



Orange County – Radio Communications Study

Mark Hoppe/Lee Palmer – September 26/27, 2012

Impetus



- 800 MHz EDACS coming to end of life in 5-7+ years
- General lack of inter-disciplinary, inter-agency interoperability
 - » Airplane down – Stewart 2007
 - » NYS Thruway – MVA – Six fatalities – 2011
 - » Hudson River Exercise - 2012
- NYS and Federal funding is being appropriated for public safety communications (interoperability) projects

Project Status



- Consultant
 - » Blue Wing selected to assist in identifying how to best reach goals
- Blue Wing Tasks:
 - » Existing Systems Review – Complete/Began in April 2012
 - Assessment of 911’s capabilities
 - Equipment and frequencies used
 - Radio propagation analysis
 - Reviewed past engineering documentation
 - » Operation Enhancement Analysis – In progress - due November
 - Determine user requirements, capabilities and features
 - User outreach

Project Status



- Blue Wing Tasks:
 - » Research System Resources – In progress – due October
 - Spectrum, sites, interconnect
 - » Design Alternatives – Due April 2013
 - Define user and system capabilities, functionality, coverage, subscriber equipment and prepare cost estimates
 - » Final Design – Due July 2013
 - » Pre-RFP Preparation – Due January 2014
 - » RFP Development – Due May 2014

Dispatch Today - Summary



- Law Enforcement dispatching today – 37 Agencies
 - » County dispatch 911 priority calls
 - » 10 – County dispatched
 - » 7 – County dispatched part-time
 - » 20 – Locally dispatched
- Fire dispatching today – 51 Departments
 - » County/Local dispatch 911 calls/County all mutual aid
 - » 47 – County dispatched
 - » 4 – Locally dispatched
- EMS dispatching – 22 Agencies
 - » County/Local dispatch 911 calls/County all mutual aid
 - » 16 – County dispatched
 - » 6 – Locally dispatched

NYCOMCO Subscribers



- 16 Customers - 76 Talk groups

BLOOMING GROVE PD TWN
CHESTER PD TWN
CHESTER PD VILLAGE
CORNWALL HWY TWN
CORNWALL ON HUDSON GENERAL
CORNWALL ON HUDSON GENERAL-AMB
CORNWALL ON HUDSON GENERAL-PD
CORNWALL ON HUDSON GENERAL-STREET
CORNWALL ON HUDSON GENERAL-WATER
CORNWALL PD TWN
ENTERGY NUCLEAR OPERATIONS NE
HARRIMAN PD VIL
HIGHLAND FALLS FD/ENTERGY
HIGHLAND FALLS PD/ENTERGY
M/A-COM NYSP TROOP F
MAYBROOK PD VIL
MIDDLEHOPE FD
MONROE PD VIL
MONTGOMERY CRAWFORD DIAL BUS
MONTGOMERY GENERAL TWN
MONTGOMERY HWY TWN
MONTGOMERY PD TWN
MONTGOMERY PD VIL

MT HOPE PD TWN
NEW WINDSOR PD TWN
NEWBURGH PBA TWN
NEWBURGH PD CITY
NEWBURGH PD TWN
NEWBURGH TOWN HALL TWN
NEWBURGH TOWN HALL-ANIMAL CONTROL
NEWBURGH TOWN HALL-BLDG & GROUNDS
NEWBURGH TOWN HALL-CODE ENFORCEMNET
NEWBURGH TOWN HALL-ENGINEERING
NEWBURGH TOWN HALL-FILTER PLANT
NEWBURGH TOWN HALL-FLEET MAINT
NEWBURGH TOWN HALL-HWY
NEWBURGH TOWN HALL-REC
NEWBURGH TOWN HALL-SEWER
NEWBURGH TOWN HALL-WATER
NYS DIVISION OF PAROLE
OC DEPT EMER COMM (911)
OC DISTRICT ATTORNEY
OC DIVISION OF EMERGENCY MGT
OC DPW
OC E F & S
OC SEWER
OC SHERIFF
WALDEN PD VIL
WOODBURY PD TWN

Technical Terms



- Simulcast
 - » All radio sites transmit simultaneously on a given talk path. Users do not have to select sites for best coverage.
- Receiver Voting
 - » The system that automatically selects the best signal from received signals to be repeated
- P-25
 - » The national public safety digital radio standard linked to most grants
- Trunking
 - » Sharing of radio channels among a group of talk path (i.e. NYCOMCO EDACS System)

