

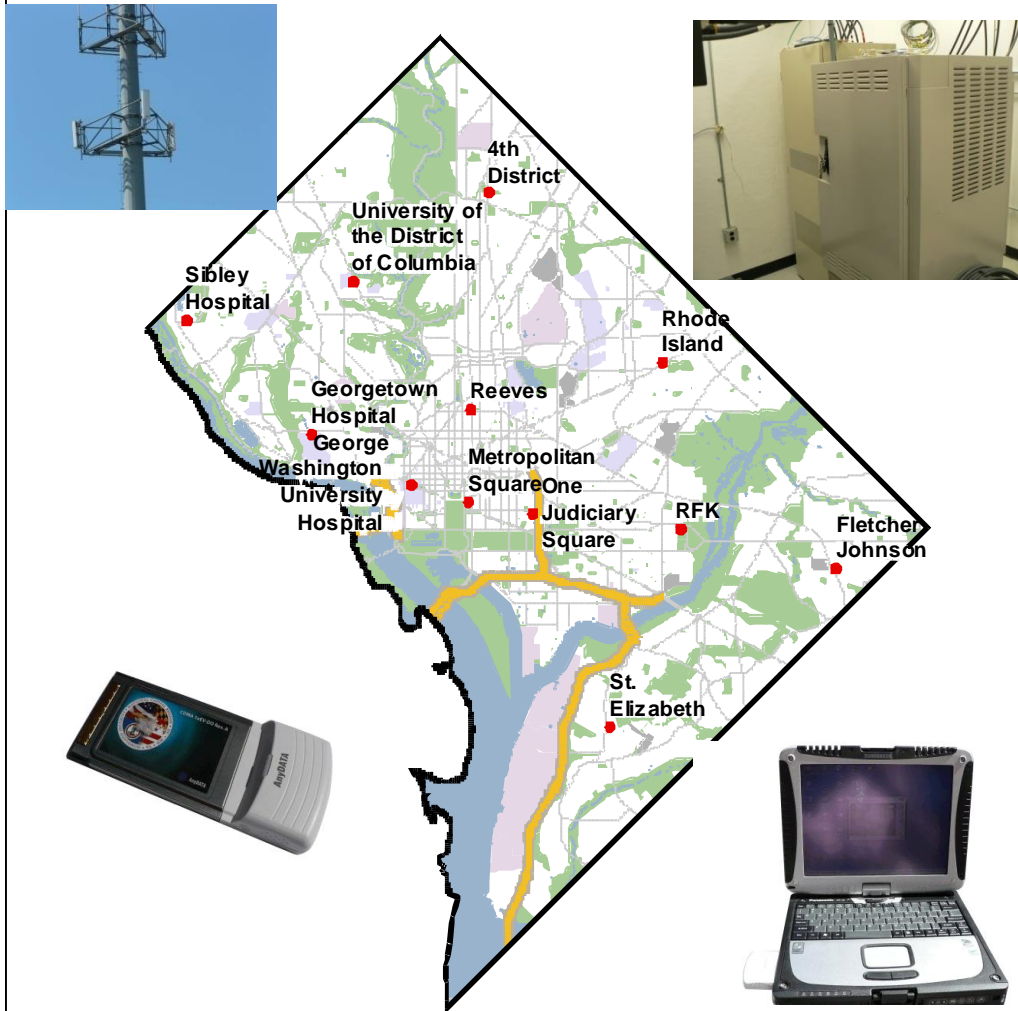
The Role of Broadband in Improving Public Safety Communications and Emergency Response - for Police and Fire Personnel

