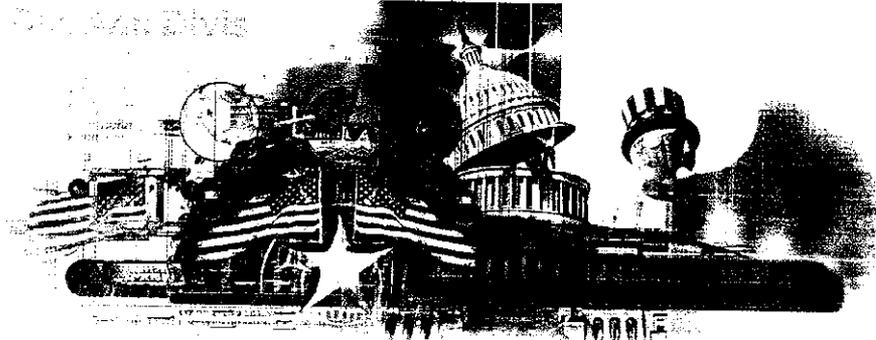


# New GPS Policy in the Works

By Dee Ann Divis



The White House is starting an overall policy review of the Global Positioning System where, as one Washington insider put it, "Everything is on the table."

By most accounts, the development of Europe's Galileo satellite navigation system and recent experience in Iraq has propelled the initiative. Since the last policy review eight years ago, however, several other matters have arisen that have nudged the latest review forward, including mounting budget problems and repeated threats to the GPS spectrum.

Long-standing problems also demand another look. When the Clinton administration issued the last GPS policy in March 1996, it focused largely on balancing the needs of the emerging civil-user community with the military's requirements. The Presidential Decision Directive (PDD) that resulted from the 1996 review laid out the roles that the Department of Defense (DoD), State Department, and the Department of Transportation (DoT) were to play in GPS governance and established the Interagency GPS Executive Board (IGEB) through which the system would be jointly managed.

Things have not gone smoothly since then, however. The civil community's requests for money fell on deaf congressional ears, and its needs largely went unfunded. Although the civil community improved a less-than-cohesive process for identifying its requests for changes to the system and management approach, without a source of civil funding to pay those civil requirements DoD can effectively make the last call on disputes through the power of its purse.



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## Who and When?

The policy review was slated to begin around June 1, with the entire process expected to take about four months. This time frame matches the pace set during recent reviews of policy for remote sensing, completed in May, and for the nation's space launch capability, which is on hold pending results of the Columbia shuttle accident investigation. Potential participants in the policy review process received letters alerting them that the process was about to start.

Gil L. Klinger, director of space policy, will lead the GPS review for the National Security Council. Klinger was once DoD's acting deputy undersecretary for space. Prior to holding that position he was DoD's director for space and advanced technology strategy; director for strategic forces policy; and deputy director for targeting, strategic forces policy. Interestingly, he is not a White House employee — he is "on loan" from the National Reconnaissance Office, where he became the director of policy in June 1998.

Klinger appears to be exercising tight control over the process: those who discussed the pending review with *GPS World* were adamant that their names not be used. Whatever changes are made, the majority of sources believes they will come in the form of a new PDD. At least one source suggested, however, that an executive order would carry more weight and would be more valuable.

## Agenda

The review process does not appear to have a set agenda as yet, but it is a sure bet that the interconnected issues of system funding and management will be on the table.

Under the 1996 policy decision, DoD and DoT were given comparable decision-making roles for the GPS system. DoD was to handle the actual day-to-day operations and look after defense-related needs. DoT was expected to coordinate the civil community and

represent civilian requirements. The two agencies were named co-chairs of the IGEB.

Although the PDD intended for DoT to fund the civil end of the bargain, things went awry nearly from the beginning. Congress repeatedly denied reasonable budget requests, bollixing necessary programs. In the end, GPS funding requests were consolidated within DoD, which had an easier time in its congressional committees.

The shift came at a price. Without separate funding, DoT — regarded even then as the less effective of the pair — has no money with which to spur its requests even when they would make sense for the country as a whole.

For example, an enhanced GPS would support and reduce the costs of aviation augmentation programs such as the Wide Area Augmentation System (WAAS). Lacking a GPS budget, however, DoT — facing an overriding congressional expectation to fix a buckling air traffic system — is out of luck. So, too, are taxpayers, who will end up footing a bigger total bill for both a separate WAAS and, eventually, a modernized GPS constellation.

E911 is another such civil-only requirement, one source explained, where the civil community needs GPS support but no corresponding military need exists. Even though E911 services are mandated by a branch of the federal government, DoD is not obligated to make changes or spend money to support E911. Without money of its own, DoT is out of luck.