Problems - Solutions



- Coverage
 - » Eliminate VHF low-band noise and co-channel interference – Use 700/800 MHz spectrum
 - » Improve coverage – Portable in the street – Add tower sites
 - » Improve in-building coverage – Have urban and rural/suburban coverage standards
- Capacity
 - » Improve paging efficiency – Use simulcast
 - » Improve communications efficiency – Use simulcast
 - » Allow for future system re-configuration – Use trunking
 - » Improve operational effectiveness – Use common/standardized talk path plans

Problems - Solutions



- Interoperability
 - » Common System for police, fire, EMS and other County departments and use National Interoperability Channels for mutual aid
 - » Interoperability for multi-service incidents – new radio system
- Features and Functions
 - » Provide emergency service features such as emergency button, controlled system access and unit ID – Use P25 trunking

Problems - Solutions



- Reliability
 - » Improve network reliability – Use redundant/looped microwave, upgrade sites to industry standards
- Fiscal
 - » Preserve fire service investment in UHF radios – Use and maintain UHF fire ground plan
 - » Qualify for state and federal funding – use P25
 - » NYCOMCO EDACS System at end of life in 5-7+ years – Replace radio system

How Did We Get To This Point?



Operational

1. Interoperability between agencies
2. Operational efficiencies
3. UID/Emergency
4. Secure Communications

Technical

1. VHF low-band noise/simplex
2. End of EDACS support
3. Coverage

Requirements

1. Coverage - County-wide coverage
2. Capacity - 40 plus talk path requirement support

How Did We Get To This Point?



Solution

1. No spectrum at VHF high-band or UHF meeting criteria
2. 700/800 only band with remaining spectrum

Regulatory

1. FCC Narrow-band mandate at 700 MHz in 2017 to 6.25 KHz

Funding

1. Federal funding will only fund P25 capable equipment

1. P-25 Phase 2 TDMA Protocol

Current Vision – Law Enforcement



- Operational
 - » All law enforcement on new system
 - Replace 800 MHz EDACS
 - Replaces OC 911
 - Replaces OC MRD
 - » Portable in the street
 - » Encryption/Controlled access
 - » Local dispatch capability preserved
 - » Inter and intraoperability
 - » Comply with Federal and NYS guidelines – Nation Emergency Communications Plan and NY Statewide Interoperable Communications Plan

Current Vision – Law Enforcement



- Technical
 - » P-25 Trunked
 - » 700/800 MHz
 - » Simulcast/voting
 - » Redundant interconnects
 - » Hardened sites

Current Vision – Fire Service



- Operational

- » All fire command on new system
 - Replaces VHF low-band
- » Portable in the street
- » Controlled access
- » Inter and intraoperability
- » Local dispatch capability preserved
- » VHF high-band paging preserved
- » Preserve existing UHF fire ground system
- » Comply with Federal and NYS guidelines – Nation Emergency Communications Plan and NY Statewide Interoperable Communications Plan

Current Vision – Fire Service



- Technical
 - » P-25 Trunked
 - » 700/800 MHz
 - » Simulcast/voting
 - » Redundant interconnects
 - » Hardened sites

Current Vision - EMS



- Operational

- » All EMS on new system
 - Replace VHF high-band - 718
- » Portable in the street
- » Controlled access
- » Inter and intraoperability
- » Local dispatch capability preserved
- » VHF high-band paging preserved
- » Comply with Federal and NYS guidelines – Nation Emergency Communications Plan and NY Statewide Interoperable Communications Plan

