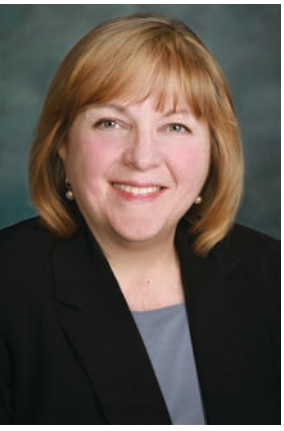
GPS Funding Comes with Strong Support – and Strings Attached

DEE ANN DIVIS

Federal budgeteers have made clear their support for satellite navigation though problems with military space programs in general, and GPS programs in particular, have lawmakers working to shake up the Pentagon's management structure and put limits on new federal business to contractors whose projects go awry.

So far members of Congress have largely approved full GPS funding despite delays impacting the space, ground and user equipment segments. As of press time, congressional authorizers were further along in their work with the full House passing H.R. 2810, their version of the FY18 National Defense Authorization Act (NDAA). The Senate Armed Services Committee moved its version of the NDAA out of committee on July 14 and sent it to the full Senate for a vote.

The House Appropriations Subcommittee on Defense passed its 2018 Defense Appropriations bill and the full committee sent it to the House for approval June 29. The Senate Appropriations Subcommittee on Defense has held hearings but has not yet approved a bill.



Dee Ann Divis has covered GNSS and the aerospace industry since the early 1990s, writing for *Jane's International Defense Review*, the *Los Angeles Times*, *AeroSpace Daily* and other publications. She was the science and technology editor at United Press International for five years, leaving for a year to attend the Massachusetts Institute of Technology as a Knight Science Journalism Fellow.

The Big Picture

Throughout this process both Republican lawmakers and the White House have been basing their budgets on their mutual belief that the Defense Department needs more resources than it has been getting. Though they agree on the problem they have yet to agree on a level of funding to fix it.

The President asked for $574 billion for the Department of Defense base budget —an amount exceeded by every congressional budget bill so far.

Looking just at the overall defense totals the House NDAA authorized $631 billion in discretionary defense spending (the base budget) while the Senate set a level of $640 billion. The full House Appropriations Committee reported out a bill with total discretionary defense spending of $584 billion while the nonbinding House Budget Committee's 10-year spending plan set the amount at $622 for fiscal year 2018. None of these numbers include the tens of millions budgeted separately for ongoing conflicts — that is funding listed under the account for Overseas Contingency Operations (OCO)/Global War on Terrorism.

While certainly consistent, all this enthusiasm is not anchored in reality. The congressionally approved spending caps created by the *Budget Control Act of 2011* (BCA) are still in place. Though Congress has tweaked the numbers over the last six years, the defense funding cap for fiscal year 2018 is $549 billion — $25 billion to some $91 billion less than what is being proposed.

"It all sounds real good but sequestration is still the law of the land," said former Air Force Secretary Deborah Lee James on the July 16 broadcast of *Government Matters*.

Moreover, while there appears to be broad bipartisan agreement that sequestration caps should be eased, the Democrats have been insisting that a defense spending boost needs to be accompanied by a bump-up in non-defense spending, something Republicans have generally opposed. There is no clear mechanism to change that dynamic.

"As I talk to people on Capitol Hill I'm still not seeing a path forward to lift sequestration," said James. "Ultimately if sequestration does not get lifted then we're back to square one and all of this talk is, indeed, just talk. Sequestration must be lifted."

The Numbers So Far

Given the sequestration dilemma it is possible, even likely, that the amounts approved for GPS will change. Even so it seems clear from their funding choices that lawmakers understand and appreci-

ate GPS and are more likely to make it a priority, even in a budget squeeze.

For example, House appropriators shaved the administration's budget request of $1.09 billion by just $30.0 million — $20.0 million of that from the $243.4 million request for GPS III development and $10.0 million from the $253.9 million request for user equipment. The Defense Department asked for, and got, $510.9 million for development work on the Next Generation Operational Control System (OCX) and the GPS Enterprise Integrator.

