DOD and all the government agencies to agree to allow all the UAVs to fly in airspace, and . . . there's so many factors that go into that. There's public confidence. There's safety. There's perceptions of privacy and making sure that the UAVs can't do anything more than a manned aircraft can, but they have this mystique about them like they're spy planes or something, so we have to make sure the public perceptions are managed directly and the policies are in place for any concerns that they have." -- *Maggie Ybarra*

Rigorous T56 Series 3.5 Testing Completed In October . . . begins on page one

In an Oct. 26 interview with *Inside the Air Force*, Gregory Shaff, an aerospace propulsion engineer attached to the 418th Flight Test Squadron and a participant on the Series 3.5 flight testing, said that statistical conclusions about the performance of the 3.5 engine are still being derived from testing data. However, preliminary results demonstrate that the motor showed better fuel efficiency, ran at a cooler temperature than legacy engines -- which will increase reliability and time on wing -- and did not require new operating procedures on the part of the pilot, as the Air Force had hoped.

Rolls-Royce's Bob Settle, the company's U.S. Air Force customer account executive, told *ITAF* on Oct. 31 that the Series 3.5 engine should provide about 8 percent better fuel efficiency and 22 percent better reliability. That improved reliability is derived from the engine running more than 100 degrees Fahrenheit cooler than legacy motors, which will dramatically slow the deterioration of engine components.

An Air Force-led business case analysis determined that pursuing the 3.5-model engine upgrade could save $2 billion through 2040, when the C-130 is expected to reach the end of its service life.

Flight testing began in September and was performed using a C-130H3 on loan from the 153rd Airlift Wing, a component of the Wyoming Air National Guard, Shaff said. A C-130 flies with four engines, and for testing purposes, one of those four engines was a Series 3.5 motor, while the remaining three were legacy Series 3 engines.

About six personnel flew on board the aircraft during testing, which comprised two primary phases, Shaff said.

"Our last flight was on 12 October, and essentially we were executing propulsion testing specific to the engine itself for the modifications, which included throttle transients, which are movements basically of the engine from high-speed to low-speed conditions," he said. "We also executed performance testing ,which is a more stabilized test where all four engines are stabilized and the data is used to compare the actual performance of the engine as opposed to the acceleration or deceleration of the engine."

Regarding fuel efficiency, Shaff said the test engine provided as much power as legacy engines at a lower throttle setting, indicating improved performance. That performance was analyzed through a measure called thrust-specific fuel consumption, which Shaff defined as a standardized fuel flow per unit thrust that allows for different engines to be easily compared.

"Right now, unfortunately, we don't have the results yet -- the report is still being written . . . but the observational effects of just having four engine throttles side by side was that the test engine provided a lower throttle setting for an equivalent torque output," Shaff said.

Settle said that based on available data, the Series 3.5 motor appeared to have achieved 8.5 percent better fuel efficiency, above the expected figure of 7.9 percent.

This series of tests was performed by Air Force personnel. Rolls-Royce had a field representative on site and is providing data input to the service but was not directly involved in test missions, Settle said. Lockheed Martin, the C-

130's original manufacturer, was also indirectly involved in the testing; the company owns flight manual data that C-130 operators use to become familiar with flight parameters, and Lockheed will update those manuals using last month's test data to reflect changes in the way the aircraft flies with the upgraded engine.

Rolls talking to Air Force, international customers

With flight testing complete, Rolls-Royce and the Air Force will move on to accelerated mission testing, essentially a 400-hour engine fatigue test that will be performed at a company facility in Indianapolis between November and March, according to Settle. That test will produce data related to increased component durability and time on wing for the upgraded engine.

If the current schedule holds, the Air Force should grant a modified airworthiness certificate for aircraft using the Series 3.5 engine next October. The company hopes the service begins funding production of the kits in fiscal year 2014, and Settle specifically mentioned interest from Air Mobility Command, the Air National Guard and Air Force Reserve Command, the latter two being the primary operators of older-model C-130s that would benefit from the engine improvements.

Company spokesman George McLaren said the modifications needed to convert an engine to the 3.5 configuration can be done during a regularly scheduled engine overhaul, and the cost of doing so would be "several hundred thousand dollars" above the cost of a typical depot maintenance cycle.

"The Air Force has had significant discussions both with us and with all of the stakeholders in the C-130-T56 community about how best to go forward with this, so while there is at this point no current commitment to buying the 3.5 and incorporate it onto Air Force aircraft, they have laid a lot of the foundational groundwork so that it could be done," Settle said. "And again, it's our goal to hopefully have some funding available in FY-14."

Settle said the Air Force may eventually want to buy 100 upgrade kits or more per year, but doing so would require an investment from Rolls-Royce to increase its production capacity. In any case, production is likely to begin at much smaller numbers, and the company is producing only single-digit kits at this point, he said.

The Series 3.5 upgrade is being developed in conjunction with the Air Force, but given the C-130 aircraft's widespread use around the world, there could be an international market for this kind of modernization effort. Settle said the company has received interest from around eight international countries, as well as some additional interest from the Asia-Pacific region.