Current Vision - EMS



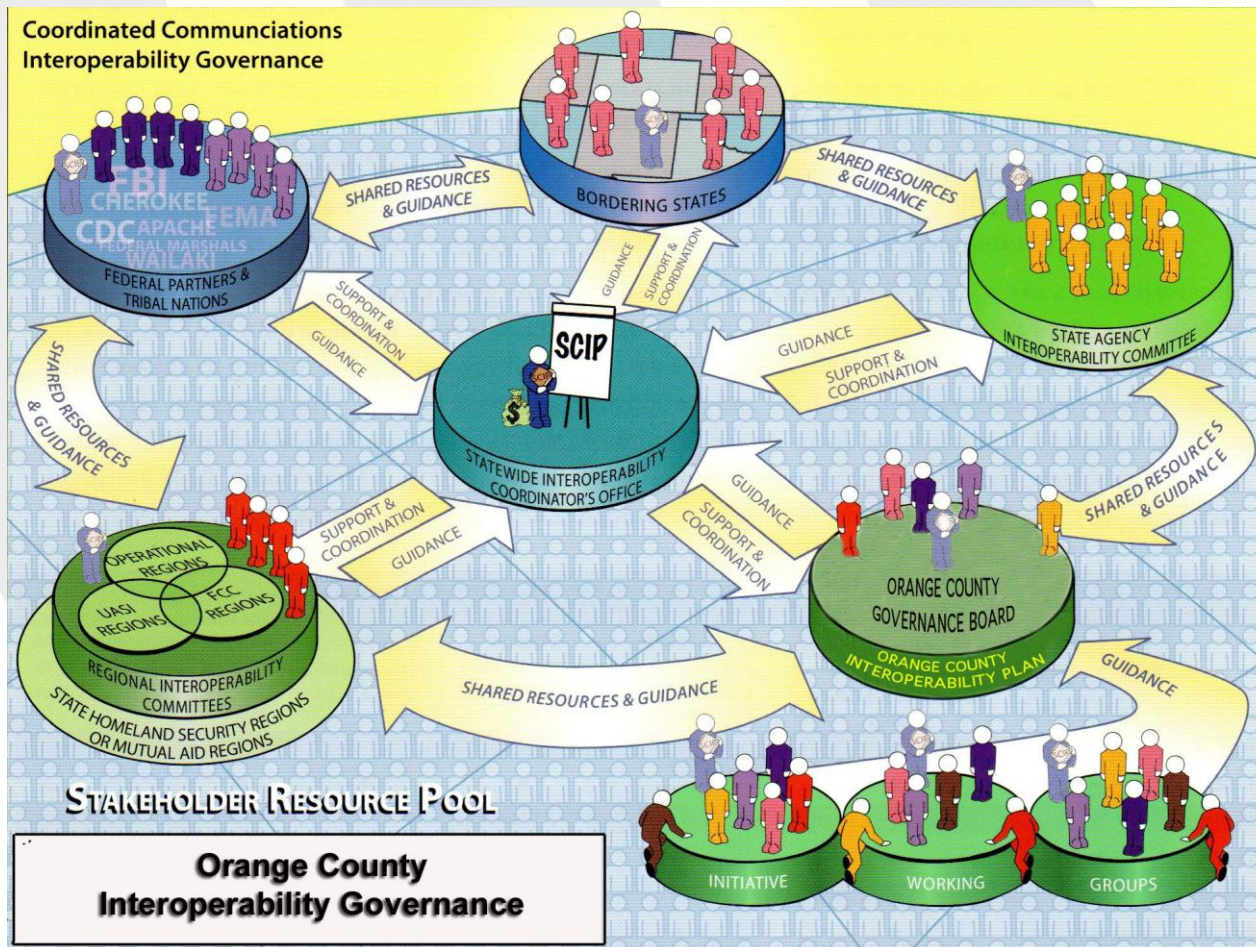
- Technical
 - » P-25 Trunked
 - » 700/800 MHz
 - » Simulcast/voting
 - » Redundant interconnects
 - » Hardened sites

System Advantages



- Will provide users with direct communications links with:
 - » All County police, fire and EMS agencies
 - » All agencies in the Hudson Valley Communications Consortium:
 - Ulster, Sullivan, Rockland, Dutchess, Putnam and Westchester
 - » NYS agencies:
 - Police, Parks, EnCon, Office of Emergency Management

Federal and State Grant Funding



Current Countywide Trunking



- Madison County Building
- Nassau County Done
- Onondaga County Done
- Oswego County Building
- Rockland County Building
 - » 52 agencies – 3,000 subscribers
- Saratoga County Done
- Tompkins County Done

State and Federal Funding



- Available only to counties, except for AFF grants
- Counties responsibility to coordinate an interoperable communications solution - regionally

Next Presentation Groups



- County Fire Districts meeting
- Municipal Mayors
- Municipal Supervisors

Summary/Next Steps



- Future System
 - » County Radio System requires to be updated to meet future needs of Fire, EMS and Law Enforcement and others
 - » Provide interoperability
 - » Adapt to spectrum/capacity needs
 - » Provide features and functions
 - » Regulatory environment
- Planning
 - » Rollout of system is 3-4 years from completion
 - » Planning and agency/departments involvement required ensure operations and coverage meet the needs of users