

# **GPS – U.S. Policies Relative to International Use**

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Space-Based Positioning, Navigation, and Timing (PNT)**



# *Global Navigation Satellite Systems (GNSS) Expanding*

- Sep 2005 – first launch of new 2<sup>nd</sup> civil GPS signal
  - Sustaining constellation with continued launches into the future
- Dec 2005 – first Galileo test satellite
  - Projecting full constellation in 2010-2012
- Dec 2005, Dec 2006 – launch of 6 GLONASS satellites
  - Building to full constellation by end of decade
- 2006 – European EGNOS operational
- Japan preparing for MSAS ops in 2007 and QZSS
- India moving forward with GAGAN and IRNSS
- China BeiDou, Compass coming on the scene

**Interoperability key to seamless global operations**



# *Today*

- Like the Internet, GPS/GNSS has become a critical component of the global information infrastructure
  - Scalable applications enabling broad new capabilities
  - Facilitating innovations in efficiency, safety, environmental, public security, and science
- Over the past decade, GPS has grown into a global utility providing space-based positioning, navigation and timing (PNT)
  - Consistent, predictable, dependable policy and performance
  - Modernization and improvement are underway



# ***GPS as a Global “Public Service”***

- **Owned and operated by the U.S. Government**
  - Acquired and operated by the U.S. Air Force on behalf of the U.S. Government
  - Managed at a national level as multi-use asset
  - Access to civilian GPS service is free of direct user charges
    - As well as USG GPS Augmentation services
  - Global GPS civil service performance commitment met continuously since 1993
- **Public domain documentation**
  - Available on an equal basis to all users and industry
  - Anyone has the opportunity to develop GPS user equipment
    - And to compete on the world market



# ***GPS Augmentations***

- **GPS is an Open Architecture service**
  - Where GPS alone does not fulfill user needs, it can be augmented
    - Provides corrections/integrity warnings to improve safety and for other applications
    - Allows individual country or regional control
- **U.S. Gov't/other nations operate augmentations to enhance GPS performance, particularly for transportation safety**
  - Space-based Augmentation Systems (e.g. WAAS, EGNOS, MSAS, GAGAN)
  - Ground-based Augmentation Systems (Nationwide DGPS)
  - Continuously Operating Reference Stations (CORS), International GNSS Service (IGS), Global Differential GPS (GDGPS)
- **Commercial companies also offer local and regional augmentation services and systems**



# ***U.S. Space-Based PNT Policy***

## *Outlined in 2004 U.S. National Policy on Space-Based Positioning, Navigation, and Timing (PNT)*

- Provide civil GPS and augmentations free of direct user fees on a continuous, worldwide basis
- Provide open, free access to information needed to develop equipment
- Address mutual security concerns with international providers to prevent hostile use
- Improve performance of civil GPS and augmentations to remain competitive with other international systems
- Encourage international development of PNT systems based on GPS
- Seek to ensure international systems are interoperable with civil GPS and augmentations
  - Or at a minimum, are compatible

