





# Outline

---

## Background

- Current tactical communications capabilities
- Near-term response to address immediate challenges
- Long-term strategy
- President's Wireless Innovation & Infrastructure Initiative (WI3)
- Types of Applications Needed at CBP
- Technical & Operational Challenges



# Current Tactical Communications Capabilities

---

- **CBP mission activities require robust tactical wireless communications within and between operational components**
- **Required for: Situation Awareness & Operational Command, Control and Coordination (have life and safety implications).**
- **Many TACCOM Land Mobile Radio (LMR) systems currently in use have shortcomings:**
  - Decades past their normal lifecycle (reliability)
  - Do not provide coverage in current areas of operation
  - Inadequate encryption (do not meet today's AES standards)
  - Lack capacity to support the growing body of users (CBP more than doubled in the past 5 years)
  - Limited interoperability (do not meet today's P-25 standards)



## Near-term Response to Address Immediate Challenges

---

**Adopt and deploy Project 25/ AES standard land mobile radio (LMR) systems to address immediate need. However, this approach:**

- Depends heavily on scarce VHF spectrum
- Relies on subscriber devices that are increasingly complex for the end users (increase in operator error).
- Project 25 standards slow in coming and not robust enough
- True and effective Federal/ Public Safety Interoperability very difficult and continues to elude us.
- Expensive lifecycle investment for limited narrowband voice-only capability (single user build, operate and maintain)
- Does not address emerging needs for voice, data, and video
  - Large agency investments in surveillance video (air platform and tower Mounted video) also in mission data applications
  - Mission Applications & video only available in offices and centers.



# Long-term Strategy

---

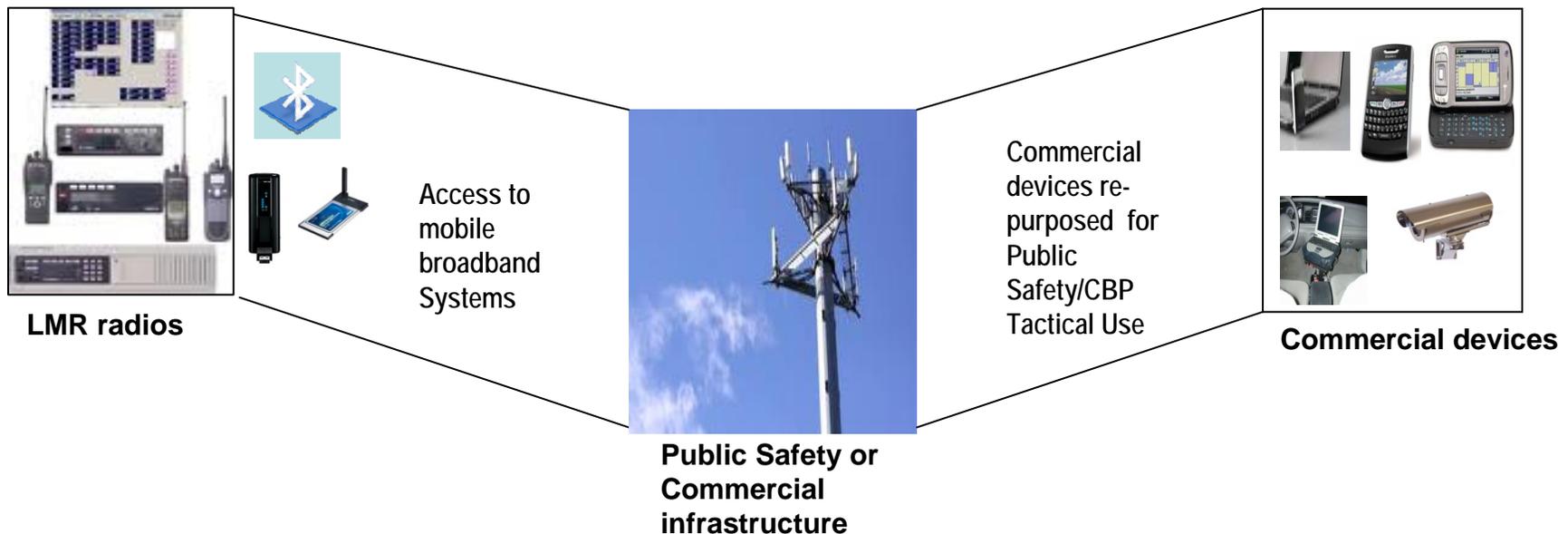
- **Growing consensus that tactical grade mobile broadband can overcome some current issues and satisfy emerging needs.**
- **Develop tactical mobile broadband solutions that can:**
  - Converge LMR voice as an application along with data and video over a common infrastructure.
    - Need long term solution for traditional LMR direct radio-to-radio and talk around capability.
  - Device choices are broadband enabled LMR radios along with commercial smart phones, tablets and laptop devices.
  - Software running on servers to manage (a) talk-groups (fixed and dynamic interoperable), (b) encryption, and (c) device programming & config mgmt
  - A Mission Critical Grade of Broadband network service that offers:
    - (a) assured access, (b) seamless national roaming, (c) quality of service, (d) SLAs for latency and availability (e) mission define areas of coverage.



