



SPACE-BASED POSITIONING
NAVIGATION & TIMING
NATIONAL COORDINATION OFFICE

UNCLASSIFIED

U.S. Space-Based Positioning, Navigation and Timing (PNT) Policy Update

**National Space-Based Positioning, Navigation, and Timing
Advisory Board
Redondo Beach, California**

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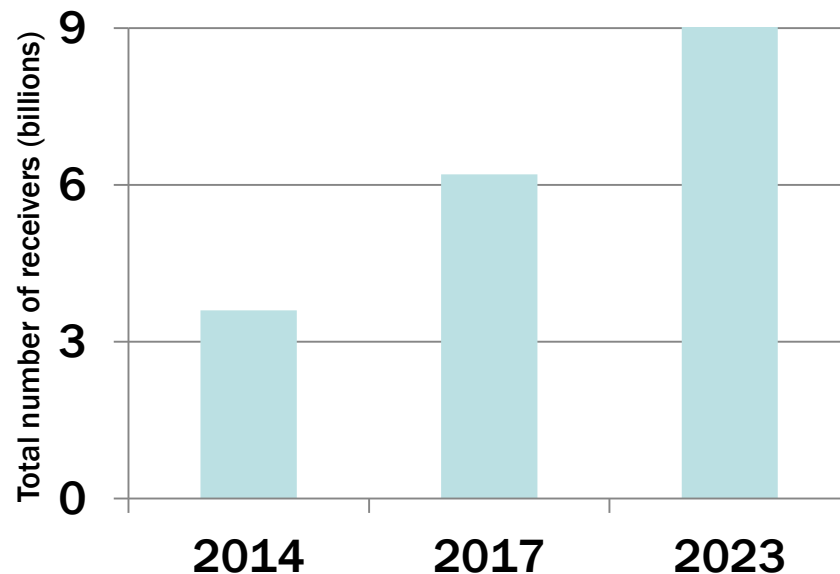


GPS Global Use is Growing



- Estimate: Number of GPS receivers globally 2014 - 3.6B*
 - 1 GPS device for every person on Earth by 2019, 9B by 2023
- GNSS receivers may grow faster than today's estimates:
 - UAVs, Internet of Things, sensors, intelligent transportation systems, logistics tracking applications
- Estimates say over half of existing receivers already support 2 or more GNSS
- Multi GNSS "future" is here...Now

Total GPS Devices Globally



** European GNSS Agency (GSA), GNSS Market Report 2015. Includes devices that use GPS alone and GPS plus one or more other GNSS

A New GPS User Growth Phase

GPS Enables Everyday Life



Applications

- Aviation
- Search and rescue
- Surveying & mapping
- Trucking & shipping
- Agriculture
- Offshore drilling
- Fishing & boating
- Military
- Scientific
- Timing
- Tracking
- Exploration