"The U.S. Air Force is our lead customer," Settle said. "We've got a number of other users and customers out there that have shown interest in it, but we're working with the Air Force right now, and quite frankly, many of them are obviously watching to see what the Air Force does with the testing as well as how they go forward with procurement."

Settle added that many international air forces that use C-130s may choose not to upgrade their engines to the Series 3.5 configurations. For that reason, as well as the time it will take to phase the new engine into the U.S. Air Force fleet, Rolls-Royce will continue supporting both Series 3 and Series 3.5 motors for the foreseeable future, he said. -- *Gabe Starosta*

Raytheon Working On OCX Information Assurance . . . begins on page one

engineering and manufacturing development.

Ray Kolibaba, Raytheon's vice president and GPS OCX program manager, told *Inside the Air Force* in an Oct. 30 interview that the milestone B achievement confirms that the company and the Air Force have built a clear path forward regarding expectations, schedule and funding.

Kolibaba said that milestone decision was directly tied to the OCX team's plan for information assurance (IA) -- essentially hardening the system against potential cyber threats -- on software iteration 1.5, currently in development, and future versions of the OCX software. Air Force and industry officials have described GPS as more vulnerable to cyber attacks than many other systems because of its applicability to civil and military communities and its very broad user base.

"It is one of our larger challenges," Kolibaba said. "It's one we don't talk a lot about just because of the sensitive nature aspect of it, but it is a key element of what we're building for, and getting to a milestone B, that was one of the very specific areas that OSD was looking at, with regards to our path ahead for information assurance."

GPS OCX software is being built in chunks called iterations, and Raytheon deployed iteration 1.4 for the first time earlier this year. Iteration 1.5 is critical because it will include early GPS III control capabilities known as the launch and checkout system (LCS) that are obligatory for the Air Force to launch its first GPS III satellite.

Earlier OCX iterations are able to control only legacy GPS II satellites, not GPS III vehicles.

According to Kolibaba, actually coding iteration 1.5 is not much more difficult than previous iterations because meeting information assurance requirements is largely a matter of "configurations of equipment and protecting various . . . front and back doors and other interfaces. There's not a lot of code per se." The Air Force's IA standards are demanding and constantly being updated if the government identifies new potential threats, however, and Kolibaba said Raytheon

will ensure that its OCX developers are up to date, and retrained if necessary, on military coding standards.

Once the software block is completed, testing on iteration 1.5 will be more extensive than any other OCX build to date because the Air Force expects to control GPS III-1 using that software. Kolibaba declined to comment on when Raytheon plans to deliver that software build to the Air Force, though, until the service completes a GPS-wide enterprise schedule that is currently being reviewed internally by the Defense Department. That enterprise schedule should be released in the "near future," he said.

"For 1.5, we will continue to do the kind of test work we have done previously, basically going through our unit test, our software integration and our risk reduction," he said. "But we're also then going to do the formal configuration control integration test activity and the formal qualification test , because this is going to fly a satellite, so we will go through the . . . formal test qualifications and procedures to actually sell off on the LCS activity to the government before they actually accept it and before we launch vehicle 1."

To ensure Raytheon's ground segment is in sync with Lockheed's satellites, the two companies and the Air Force will perform several operational exercises, the first of which took place in August. The second, meant to be more complicated and include more activities than the first, is planned for late January or early February.

Kolibaba said the first exercise was extremely helpful in identifying areas the two companies needed to improve on.

"We learned, I'll say a gap somewhat in some expectations -- and this isn't negative as much as positive -- we had some disconnects as to what Lockheed was going to do and what they wanted versus what we were going to provide, and that's why you do these early, up-front exercises, so you iron out those kinds of issues up front," he said. "We learned that system configurations were sometimes different . . . We had some network settings that weren't always the best ones we wanted to have, and driving out those kinds of technical details now, way early in the program, are exactly some of the things that we want to get done."

Exercise 1 looked at basic command and control and telemetry functionality, while Exercise 2 will include more challenging mission management activities in addition to those aspects.

All told, Kolibaba said new code required for GPS OCX -- officially termed Equivalent Source Lines of Code -- is about 50 percent written with the completion of iteration 1.4, reiterating comments made this summer by Col. Bernie Gruber, the commander of the GPS directorate at the Space and Missile Systems Center. Total code, including much of the legacy code derived from previous systems, is about 85 percent complete, he said in a Nov. 1 email.

GPS OCX software development is broadly structured in two blocks. Block 1 includes seven iterations, the last three of which provide GPS III control capability, while Block 2 includes two iterations that will bring on a number of new capabilities for the global positioning constellation. -- *Gabe Starosta*

Silver Fox 'Ideal' For Surveillance And Tracking . . . begins on page one

that, like the UAV industry, are fragmented among multiple platforms. For these programs to continue to grow, Pobloske suggested, DOD must reward innovation rather than stifle it.

