NOT FOR PUBLICATION UNTIL RELEASED BY THE
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
SUBCOMMITTEE ON NATIONAL SECURITY AND FOREIGN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES

STATEMENT OF

MAJOR GENERAL NEIL MCCASLAND

DIRECTOR, SPACE ACQUISITION, OFFICE OF THE SECRETARY OF THE AIR FORCE

BEFORE THE SUBCOMMITTEE ON NATIONAL SECURITY AND FOREIGN AFFAIRS

HOUSE COMMITTEE ON GOVERNMENT OVERSIGHT AND REFORM

ON "*GPS: CAN WE AVOID A GAP IN SERVICE?*"

7 MAY 2009

NOT FOR PUBLICATION UNTIL RELEASED BY THE
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM
SUBCOMMITTEE ON NATIONAL SECURITY AND FOREIGN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman, Ranking Member Flake, distinguished Members of the Subcommittee on National Security and Foreign Affairs, it is a privilege to address you on the Air Force's management and execution of the Global Positioning System (GPS) acquisition program. GPS provides accurate location and time information for unlimited users in all weather, day and night, anywhere in the world. It is vital to numerous military and civil activities, including mapping, aerial refueling, weapons delivery, rendezvous operations, search and rescue operations, banking, transportation and agriculture. The Air Force, as the developer, operator, and steward for GPS, is committed to maintaining GPS as the gold standard for positioning, navigation, and timing information. I will focus my discussion on recent program successes, plans to sustain and modernize civil and military capability, and the interagency partnerships required to guarantee GPS program success.

RECENT SUCCESSES

First, let me talk about a few recent successes. In September 2007, the 22-year-old, unsustainable legacy GPS Master Control Station was replaced by the Architecture Evolution Plan System, or AEP, which improved GPS accuracy, provided the capability to operate the GPS IIF satellites, and will increase the ability to protect the military's use of GPS signals. The transition from the legacy to this new control segment was seamless to GPS users worldwide.

We are also significantly modernizing the GPS space segment. In March we launched the seventh vehicle in the current generation of GPS satellites, known as Block IIR-M. This family of satellites supports a second civil signal, L2C, and a new fully-encrypted military-exclusive signal, M-code, that will provide improved anti-jam performance. The IIR-M launched in March just performed a successful test broadcast of a third civil signal, known as L5. This enabled the US to secure its filing for the frequency with the International Telecommunication Union.

The next generation of GPS satellites is the IIF family. This program has taken longer than planned to reach first launch due to the program's initial acquisition strategy, new requirements added for modernized GPS navigation signals and flexible power, defense industrial base consolidation, and technical issues. These issues propelled the Air Force to launch a campaign to rebuild our confidence in the schedule of this critical space system through a renewed focus on mission assurance.

We have now achieved multiple milestones for the first GPS IIF space vehicle including successful thermal vacuum and final integrated systems testing for satellite #1. At the same time, we are preparing to send the second space vehicle to Cape Canaveral as a pathfinder and also establishing a production line for the remaining vehicles. I'm confident we'll launch the first IIF in the first half of FY10, and the remaining space vehicles will be produced and available as needed over the next three to five years.

Finally, we have put great emphasis on the all-important user equipment. To date, the Air Force has procured nearly 345,000 Defense Advanced GPS Receivers, upgraded Miniaturized Airborne GPS Receivers, and procured 80,000 Ground Based GPS Receiver Applications Modules. Collectively, these deliveries represent significant enhancement to security and GPS anti-jam capability, increasing combat effectiveness.

PLANS TO SUSTAIN AND MODERNIZE

As important as these successes have been, we must continue to modernize. As we evolve all three GPS segments, we will deliver significant new capabilities. For the military user, both the GPS M-Code and increased power are key enablers of navigation warfare capabilities. The civil user will gain two new signals to provide greater accuracy, integrity, and utility.