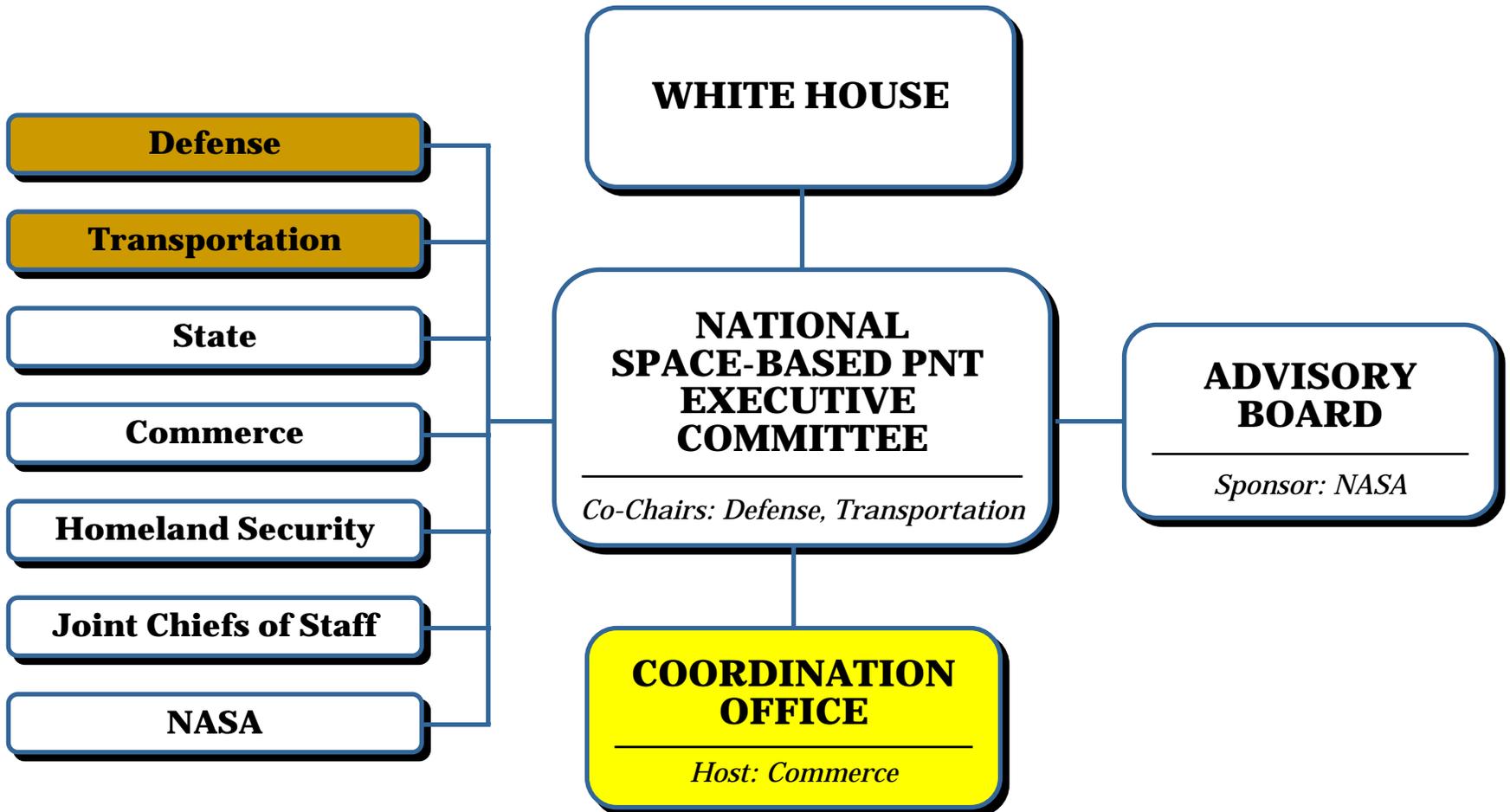


# *National Space-Based PNT Executive Committee*

- National Space-Based PNT Executive Committee established in 2004 U.S. Policy to advise and coordinate across U.S. Government
  - Chaired by Deputy Secretaries of Defense and Transportation
  - Membership includes: State, Commerce, Homeland Security, Joint Chiefs of Staff and NASA
  - Executive Committee met four times in 2006
    - Recently met on March 28, 2007
  - Supported by National Coordination Office
- National Coordination Office (NCO) is staffed with individuals from each member agency
  - Director, Deputy Director, and 6 staff



# U.S. Space-Based PNT Organizational Structure





# *What is the National Coordination Office?*

- Facilitates information sharing, coordination, and issue resolution regarding space-based positioning, navigation and timing (PNT) across all the Departments of the U.S. Gov't
- Evaluates plans to modernize the U.S. space-based PNT infrastructure, i.e. GPS and its augmentations
- Conducts or oversees space-based PNT studies, analyses, and projects that have broad U.S. Government participation
- Represents the National Executive Committee on space-based PNT matters with Federal, State, and local governments
  - Also the private sector and representatives of foreign governments