"It's hard to crack into the DOD with new capability if you're not one of those monstrosity acquisition programs. . . ." Pobloske said. "This is an entrepreneurial, very wide-open, fragmented industry, the UAVs, and even though it's gotten bigger and it's a huge industry in its own right, it's extremely fragmented. The only way it's going to continue to evolve is to structure itself like the computer industry, if you will, and reward innovation."

Pobloske called the Silver Fox work a "bootstrap effort" that has shown real success. BAE and AFRL first partnered in 2007 to integrate a short-wave infrared sensor into an older model of the UAV. At the time, the United States was increasing its presence in the Middle East, so the partnership continued as an effort to develop a variation of the Silver Fox for use in Joint Improvised Explosive Device Defeat Organization (JIEDDO) missions, primarily in Iraq and Afghanistan.

"We have been continuously deployed over there, operating the aircraft and the vehicles with them for the benefit of the various forces in Afghanistan and Iraq since that time frame," Pobloske said. "And of course we have been modifying and evolving the vehicle and improving the vehicle over time."

AFRL coordinates, funds and directs program management for Silver Fox, but because the Army is the primary service on the ground in these areas, the capability primarily benefits Army missions.

The Silver Fox, with its unique size and relatively low-maintenance deployment requirements is ideal for route reconnaissance, force protection, high-value target identification, perimeter surveillance and tracking missions -- the UAV and all of its accompanying launch equipment can fit in a standard Humvee and requires only three crew members to operate. While the missions are fairly similar to other smaller tactical UAVs, Pobloske said the aircraft offers three

Correction

A story in last week's issue of *Inside the Air Force* inadvertently stated that a recent satellite launch was conducted using an Atlas IV rocket booster. That launch was performed using a Delta IV booster.

specific benefits: quiet acoustics, long endurance and sophisticated sensor systems.

"In other words, they can move, reposition, relocate this system very, very easily. . . . " Pobloske said. "So if you think about it, what they're able to do is reposition this to the area that they need it very rapidly, operate it with a very small team of people, collect the imagery and [intelligence, surveillance and reconnaissance] that they need and very rapidly. And they're able to do that clandestinely, of course, because we have a very low acoustic signature but a very powerful sensor. And that is very different than other larger UAVs."

Pobloske said modifications to the Silver Fox are ongoing and usually fall into one of three categories: performance envelope, endurance and sensor quality. Within these categories, BAE and AFRL have done things like replacing engine components and improving imaging and tracking capabilities.

Pobloske said one project AFRL is currently working on involves improving data relay and other sensors on the aircraft, but he declined comment on the details of the work. AFRL did not respond to requests for comment by press time (Nov. 1). -- *Courtney Albon*

DNI Reviewing STRATCOM Panel's Call For New NIE On Nuclear C2

The White House's intelligence shop is reviewing a military advisory panel's call to prepare a national intelligence estimate for U.S. national nuclear command and control capabilities, according to a spokesman for the office.

Michael Birmingham, a spokesman for the director of national intelligence, said DNI is aware of and is reviewing the recommendation from the U.S. Strategic Command Strategic Advisory Group. But he declined to say more, noting the office does not discuss NIEs that may or may not be undertaken.

The unclassified minutes from the group's May 17-18 meeting state that a mission assessment team prepared an independent report on U.S. national nuclear command and control (NNC2) capabilities to support assigned missions as identified in the Unified Command Plan. Noting that nuclear C2 is a portion of the national C2, the minutes reveal the report identified the need for a national intelligence estimate.

"The report identified several shortfalls," the minutes state. "There is a lack of analytical rigor, as well as a lack of architectural documentation; there is a general lack of C2 engineers, architects and architectural tools in place to support these programs." A participant in the study declined to comment on the review.

In testimony last year before Congress, STRATCOM chief Gen. Robert Kehler highlighted the "unique role" his command plays in the overall national nuclear command and control system. He made the comments while making the case for funding a new STRATCOM headquarters building, a project that officials ultimately broke ground on a few weeks ago.

"It is a unique node, if you will, on a network of nuclear command and control," he said. "Therefore, as we look at retaining the appropriate nuclear command and control capabilities, those things that are at Strategic Command right now that are encompassed inside that physical plant -- the headquarters building itself -- we're talking about unique planning tools. We're talking about unique operational command and control activities and we're certainly talking about unique fusion capability there to begin to pull the pieces of not only our nuclear command and control, but space and cyberspace and other pieces together as well." -- *Christopher J. Castelli*

SUBSCRIPTIONS:
703-416-8500 or
800-424-9068
custsvc@iwpnews.com

NEWS OFFICE:
703-416-8528
Fax: 703-416-8543
airforce@iwpnews.com

Managing Editor: Gabe Starosta (gstarosta@iwpnews.com)
Associate Editors: Maggie Ybarra (mybarra@iwpnews.com)
Courtney Albon (calbon@iwpnews.com)

Production Manager: Lori Nicholson
Production Specialists: Daniel Arrieta, Sharonel Pedronan

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