



SPACE-BASED POSITIONING
NAVIGATION & TIMING
NATIONAL COORDINATION OFFICE

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

*58th Meeting of the Civil GPS Service Interface Committee
Miami, Florida*

25 September 2018

Harold W. Martin III
Director
National Coordination Office



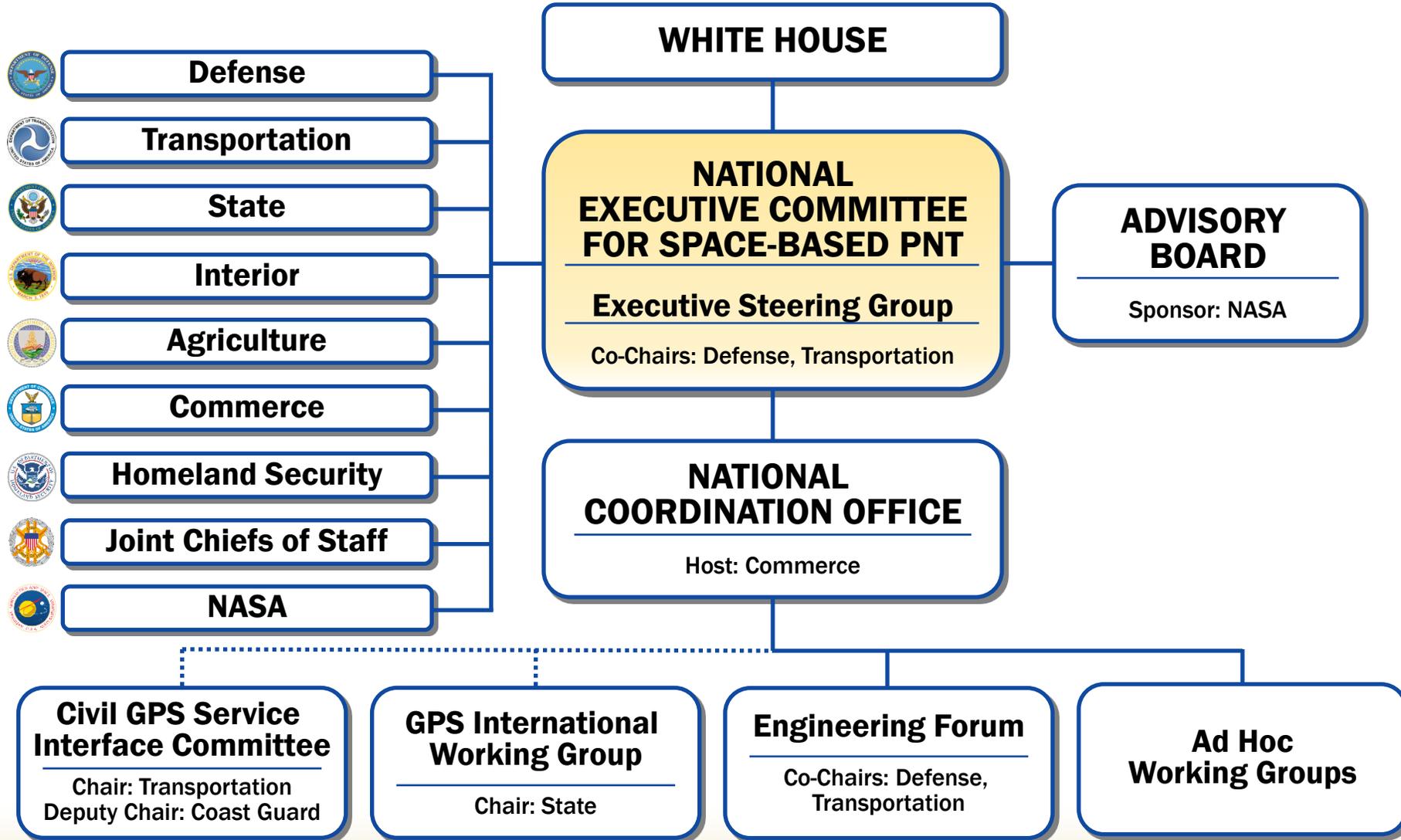
U.S. Policy

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**
- **Outreach**



The Airwaves Are Not Safe



- **Computers and the Internet: Once Upon a Time...**
 - **A GPS receiver is more computer than radio...**
- **GPS relies on spectrum – no longer a safe haven**
- **GPS receivers lack cyber resilience**
- **Policy directs PNT resiliency (NSPD-39, PPD-4, PPD-21)**
- **Jan 6, 2017 - DHS released Best Practices document now available on GPS.gov:**