GPS is a Global Utility

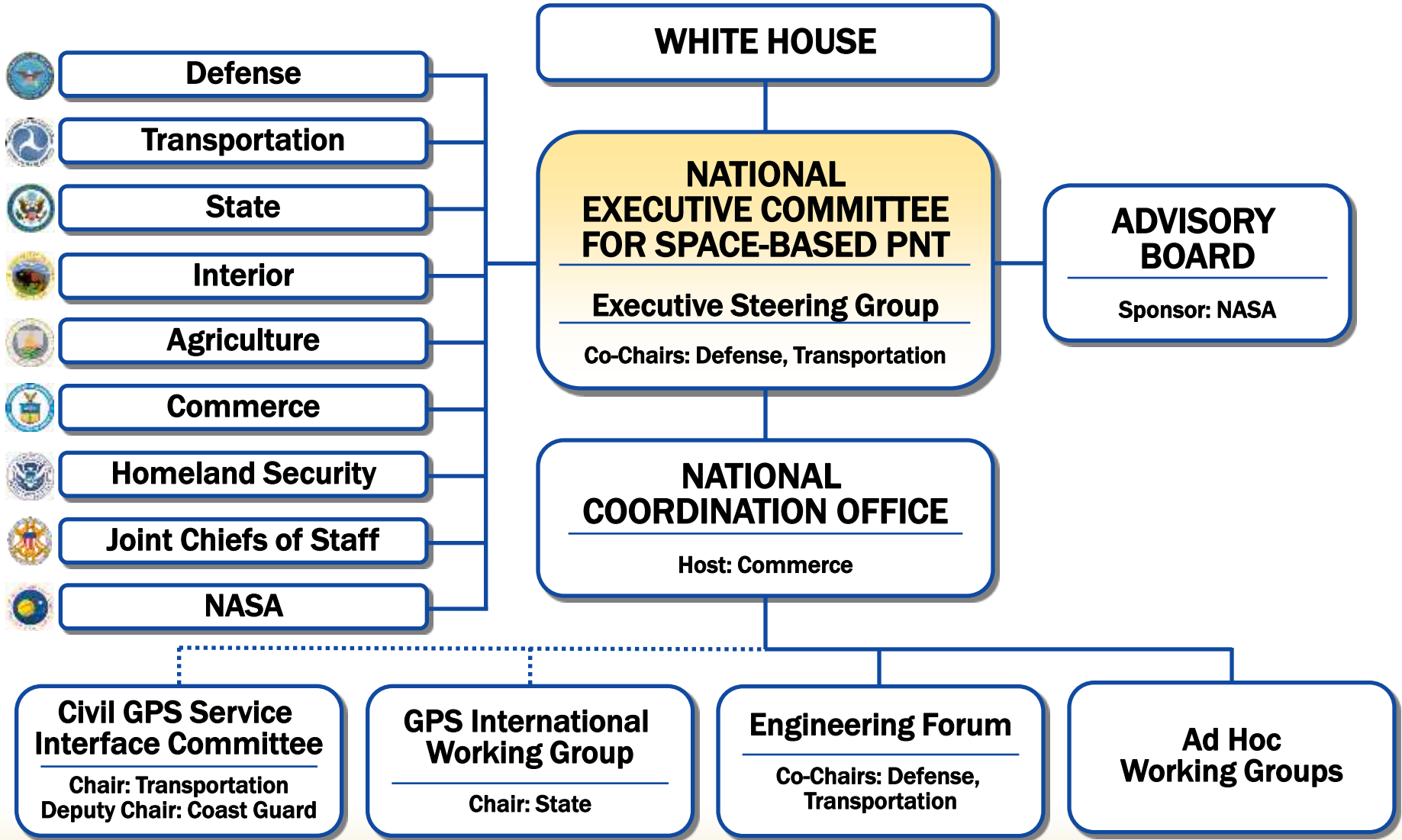


U.S. Policy

The U.S. must maintain its leadership in the service, provision, and use of Global Navigation Satellite Systems (GNSS)

- Continuous, worldwide, free of direct user fees
- Encourage compatibility and interoperability with foreign GNSS services and promote transparency in civil service provisioning
- Operate and maintain constellation to satisfy civil and national security needs
 - Foreign PNT services may be used to augment and strengthen the resiliency of GPS
- Invest in domestic capabilities and support international activities to detect, mitigate and increase resiliency to harmful interference

National Space-Based PNT Organization





EXCOM Strategic Focus Areas



- **GPS Sustainment and Modernization**
- **International Cooperation**
- **Spectrum Management**
- **Critical Infrastructure**
- **PNT Resilience / Complementary PNT**
- **Outreach**



Complementary PNT

- EXCOM looked at need for back up / complement to GPS
 - Assessment driven by many factors: from policy to technology
 - U.S. coverage for GPS outage from natural or man-made events
 - Assessed a broad mix of terrestrial RF and autonomous PNT technologies
- Current Activity: Identify Requirements
- Decision timeline supports FY18 investment decisions
- Public stakeholder comments obtained by *Federal Register Notice*
- Congressional Action?



Thank You!



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GPS BULLETIN
Information for Policymakers from the National Coordination Office for Space-Based Positioning, Navigation, and Timing (PNT)

Space Bill Addresses PNT

On April 14, Rep. Jim Bridenstine (R-OK) introduced the American Space Renaissance Act.

Section 103 of the bill is titled "Positioning, Navigation, and Timing." According to the Congressman, the provision "Expresses a sense of Congress on the importance of positioning, navigation, and timing (PNT) for national security and economic prosperity. Requires the Secretary of Defense to provide a strategy to ensure DOD PNT leverages the best available signals from alternative PNT systems. The strategy will address issues associated with monitoring and verifying accuracy, integrity, availability, security, and reliability of foreign PNT signals."



Section 104 cites the National Executive Committee for Space-Based PNT as a model for establishing a new National Executive Committee on Weather.

[Learn more at gps.gov](http://www.msrcr.at.gps.gov)

DHS Demonstrates Precision Timing Technology at NYSE



On April 20, DHS announced the successful demonstration of Enhanced LORAN (eLoran), a precision timing technology, for financial transactions at the New York Stock Exchange (NYSE). Recognizing the challenges of space-based signals and the importance of having multiple timing sources, eLoran is one technology being considered to provide a complementary timing solution to existing GPS technology.

Precise and synchronized timing of financial transactions is critical to markets worldwide and is mandated by regulation in the European Union and is increasingly required in the United States. Today, precision timing capabilities are provided primarily by GPS. However, GPS's space-based signals are low-power and susceptible to possible disruptions. GPS signals are also difficult to receive indoors and in urban canyons.

The live demonstration at the NYSE was hosted by Juniper Networks, Harris Corporation, and UrsaNav, under a cooperative agreement with DHS. Over 60 industry and government representatives attended, including senior officials from DHS, DOT, DOD, Treasury, and DOE. The ensuing discussion highlighted the over-reliance upon GPS for precise timing, the threat of a loss of civil GPS services, possible impacts to the U.S. critical infrastructure and the economy, and a common interest in developing resilient timing solutions for our nation's critical infrastructure.

[view press release at dhs.gov](http://www.press.release.at.dhs.gov)

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