## A Civil Budget?

On paper, DoT may be an equal participant in the GPS policy-making process. Without a GPS budget of its own, however, the agency is only a paper tiger.

Unfortunately, none of *GPS World's* sources sees any big changes on the horizon about this issue. Some think IGEB's role might be "adjusted." Few expect that the civil community will be granted a funding mechanism or that GPS and the augmentations might be gathered under a single, separate line item or new organization.

As a way through the funding thicket, one observer suggested that DoD could "tax" other agencies' budgets to force sharing of costs. This strategy may be how DoD funds GPS III (see sidebar, "GPS III Cuts May Ease").

Such a tax seems unlikely, though. Even though Klinger is from the DoD side of the debate and can reasonably be expected to come down on the military's side in a pinch, a "GPS agency tax" sounds like seriously wishful thinking. If granted, such a precedent would cause an uproar throughout the federal government — and, no doubt, engender some marvelous theater.

shame. The approach to GPS management must change, and if it takes raising a ruckus to get that change, then the entire community must break out the megaphones.

The delay of GPS III funding and the current launch-on-failure replacement policy is freezing the GPS program in place just as serious competition is emerging and money for civil augmentations could be saved by pushing ahead faster.

GPS has become part of the foundation of the U.S. economy. It supports computer networks, air traffic control, telecommunication systems, and power grids. In addition to being integral to the U.S. economy, to one degree or another, these are all systems that can be exported to countries in need of better infrastructure.

What happens if navigation standards mandated in Europe become, as has been the case in other industries, the de facto standards adopted by other nations? U.S. industry will lose out and will have to fight to keep up commercially instead of lead in this strategic sector. The military could face interoperability problems with partners and allies.

Now is the time for the entire community to get its act together and push for a better

GPS system. Who knows what will happen in another five or ten years? There is no time to dawdle over questions that have readily apparent answers:

Do we have to wait for a new satellite constellation?

No. Improvements in the ground infrastructure and receivers as well as the Block II satellites could provide a substantial part of what GPS III would offer — an option that should be considered further.

Should we wait for the current generation of satellites to die before replacing them?

No. We shouldn't be passively replacing spacecraft — we should be actively upgrading a critical system. This is a strategic business decision, not a military one. Who uses the computer they bought 10 years ago? Certainly no one who's serious about succeeding. Old systems can't keep up and must be regularly upgraded. The new capability will pay off.

In the remote-sensing policy issued in mid-May, the government decided that federal agencies must buy remote-sensing pictures from the private sector whenever possible. This ruling steps away from the historical approach that gave the military control over

space imagery. It capitalizes on the innovation and investment of the private sector to deliver images DoD needs.

It is time to get just as insightful and creative with GPS. Advances in civil GPS systems support and enhance GPS as the world standard. This is good for industry and good for the military, which draws on industry innovations and off-the-shelf equipment. It is also better for the military if there is not a competing system out there supporting a second set of experts and hardware aimed at other users who might not be friendly to U.S. interests.

But the current GPS management system leans too heavily on DoD, which has little financial incentive to push GPS forward. Failure to upgrade GPS in a timely fashion could result in the loss of its status as the global standard, and DoD increases the risk that the agency will lose what it says it wants: dominance.

The civil and military communities would be wise to stand shoulder to shoulder to push GPS technology forward, even if that means changes in the management structure to get the money to do so. As in any high-tech industry, you either advance or get replaced by the next big thing. ☺

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## The Galileo Challenge

Just as pressing as GPS funding problems are the issues raised by the nascent Galileo system. The United States has not fully addressed the changes, good and bad, that might come if Galileo is successful. On one hand, more satellites — successfully coordinated and interoperable — would be a great boon to all involved. On the other hand, Galileo has the potential to complicate military uses of GPS and has already muddied the role of GPS in the wider world.

Military operations could certainly be affected if allied forces are unable to cooperate easily because their equipment is built to different standards. Moreover, a new system could eventually affect aviation and shipping requirements set by organizations such as the International Civil Aviation Organization and the International Maritime Organization.

The United States must fully examine its approach to Galileo and other positioning systems that may emerge. Numerous questions must be answered, among them, Will the United States open its system to secure more cooperation? What will it do if its equipment is deemed uncertifiable and is barred from European markets? How far is the United States prepared to go to protect the new military M-code from interference?

## Other Issues

Plenty of other issues beg to be addressed. For one, the United States barely won an international battle to protect GPS frequencies from interference from, or reallocation to, mobile satellite interests. A similar confrontation has emerged among various U.S. agencies over new ground-based augmentations to mobile satellite systems and emerging technologies such as ultrawide band. The Bush administration must make a clear, top-level decision about where U.S. priorities lie. Are they with GPS, which is the basis for computer networks, banking systems, and power grids, or are they with new communications technologies that could support entirely new, tax-producing industries?

