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United States Senate

COMMITTEE ON
HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

WASHINGTON, DC 20510-6250

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November 3, 2009

The Honorable Janet Napolitano
Secretary
U. S. Department of Homeland Security
Washington, DC 20528

Dear Secretary Napolitano:

The Fiscal Year 2010 Department of Homeland Security Appropriations Act that the President signed into law last week allows you to make a certification “that the LORAN-C system infrastructure is not needed as a backup to the Global Positioning System (GPS) or to meet any other Federal navigation requirement” and to then terminate the LORAN program. The LORAN-C infrastructure would, in fact, serve as a cost effective backbone for a much-needed backup to GPS; therefore, we urge you to refrain from making such a certification. It is vital that you have the input of critical infrastructure users of GPS before deciding on this certification and the Department’s survey of these users has not been completed.

Over the past 10 years, approximately \$160 million has been invested to modernize the LORAN-C network equipment and infrastructure. This investment represents progress toward the full deployment of Enhanced LORAN, also known as eLORAN, as a backup to GPS. In January 2009, an Independent Assessment Team, commissioned jointly by the Department of Homeland Security (DHS) and Department of Transportation (DOT), released a report that unanimously concluded that eLORAN should serve as the national backup system for GPS and that the LORAN-C infrastructure should be maintained until full eLORAN deployment.

Without a backup, there is serious risk that GPS may be disrupted, compromising the operation of critical infrastructure and transportation networks that rely on GPS for position, navigation, and timing information. Consequently, GPS’s loss would detrimentally affect cell phone networks, ship movements, and air traffic – to name only a few.

The Independent Assessment Team estimated that the cost of deploying eLORAN technology would be approximately \$100 million, which is about the same cost as dismantling the current LORAN infrastructure. To put these costs into even greater perspective, full deployment of eLORAN as a robust nationwide backup to GPS would cost about *one half* the amount of placing *one* new GPS satellite in orbit. And in July, another report jointly commissioned by DHS and DOT, a cost-benefit analysis of upgrading to eLORAN, concluded that the benefits of eLORAN exceed the costs by a factor of about 13:1 if in 15 years eLORAN backs up just one high-impact GPS outage.

The GPS signal broadcast by satellites is extremely weak by the time it reaches a GPS receiver on earth, far below the strength of many radio transmissions. As a result, the GPS signal generally requires a line-of-sight to the satellite to be received, and is vulnerable to interference

or jamming. LORAN, conversely, transmits a high-power signal that is resistant to interference and can penetrate obstructions and be received where GPS cannot, e.g., under foliage, inside buildings, and underground.

A Government Accountability Office report published on May 7, 2009, *Global Positioning System: Significant Challenges in Sustaining and Upgrading Widely Used Capabilities*, raised concerns about the near- and long-term health and reliability of the GPS network, noting that there is a “high risk” that the Air Force will not meet its schedule for deployment of GPS satellites. As a result of this delay, the Department of Defense predicts that over the next several years many of the older satellites in the GPS constellation will reach the end of their operational lives faster than they will be replenished, and that the number of satellites will most likely decrease, potentially resulting in inadequate coverage.

Aside from signal interference and limitations related to depletion of the GPS constellation, there is also the danger of intentional actions to destroy, or jam the signal of, GPS satellites. In the July/August 2009 issue of the journal *Foreign Affairs*, Andrew F. Krepinevich, Jr., observed that “the Chinese military has shown that it can neutralize or destroy satellites in low-earth orbit (where most satellites are located) by launching anti-satellite ballistic missiles or firing ground-based lasers. As China’s lunar exploration program matures, the PLA [People’s Liberation Army] will likely acquire the ability to destroy the Global Positioning System (GPS) constellation...”

Given the vulnerabilities of GPS, LORAN must be maintained and enhanced as a vital backup to GPS for various critical infrastructure users. It therefore would not be wise to certify the decommissioning of LORAN infrastructure. This position is consistent with the Senate Commerce Committee’s Coast Guard authorization bill that authorizes continued funding for LORAN and requires a plan for a transition to eLORAN, which was reported out unanimously in July.

Finally, we would like to inquire about the status of DHS’s survey of all 18 critical infrastructure sectors to determine whether a backup to GPS is needed. DHS officials, including Deputy Secretary Jane Lute and Assistant Secretary for Policy David Heyman, committed during their confirmation hearings that the Department would provide this survey by July 30, 2009. Three months after its due date, that survey has not been completed. Any decision to certify the decommissioning of LORAN infrastructure should be delayed until this report is provided to and reviewed by Congress.

Thank you for your attention to this matter. If you have any questions, please have your staff contact Jason Yanussi on the Committee’s Majority Staff at (202) 224-2630 or Rob Strayer on the Committee’s Minority Staff at (202) 224-5571.



Joseph I. Lieberman
Chairman

Sincerely,



Susan M. Collins
Ranking Member