District of Columbia

November 12, 2009



Police & Fire Wireless Broadband Applications & Needs



District of Columbia, National Capital Region

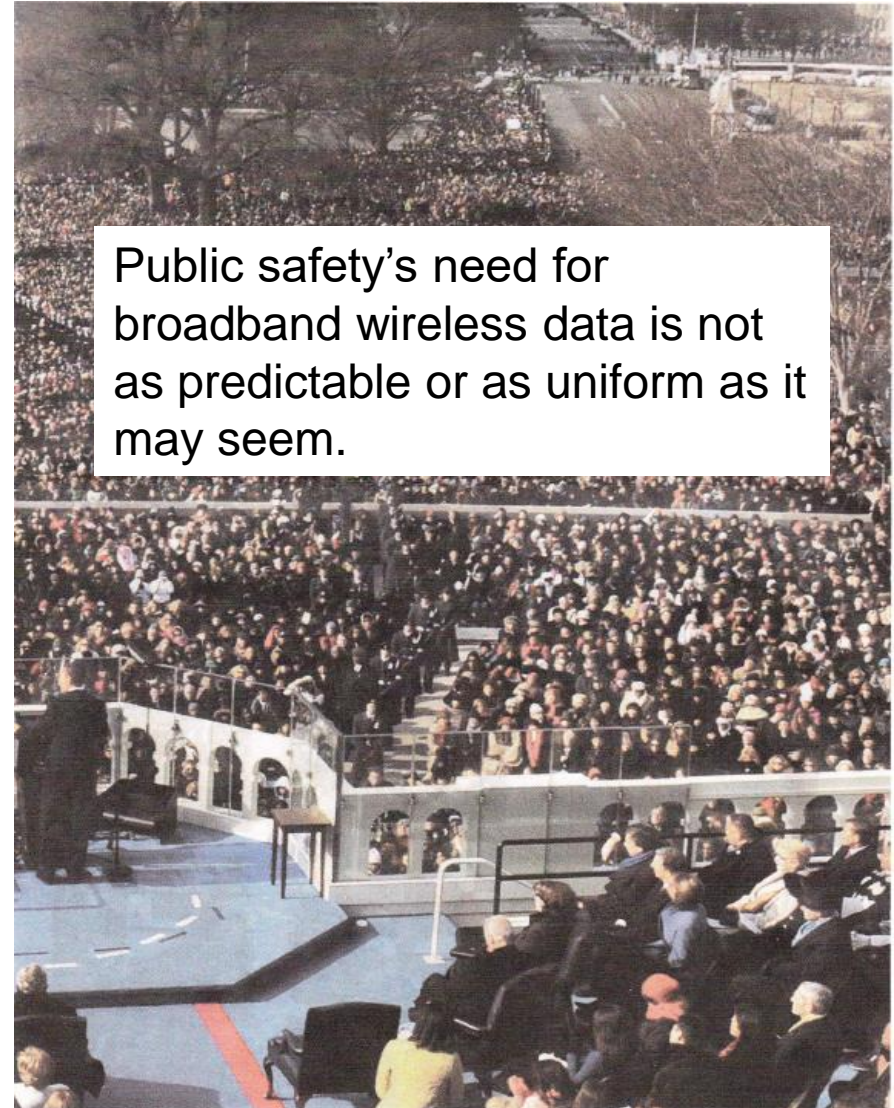
Two generations of “pilot” public safety 700 MHz broadband wireless networks (over 4.5 years)

- 20 local and federal agencies
- Hundreds of data cards used
- Applications include:
 - Remote access to databases
 - Computer aided dispatch
 - Incident reporting
 - GIS (e.g., vehicle location, hydrants / water supply, etc.)
 - Video (incident and situation awareness)

- Real time identity management and credentialing
- Real time database lookups (e.g., warrants, criminal records, critical infrastructure)
- Video - surveillance, incidents, situation awareness
- Geographic information
- Incident reporting and situation awareness tools
- Interoperability with
 - Computer aided dispatch systems
 - Emergency operation centers
 - Voice systems
- Same applications on hand-held devices

- **Coverage**
- Devices
- Reliability
- Capacity / Speed (low latency & low jitter)
- Security
- Traffic management control / priority access
- Interoperability: voice & data applications with inter-agency users
- Commercial network interoperability & leverage
 - Roaming
 - Device economies of scale
 - Core network operations (minimize operating expense)