The administration and Congress must earmark funding and establish a permanent capability with a safe budget to produce the necessary interference studies to grease inter-agency cooperation. This should be money that cannot be lost in a budget mistake or frozen by a single congressman with a company in his district who wants GPS out of the way. Priorities must be set for agencies — including the FCC, which answers to Congress — as to which uses of the spectrum take precedence.

Aviation augmentations present their own problems. As with WAAS, the Local Area

Augmentation System is facing a review of the benefits it provides versus the funds it consumes. A lot has changed with both these programs. The IGEB is expected to manage the augmentations as well as the GPS system. A hard look should be taken at accelerating enhancements in the GPS system itself to help, or perhaps even replace, these systems.

Just as important, DoT and the Office of Management and Budget must decide to

## GPS III Cuts May Ease

Defense Secretary Donald Rumsfeld has asked that funding cuts to GPS III be reconsidered, according to Washington sources. The cuts, which entirely eliminated GPS III monies from the fiscal year 2004 budget now before Congress, would have pushed back the launch date of the first Block III satellite to 2012.

Reportedly, Rumsfeld asked Air Force officials to consider moving the launch date of GPS III to 2009 or 2010, according to several sources who asked not to be named. The sources had no explanation of the specific cause or motives behind Rumsfeld's request. The matter is now being studied by Undersecretary of the Air Force Peter Teets.

According to one source, meeting the 2009/10 launch date deadline would require the reallocation of \$45 million into the budget for fiscal year 2004. However, that would not necessarily mean more money for DoD. "There would probably be offsets in other programs," explained this source, though the top line — the total budget number — would remain the same. Such a shift would still require congressional approval.

Even if the first Block III satellite is available for launch in 2009, it does not necessarily solve the problem. The Air Force continues to follow a launch-on-need policy, replacing GPS satellites in the constellation only when those in orbit finally fail. To the credit of the GPS contractors and the system managers, the satellites are lasting far too long. In fact, another source noted that a IIR may last as long as 15 to 20 years and a IIRM, with the new military modifications, could keep operating for as long as 11 to 15 years.

But GPS III is not the only way to get the accuracy and availability proposed for the new constellation. Upgrades to the ground control segment and an increase in the number of satellites in orbit would go a long way. The ground segment would require significant upgrades to handle more than 30 satellites, but as one source noted, it might be possible to contract out some functions. This move would enable expansion without a complete overhaul of the troubled ground segment.

A ground control overhaul might support

either provide enough support to the National Differential GPS System or give up the effort. This worthy wait of a program is being starved and must either be brought on line more quickly or put out of its misery.

## Seize the Day!

None of *GPS World's* sources seems to expect major changes to GPS management as a result of the policy review — certainly a

another goal of the military: paring down staff. All of DoD is facing staff reductions, with an eye to putting more people in combat roles, according to one source. Military satellite operations are significantly more labor intensive than their commercial counterparts and, therefore, are a particularly good target for cutbacks.

If the ground segment were upgraded, more satellites added, better sensor data incorporated, and better communications installed, the system could theoretically reach most of the performance goals postulated for GPS III with the Block II satellites. antijam capabilities would remain an issue, but other ways might be found to address this, including changes in receiver technology. Best of all, an evolutionary upgrade rather than revolutionary modernization could improve GPS performance much more quickly.

## Some 2003 Funds Restored

Things are looking up: Approximately half of the fiscal year 2003 (FY03) GPS III budget allocation has been released, and the rest is likely to be, albeit later than was hoped.

When the GPS III program was zeroed out in the president's budget for fiscal year 2004 (FY04), Air Force managers froze the money already allocated for GPS III in the FY03 budget. They could find no reason to spend money on a program that was frozen.

Some \$45 million was allocated for GPS III in the FY03 budget. Approximately \$15 million has been spent, according to sources, and another \$2 million is about to be released. Now the Air Force appears likely to let the remaining \$28 million out of the vault as soon as Air Force managers are sure that it will be spent on GPS programs and not reprogrammed to other areas. This last chunk of money is expected to be released at the end of the fiscal year to keep the GPS III contractor programs operating into FY04. With the program in jeopardy, contractors have been cutting back on staff, and funds are necessary to help keep engineering teams together.

On a related note, the Air Force restored the stewardship funds that support the IGEB, according to Dave Turner, director of the IGEB executive secretariat. The funds were embedded in the GPS III budget and frozen when the program was slashed.