SPACE-BASED POSITIONING NAVIGATION & TIMING
NATIONAL COORDINATION OFFICE

Policy Update

IGNSS 2018

Sydney, Australia

7-9 February 2018

Harold W. Martin III, Director National Coordination Office

United States of America

U.S. National Space Policy

Space-Based PNT Guideline: Maintain leadership in the service, provision, and use of GNSS

- Provide continuous worldwide access to GPS for peaceful uses, free of direct user charges

- Engage with foreign GNSS providers on compatibility, interoperability, transparency, and market access

- Operate and maintain GPS constellation to satisfy civil and national security needs
  - Foreign PNT may be used to strengthen resiliency

- Invest in domestic capabilities and support international activities to detect, mitigate, and increase resiliency to harmful interference
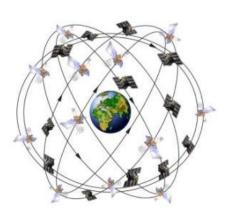
GPS Overview

Civil Cooperation
- 3+ Billion civil & commercial users worldwide
- Search and Rescue
- Civil Signals
  - L1 C/A (Original Signal)
  - L2C (2nd Civil Signal)
  - L5 (Aviation Safety of Life)
  - L1C (International)

Spectrum
- World Radio Conference
- International Telecommunication Union
- Bilateral Agreements
- Adjacent Band Interference

Department of Defense
- Services (Army, Navy, AF, USMC)
- Agencies (NGA & DISA)
- US Naval Observatory
- PNT EXCOMS
- GPS Partnership Council

Maintenance/Security
- All Level I and Level II
  - Worldwide Infrastructure
  - NATO Repair Facility
- Develop & Publish ICDs Annually
  - Public ICWG: Worldwide Involvement
  - Materials Available at: gps.gov/technical/icwg
- Update GPS.gov Webpage
- Load Operational Software on over 970,000 SAASM Receivers
- Distribute PRNs for the World
  - 120 for US and 90 for GNSS

International Cooperation
- 57 Authorized Allied Users
  - 25+ Years of Cooperation
- GNSS
  - Europe - Galileo
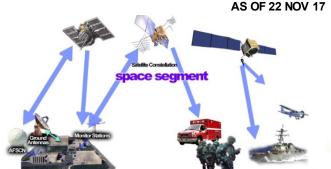 - China - Beidou
  - Russia - GLONASS
  - Japan - QZSS
  - India - NAVIC

Department of Transportation
- Federal Aviation Administration

Department of Homeland Security
- U.S. Coast Guard

35 Satellites / 31 Set Healthy
Baseline Constellation: 24 Satellites

Satellite Block	Quantity	Average Age	Oldest
GPS IIR	12	15.9	20.3
GPS IIR-M	7	10.3	12.2
GPS IIF	12	3.8	7.5
Constellation	31	10.0	20.3

AS OF 22 NOV 17

GPS SIGNAL IN SPACE (SIS) PERFORMANCE (CM)

	BEST WEEK*		BEST DAY*		WORST DAY*	
	ENDING	SIS	ENDING	SIS	ENDING	SIS
ROLLING YEAR	29 NOV 16	44.1	26 JAN 17	35.0	15 JUN 17	69.7
BEST WEEK EVER	29 NOV 16	44.1				

*ROLLING YEAR

National Space Council

- On June 30, 2017, President signed an executive order which revived the National Space Council (NSpC)
    - Advise and assist on National Space Policy and Strategy
    - Chaired by Vice President

- October 5, 2017, first NSpC meeting
    - Testimony from:
        - Civil Space
        - Commercial Space
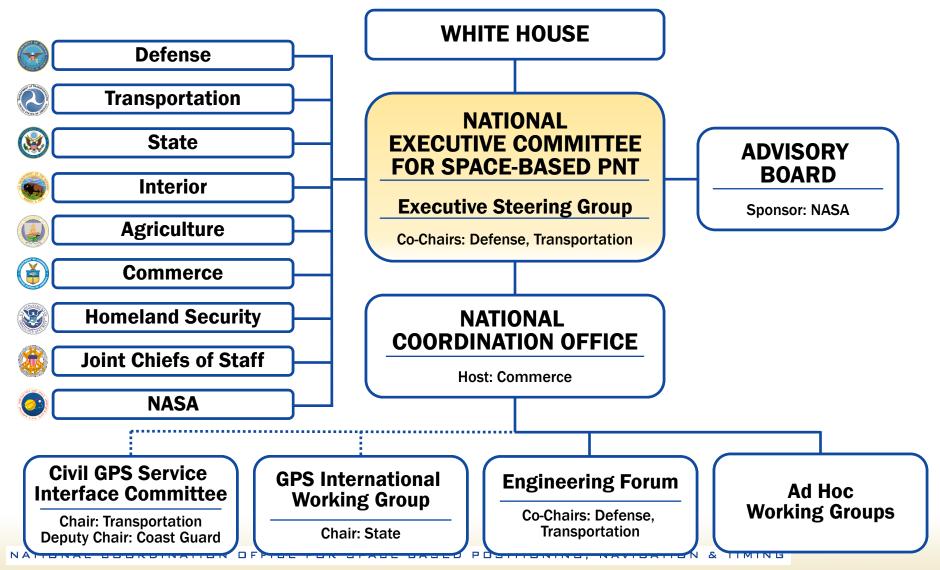   - National Security space Industry

National Space-Based PNT Organization

WHITE HOUSE

Defense

Transportation

State

Interior

Agriculture

Commerce

Homeland Security

Joint Chiefs of Staff

NASA

NATIONAL EXECUTIVE COMMITTEE FOR SPACE-BASED PNT

Executive Steering Group

Co-Chairs: Defense, Transportation

ADVISORY BOARD

Sponsor: NASA

NATIONAL COORDINATION OFFICE

Host: Commerce

Civil GPS Service Interface Committee

Chair: Transportation
Deputy Chair: Coast Guard

GPS International Working Group

Chair: State

Engineering Forum

Co-Chairs: Defense, Transportation

Ad Hoc Working Groups

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

Thank You

www.GPS.gov provides detailed information on legislation pertinent to GPS, such as:

- Program Funding, specifically information on Defense and Transportation appropriations, as well as Defense Authorization (NDAA). The website has archival information going back to Fiscal Year 2009.

- You may also find information on legislation related to Geolocation, Privacy, and previous Enacted Laws.

- Subscribe to the GPS Bulletin

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