## “Game-changing” acquisition approach

**Transition from stove piped government-owned and operated narrowband voice to shared public safety and commercially-provided broadband voice and data services**

**Public Safety and/or Commercial provider to deliver mission-critical Service Level Agreements (purchase a service rather than own and operate)**





## **President's Wireless Innovation & Infrastructure Initiative (WI3)**

---

**WI3, sponsored by the President in his State of the Union message, provides a national broadband wireless solution that would likely cover satisfy future requirements. The Initiative includes:**

- Reallocation of the 700 MHz D block spectrum exclusively for public safety use
- Developing a state-of-the-art 4G LTE network that enables public safety access to secure nationwide interoperable mobile/wireless communications
- WI3 also includes National Wireless Initiative (which extends broadband to rural America) and Wireless Innovation (WIN) Fund which provides for cutting edge wireless R&D

**While policy questions remain over the status of Federal users on that spectrum, this is an opportunity to finally realize mission requirements for tactical mobile broadband data, video and voice capabilities nationwide**



# Types of Applications Envisioned

---

## LMR Voice Application Enhancements

- P-25 waveform encapsulated in IP wrapper and prioritized over mobile broadband and IP core networks
- Over-The-Air programming & configuration management
- Simplify end user functions
- Enhance Talkgroup Management (fixed and dynamic talkgroups)

TH1

## Data Applications

- Access to mission apps available at desktop and ops ctrs
- Examples (Bio metric ID, e-muster, federated query, etc.)

## Video/Image/Graphics

- Situation Awareness
- 2-way video & Images (unit to ops center, ops center to unit)
- Geospatial blue-force tracking

## Slide 8

---

TH1

Unsure if this is intended to state "Radio over IP" or VOIP capability. A more simple way to state this may be

"In the future, voice over broadband capability is going to have to be addressed"

taylor.heard, 3/1/2011



# Technical & Operational Challenges

---

## Requirements similar to commercial environment

- Seamless nation-wide roaming
- Consistent Experience: operation, feature set, performance and configuration during roaming (can accept minor variation in performance speeds)

## Other Technical Challenges

- Capacity needs are dynamic, right-sizing backhaul is also a concern for both urban and rural areas
  - Mission requires regular surges and shifts (bigger issue in rural areas where surge capacity cannot be distributed over large user-base)
- Encryption interoperable across Public Safety agencies when needed
- Ability for agencies to specify coverage & capacity requirements based on mission rather than business case

## Other National Public Safety Broadband Network Issues

- Need for robust technical interoperability standards from the start, similar to the commercial model (is there the same incentive?)
- Need for business governance models & CONOPS
- Need for graceful public safety transition from today's LMR (R&D required)
- Need for seamless roaming across NPSBN and Commercial Cell networks
- Need for Federal and Public Safety pilots