A key element of our strategy is to deliver the first GPS III satellite to a known schedule. We worked hard with our requirements arm, our industrial partners, and our fiscal planners to ensure we integrated every lesson from the past to create a high-confidence GPS III schedule. In addition, our approach utilizes a significant amount of Lockheed Martin GPS IIR-M space vehicle heritage. The GPS IIIA program completed extensive pre-award risk reduction activities and demonstrated early designs and prototypes of higher-risk items. These efforts allowed us both to adopt a phased acquisition approach to pursue a low-risk set of capabilities for the initial satellites to support constellation replenishment and to allow longer technology maturation timelines for more challenging capabilities. Two weeks from now, the GPS IIIA program completes its Preliminary Design Review on schedule. This milestone demonstrates that the design addresses requirements with adequate margin to meet program objectives. The program is on track for a first launch in 2014.

The modernized control segment required to support the Block III Satellites, as well as critical information assurance and effect-based operations requirements, is currently in the technology demonstration phase and has completed system design review and prototype demonstration. We will soon down-select to one vendor to complete system development, with delivery in 2013.

New military user equipment is under development to exploit advances in the space and control segments. Currently, the three Military GPS User Equipment (MGUE) Technology Demonstration vendors continue to mature critical technologies, burn down risk, and provide a baseline for the new approach to information assurance requirements. All three vendors are developing prototype hardware capable of receiving new and existing GPS signals, and each has conducted a Critical Design Review. Prototype hardware deliveries begin in early Fiscal Year 2010. Based on the technology demonstration work, our approach to MGUE development and

integration will emphasize modularity in the design to enable integration into the large number of end user applications and platforms. Available in 2015, these lighter, faster new receivers will be reprogrammable and include security and jam-resistant improvements.

The foundation for success both technically and programmatically in our modernization efforts lies in our mission assurance process. Mission assurance is a disciplined application of management, systems engineering, and quality principles over the entire lifecycle to ensure mission needs are satisfied. It is a culture that we've rebuilt at SMC that permeates the GPS team and is ingrained through all functional disciplines.

Three elements are key to the mission assurance culture: risk management, disciplined engineering, and strong government oversight. Proper risk management has been in place from the beginning of the programs. Prior to awarding development contracts, the government conducted extensive risk reduction activity to establish an allocated requirements baseline and develop and demonstrate early designs and prototypes of higher risk items.

Disciplined engineering for GPS means we have taken a government-led enterprise approach to engineering processes. This approach emphasizes rigorous baseline management, institution of specifications and standards, and government responsibility for cost, schedule and technical trades. The enterprise approach also provides for integrated system-level testing to validate the service provided to warfighters and civil users alike.

Consistent with recommendations of several studies on acquisition, we've staffed the team with experienced and trained personnel who can exercise clear government oversight. Learning from the difficulties encountered with GPS IIF, we have placed responsibility to deliver our system back where it belongs – with the government. We have also put a team of retired military officers and senior contractor leadership in place to provide management, systems engineering, and business operations training and mentoring for these personnel.

Simultaneously, senior leadership across the Air Force, DoD, and DoT have committed to GPS program success. This shared goal enhances capability synchronization, budget advocacy and stability, and provides us the support we need to deliver to our plan.

UNITY OF EFFORT

GPS supports both military and civil users and requires involvement, advocacy, and resources from the DoD and DOT. Within the DoD, Air Force Space Command is responsible for leading GPS requirements development and advocacy through the Joint Requirements Oversight Council. Acquisition responsibility for GPS falls under the Program Executive Officer for Space working through the Deputy Undersecretary of the Air Force for Space Acquisition and the Undersecretary of Defense for Acquisition, Technology and Logistics.

DOT is the lead civil agency for GPS and coordinates the requirements, resources, and advocacy across the civil community. To ensure unity of effort between DoD and DoT, the President signed the US Space-Based Positioning, Navigation, and Timing Policy on 8 December 2004. This policy established guidance and implementation actions for space-based PNT programs, augmentations, and activities for US national and homeland security, civil, scientific, and commercial purposes. The policy also created a National Space-Based PNT Executive Committee to advise and coordinate among federal agencies. This process is working well, and has yielded great benefit for the GPS enterprise.

CONCLUSION

The Air Force is committed to maintaining GPS as the premier provider of positioning, navigation, and timing for users around the world. We have high-confidence plans to sustain and modernize this critical national capability on planned schedules.