## ***Key Executive Committee Actions***

- **Five-Year National Space-Based PNT Plan**
  - Plan is in draft to include a FY08 program assessment
- **Interference Detection and Mitigation Plan**
  - Department of Homeland Security coordinating U.S. capabilities to detect and mitigate sources of interference to GPS and its augmentations
- **National PNT Architecture**
  - Provide national PNT framework/investment strategy to help guide future PNT system-of-systems investment



## ***Key Executive Committee Actions (cont'd)***

- **National Space-Based PNT Advisory Board**
  - Conduct assessments and make recommendations to accomplish national policy goals and objectives
    - As tasked by the Executive Committee
    - NASA is hosting Advisory Board
  - 24 members to include 6 international
  - First meeting was held on March 29-30, 2007
- **Outreach – both domestic and international**



## *Web-based Information*

- **PNT.gov** established to disseminate information on the U.S. National Executive Committee
  - Contains information on membership, Policy, the Advisory Board, and frequently asked questions
  - Recent public presentations
- **GPS.gov** established to disseminate information on GPS applications
  - Brochures with information on GPS applications
    - Available on website in English, French, and Spanish
    - Also in hardcopy; available on request
  - Contains additional links to various other websites



# *Summary*

- **Implementing U.S. National Space-Based PNT Policy**
  - Coordination Office activated on 1 Nov 05
  - National Executive Committee meeting regularly
- **GPS performance is getting better; will continue to improve**
  - Modernization is in progress
  - Augmentations enable high performance today
  - Additional improvements will continue in the future
- **International coordination and cooperation is a U.S. priority**
  - Strongly support International Committee on GNSS
  - Compatibility and interoperability with other GNSS systems
- **U.S. policy encourages and promotes worldwide use of civil GPS and augmentations**



## ***Contact Information***

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**Presentation and other GPS information available:**

**[www.PNT.gov](http://www.PNT.gov)**



# ***BACKUPS***



# PNT.gov

NATIONAL SPACE-BASED  
POSITIONING, NAVIGATION, AND TIMING  
EXECUTIVE COMMITTEE

Home  
What is PNT?  
National Policy  
Charter  
Membership  
Meetings  
Coordination Office  
Advisory Board  
Public Materials  
FAQ  
External Links  
Site Index

The National Space-Based Positioning, Navigation, and Timing (PNT) Executive Committee was established by **Presidential directive** in 2004 to advise and coordinate federal departments and agencies on matters concerning the **Global Positioning System** (GPS) and related systems.

The Executive Committee is chaired jointly by the Deputy Secretaries of Defense and Transportation. Its **membership** includes equivalent-level officials from the Departments of State, Commerce, and Homeland Security, the Joint Chiefs of Staff, and NASA. Components of the Executive Office of the President participate as observers to the Executive Committee, and the FCC Chairman participates as a liaison.

A permanent **Coordination Office** located in Washington, D.C., provides day-to-day staff support to the Executive Committee. It consists of an interagency staff headed by a Director, Mr. Michael Shaw of the Department of Transportation. The Coordination Office is a point of contact for inquiries regarding PNT policy.

Learn more about the uses of space-based PNT at [www.GPS.gov](http://www.GPS.gov)

For civilian user support, visit the **USCG NAVCEN**

**What's New at PNT.gov...**

- Presentation from Korean GNSS Conference
- Presentations from ITS World Congress 2006
- Presentation from CNS/ATM Seminar in Peru
- Presentation from ION GNSS 2006



# GPS.gov

Global Positioning System - Microsoft Internet Explorer

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## GLOBAL POSITIONING SYSTEM

*Serving the World*

**T**he Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis -- freely available to all. For anyone with a GPS receiver, the system will provide location and time. GPS provides accurate location and time information for an unlimited number of people in all weather, day and night, anywhere in the world.

**SYSTEM INFORMATION**

- The Global Positioning System
- GPS Augmentations

**APPLICATIONS**

- Timing
- Roads & Highways