Inauguration 2009 - 1 Million on the Mall

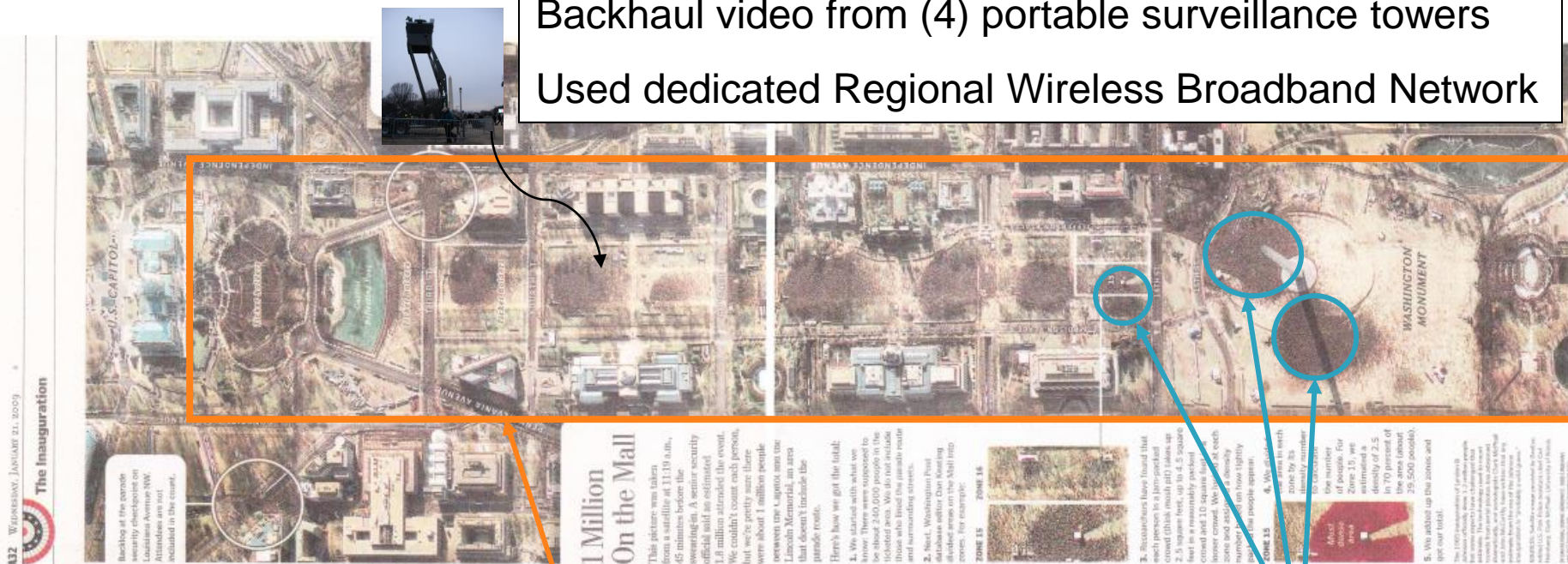


November 12, 2009

Inauguration 2009 - 1 Million on the Mall

Commercial cellular networks are overloaded

Backhaul video from (4) portable surveillance towers
Used dedicated Regional Wireless Broadband Network



Population Density

District of Columbia
592,000 / 61.4 sq.mi.
= 9,642 / sq.mi.

Inaugural National Mall
1,000,000 / 0.755 sq.mi.
= 1,324,000 / sq.mi.

Inaugural "Crowds"
3M - 11M / sq.mi.

November 12, 2009



- Day-to-day geographic coverage
 - From ~ 90% to > 99% with outdoor vehicle-based radios
 - Future: Handheld and indoor coverage too
- 24 x 7 coverage reliability
 - Without service downtime for software upgrades, backhaul and power “single-point-of-failure” outages, etc.
- Sustained “mobile” coverage at high-enough broadband speeds
 - Without “edge of cell” drops to low / no speed
- Expect broadband speed demands and usage to parallel the rate of “Moore’s Law” (double every 24 months)
 - The speeds used today will be dwarfed by the coverage and speed demands over the next few years

Bob Pavlak
Chief Engineer
Public Safety Wireless Broadband
robert.pavlak@dc.gov

Office of the Chief Technology Officer
Government of the District of Columbia
441 4th Street, NW, Suite 930S
Washington, DC. 20001

November 12, 2009