The House Appropriations Committee also approved the request for $85.9 million for GPS III procurement, concurring with the DoD's decision to delay procurement of the eleventh of the new GPS III satellites until after the Air Force has decided on how to proceed with the GPS III follow-on contract. Lawmakers do not want to push things off too long, however, and said in the report accompanying the bill that it "expects the Secretary of the Air Force to request procurement funds in fiscal year 2019 for the acquisition of space vehicles 11 and 12."

The authorizing committees in both the House and Senate agreed with the appropriator's approach and approved $85.9 million for GPS III procurement. They also fully funded the request for the OCX program.

They inserted money to speed the slow procurement of Military GPS User Equipment (MGUE). The House authorizers added $10.0 million to the administration's request and the Senate $98.5 million. The Senate authorizers also slipped another $40.3 million into the pot for development of GPS III including the Search & Rescue Payload and work on a new M-Code Hosted Payload.

The bump ups in authorized spending are really just a wish list of sorts unless there is a matching appropriation. The authorizers have a lot more clout, however, when it comes to setting policy and they aimed that clout squarely at both the Air Force and at those members of the contracting community whose space programs are running less than smoothly. It's easy to understand why.

The Military Space Problem

Though news reports have detailed delays in one program or cost overruns in another, it is harder to follow outcomes across the entire military space portfolio, especially when budgets and schedules get re-baselined. But the Government Accountability Office (GAO) has been keeping track — and the books don't look good.

According to a June presentation by Cristina Chaplain, who leads GAO's oversight of military space programs, only one of the nine programs she discussed is not either over budget or years behind schedule.

For the total the Air Force portfolio, not including the Joint Strike Fighter, acquisition costs run about 30 percent above their first estimates. For space programs, however, it's about 60 percent, she told the June 16 Strategic National Security Space FY18 Budget Forum in Washington.

Congress is particularly concerned about the GPS programs, she told attendees. The new, cyber-toughened ground system (GPS OCX), is 53 percent over its initial budget estimate budget and 5-plus years behind schedule. The GPS III program is almost four years late and now expected to cost 35 percent more than originally projected. The MGUE program has been "very slow in getting that stuff rolled out," she said.

"When you have the Army folks coming to GAO to tell you they need more centralized authority on user equipment, you know there's an issue," she said, referring to the MGUE program. "You don't go to GAO unless something is wrong."

On top of this, several programs need to be recapitalized and there are increasing threats to space assets that require even more funding, she said. Then "poor acquisition outcomes drain the money that you have to pay for this stuff."

Space Corps

To help address these problems the House proposed in June to establish a U.S. Space Command and create a new Space Corps under the command of the Air Force Secretary, but separate from the Air Force. The role of the principal DoD space advisor and the Defense Space Council would be abolished and a new chief of staff of the Space Corps would be appointed. That person, who would be a member of the Joint Chiefs of Staff and would report directly to the Secretary of the Air Force, would serve for six years.

Under this approach there would be also be a subordinate unified command called Space Command established under the United States Strategic Command — one of the Pentagon's nine unified commands.

If this measure — which faces substantial opposition — is approved, the new structure would need to be in place by Jan. 1, 2019. And lawmakers want reports on the implementation plan by March 1 and Aug. 1 of 2018.

Senate Armed Services approached the problem differently splitting the current job of the DoD's Chief Information Officer. The business functions would stay with the CIO but a new Chief Information War Officer would take over defense-wide information warfighting functions including: 1) Space and space launch systems; (2) Communications networks and information technology (other than business systems); (3) National Security Systems; (4) Information assurance and cybersecurity; (5) Electronic warfare and cyber warfare; (6) Nuclear command and control and senior leadership communications systems; (7) Command and control systems and networks; (8) The electromagnetic spectrum — and, (9) Positioning, navigation, and timing.

The need for change is clear, the senators said in their report.

"With respect to space, numerous studies over the past two decades have exposed issues with the programmatic decision-making that is fragmented across more than 60 offices in the Department of Defense," they wrote. Funding for space programs within the Air Force is also near 30-year lows, while the threats and our reliance on space are at their highest and growing. The Air Force was also unable to prioritize and

fund $772.0 million worth of space priorities in its fiscal year 2018 budget request, opting instead to include those requirements on an unfunded priorities list."

