## The Office of Infrastructure Protection

National Protection and Programs Directorate Department of Homeland Security

DHS Update to the PNT Federal Advisory Board

December 2016

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## Agenda

- Receiver Testing
- Sector Timing Requirements Validation
  - Focus is on the Manufacturers
  - Owners and Operators
- RFI for Analysis of Alternatives



## DHS Risk Management & Program Strategy

Holistic view with a layered approach

**Mitigation via Diversity** 

#### **Complementary PNT**

 Alternate Timing Sources (eLoran, Iridium, Fiber, etc.)

Mitigation via Improved Equipment

#### **Mitigations**

- Specialized antennas
- Alerts & monitoring
- More robust receivers

**Mitigation via Awareness** 

#### **Engage & Educate**

- Best Practices
- Manufacturers (create fixes)
- End-Users (create demand)



Mitigation via Vulnerability & Impact
Assessment

#### **Vulnerability Assessment**

 Receiver characterization testing (lab, open air, system-level)



Synchronize efforts through PNT PMO and Executive Steering Committee

## Vulnerability Assessment & Awareness: WSMR Exercise Overview

- Purpose: Conducted live testing and demonstrations of first responder communications in electronic jamming threat environment provided by White Sands Missile Range, including:
  - First responder communications systems against commercial jamming
  - Anti-jamming technologies against commercial jamming
  - Satellite communications against commercial jamming
  - Unmanned Aircraft Systems (UAS) against DoD complex GPS and commercial jamming
  - Fixed timing receivers (used in critical infrastructure) against DoD complex GPS and commercial jamming
- Outcomes: Understand impact of electronic threats on first responder communications and mission operations; identify training gaps and mitigation strategies; and share lessons learned and best practices with first responders nationwide

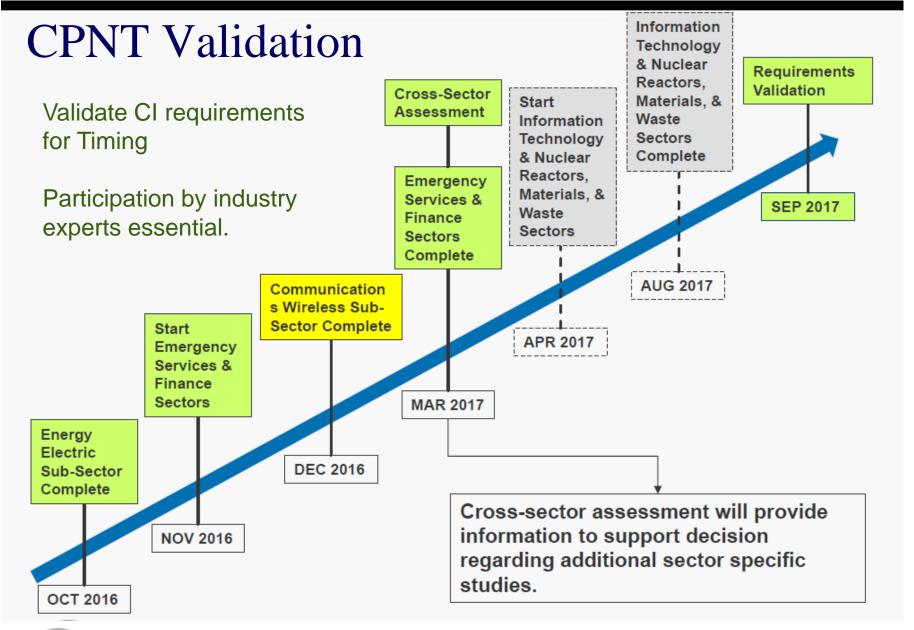


### Future test

- April 17 Open Air Test Bed (Indiana)
  - Who: GPS Receiver Manufactures
- July 17 Open Air Test Round 2 (Idaho National Labs)
  - Who: Critical Infrastructure Owner and Operators and Receiver Manufacturers
  - Build off 2015 Test
- Application Considerations
  - Demonstrate how receivers operate in an open air environment
  - Are the receivers appropriate for the supported market sector?

Identifying vulnerabilities will enable both manufacturers and end users to develop mitigation strategies.







#### **RFI -- PNT Service for National Critical Infrastructure Resiliency**

- Focus Areas
  - Nationwide CI Timing Application Coverage for a GPS Backup
  - Regional/Local CI Timing Application Coverage for a GPS Backup
  - Nationwide or Regional/Local CI Timing Application Coverage Additional to GPS Capabilities
- POC: Karen L. Van Dyke, Director, Positioning, Navigation, and Timing & Spectrum Management, DOT
- Due: January 30, 2017

https://www.federalregister.gov/documents/2016/11/30/2016-28805/positioning-navigation-and-timing-pnt-service-for-national-critical-infrastructure-resiliency





# Homeland Security

For more information, visit: www.dhs.gov/critical-infrastructure

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