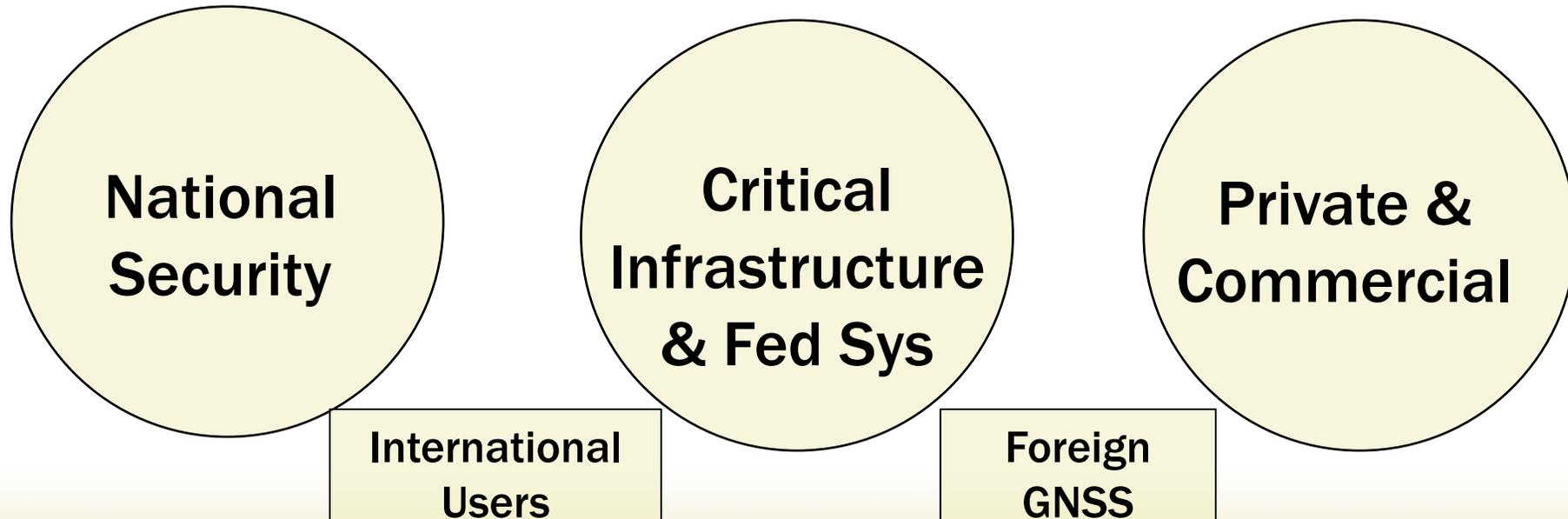
"Improving the Operation and Development of Global Positioning System (GPS) Equipment Used by Critical Infrastructure"

Protect GPS and Critical Infrastructure that Relies on GPS



GPS Cyber Resilience: Growing Issue

- **GPS Receivers Lack Cyber Resilience**
- **Est. 600 Million GPS receivers in the U.S. today**
 - National Security ~ 1%
 - Critical Infrastructure and Federal Systems ~ 1%
 - Private and Commercial ~ 98%
- **Cross cuts communities**





What Can You Do Now?



- **CIOs: Include GPS enabled devices in Cybersecurity plans**
 - **Be a demanding customer - toughen GPS devices:**
 - **Incorporate valid range checking and other elements of latest GPS Interface Specification (IS-GPS-200 *)**
 - **Incorporate DHS Best Practices (*Improving the Operation and Development of Global Positioning System (GPS) Equipment Used by Critical Infrastructure* *)**
- * Documents available on www.gps.gov

Protect GPS and Critical Infrastructure that Relies on GPS



Thank You

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GPS BULLETIN
 Information for Policymakers from the National Coordination Office for Space-Based Positioning, Navigation, and Timing (PNT)
 March 29, 2017

Update on Fiscal Year 2017 GPS Appropriations

On March 9, the House passed H.R. 1301, the revised Department of Defense appropriations bill. The measure would increase overall FY 2017 funding for the GPS program above President Obama's request.

Program Line Item	President's Request	H.R. 1301
Space Procurement: GPS III Satellites	\$34.059M	\$34.059M
Development: GPS III Satellites	\$141.888M	\$171.888M
Development: Next Generation Operational Control System (OCX)	\$393.268M	\$393.268M
Development: Military GPS User Equipment (MGUE)	\$278.147M	\$309.047M
TOTAL	\$847.362M	\$908.032M

[View full details at GPS.gov](#)

GPS Backup Discussed at Senate Hearing

At a March 22 hearing held by the Senate Subcommittee on Oceans, Atmosphere, Fisheries, & Coast Guard (OAFRCG) on the State of the Coast Guard, the Coast Guard Commandant responded to questions regarding a GPS backup.

[View hearing information at senate.gov](#)
 (The discussion on GPS backup begins at 1:22:09 in the video)

GPS Act Reintroduced

In February, Sen. Ron Wyden (D-OR) and Rep. Jason Chaffetz (R-UT) reintroduced the Geolocation Privacy and Surveillance Act ("GPS Act," S. 395 and H.R. 1062). The legislation seeks to provide clarity for government agencies, commercial service providers, and the public regarding the legal procedures and protections that apply to electronic devices that can be used to

Contact Information:

National Coordination Office for Space-Based PNT

1401 Constitution Ave, NW – Room 2518

Washington, DC 20230

Phone: (202) 482-5809

www.gps.gov

GPS: Accessible, Accurate, Interoperable