The Senate committee does not propose taking Space Command out from under the Air Force, but it does want the commanders to stay there a while and apply their expertise. If approved the head of Space Command would hold the job for six years.

Senate authorizers also want to ratchet up the pressure on contractors to improve outcomes by limiting new federal business for firms that miss their targets.

The legislation would have the Air Force create a "watch list of contractors with a history of poor performance on space procurement or research, development, test, and evaluation program contracts." The commander of the Air Force Space and Missile Systems Center would be responsible for the list and have discretion to list or delist a firm or a particular division of a company. There are other reasons to land on the list — including financial concerns; felony or civil judgments; and security or foreign ownership and control issues — but being put on the watch list is not supposed to be considered de facto suspension or debarment, the report said. Being listed means the Air Force Space and Missile Systems Center could not "solicit an offer from, award a contract to, execute an engineering change proposal with, or exercise an option on any Air Force space program" with that firm without prior approval of the Center's commander.

The measure could impact many, if not most, firms in the GPS contractor community depending on how far back the performance history goes. The Air Force has been quite clear about its frustrations with Lockheed Martin's work on the first tranche of GPS III satellites, and positively fuming about Raytheon's problems with OCX. The provision also could be particularly impactful if, for example, a company that struggled with a GPS contract suddenly finds itself limited in pursuing future remote sensing satellite or communication satellite work and vice versa.

Building Resiliency

Recognizing that the military is reliant on Positioning, Navigation, and Timing (PNT), the Senate authorizers also want the DoD to deploy an alternate source of time and location as a way to boost PNT resilience. This backup, which lawmakers want to deliver UTC time globally, should be space-based, they said. PNT managers could use the DoD and/or commercial systems to get it running "rapidly and at reduced cost."

There are several services that might be able to do that for the U.S. military including Europe's soon-to-be-completed Galileo constellation and the Satelles ser-

vices offered on the Iridium constellation. Satelles is certainly pitching to the Pentagon and the DoD has been seeking access to Galileo's Public Regulated Service (PRS) signal for some time. In fact there has been extensive work done to make Galileo signals both compatible and interoperable with GPS.

A measure in the House defense authorization bill, however, could complicate finding a space-based backup if left in the final language by congressional conferees.

The House wants to amend current law to bar the Pentagon from using satellite services provided by any organization that launched their satellite(s) on launch vehicles built, provided or launched by a "covered" country. The measure adds Russia to the list of covered countries and notes that it does not matter where the launch actually takes place. The prohibition, therefore, would certainly seem to include Soyuz rocket launches from the Arianespace Spaceport in French Guiana.

The legislation applies only to deals going forward. While both Galileo and Satelles appear to be relying on American or European launchers for the immediate future, they have used Russian launchers in the past. If approved the language could give suppliers pause if they have to forgo using Russian launchers in the future for satellite replacement.

Other Measures

In addition to finding a global backup the House encouraged the Pentagon to expand cooperation with Japan. The Committee wants a report from both the DoD and the State Department on U.S. Japanese cooperation by December 1 of this year.

The House also wants a previously ordered report on PNT resiliency in the United States. In addition, the House Committee on Armed Services wants a briefing by this December 15 on the risks associated with GPS disruptions "that could affect defense of the homeland and other defense activities in the United States."

That briefing is supposed to cover the requirements for PNT reliability and redundancy for military operations in the United States, an analysis of the extent to which homeland defense operations rely on accurate PNT signals from GPS, and an assessment of alternative sources of PNT.

On a separate note, the Senate Armed Services Committee directed the Army and the Air Force to conduct large-scale, joint exercises to work through interoperability issues.

"Large-scale, joint training exercises that stress interoperability across domains," they wrote, "are a vital part of establishing and maintaining military readiness for conflicts involving near-peer competitors."

To get the ball rolling the bill would require a report from the Secretary of Defense within six months detailing what exercises involving air and land domains already exist and the DoD's plans for expanding them and developing new ones — including where those new exercises might be held. The senators specifically want the planners to allow the room for the "robust use of the electromagnetic spectrum, including global positioning system (GPS), atmospheric, and communications-jamming." IG