



## Mission**Critical**Partners



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# Northumberland County Public Safety Radio System Overview

Northumberland County Dept. of Public Safety Building

July 31, 2013

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*Your Life Safety Mission Is Our Passion*

**MCP911.com**



# Agenda

- Project History
  - FCC Waiver in effect
- System Specifications & Procurement
- System Overview
  - Coverage
  - Subscriber Equipment
- Schedule / Future Meetings



# Introductions

- Northumberland County Department of Public Safety
  - Bill Brown, 9-1-1 Coordinator
- Mission Critical Partners
  - Headquarters in State College, PA
  - 65 Employees



# Project History – 14 Months

Activity	Date
County contracted with MCP	2/22/2012
MCP Site assessments conducted	3/2012
Narrowband waiver filed	3/19/2012
Fire service stakeholder meeting	5/24/2012
MCP Report to County	8/7/2012
FCC Grants Narrowband Extension	12/3/2012
Request for Proposals Released	4/15/2013
Proposals Due	5/6/2013
Motorola Solutions awarded contract	6/27/2013

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# FCC Waiver

- Currently until December 31, 2013
- Extension request filed until June 30, 2014
- High probability of extension



# System Specifications

- VHF – Very High Frequency (150-174 MHz)
- **APCO Project 25 (P25) – Phase I**
  - Association of Public Safety Communications Officials
  - Standard for interoperability
  - Required for federal, state grant procurements
- 7 sites, countywide coverage
- Trunked technology (more “channels”)

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# Frequency Band - VHF

- Required by DPS to maintain interoperability with neighbors
  - Extensive frequency searches conducted – few options
- Required vendor to provide interference-free VHF spectrum
- Motorola will provide (6) VHF channels



# Frequencies

Channel Number* (12.5 kHz of bandwidth)	Base Transmit Center Freq. (MHz)	Mobile Transmit Center Freq. (MHz)
224	161.8125	157.2125
284	161.8375	157.2375
225	161.8625	157.2625
285	161.8875	157.2875
226	161.9125	157.3125
286	161.9375	157.3375

Table 5-1: Part 80 Paired Channels

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# Frequencies

- Additional channel submitted to the FCC for countywide fire/EMS paging
  - VHF High Band



# Sites

- Voice System Sites
  - Boyer's Knob
  - Herndon
  - Montour
  - North Mountain
  - Pillow
  - Treverton
- ADDITIONAL Optional Site
  - Based on need (Elysburg, Muncy Hills, other location)

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# Capacity

- 5 Total VOICE Channels (1 channel for control messages)
- Designed to accommodate 250 simultaneous users with a **1% Grade of Service (GOS)**
  - Grade of Service: The chance that a call will be “blocked” (busy) on the first attempt



# Coverage

- Portables, Pagers, and Mobiles
  - 95% coverage “in-street”
- Portables
  - 90% coverage in 12 dB (medium buildings)
- Coverage guarantees must ***meet or exceed*** these values. Guarantees are conservative – actual coverage will be greater.

**Table 6-2: Northumberland County Coverage Acceptance Test Summary**

<b>User Equipment</b>	<b>Outdoor / In-Building</b>	<b>Defined Test Area &amp; Map Name</b>	<b>Number of Test Tiles</b>	<b>Service Area Reliability</b>	<b>CPC</b>	<b>CPC Pass/Fail</b>	<b>Direction(s) of Test</b>
<b>VHF Digital Voice Trunking Simulcast System with Analog Pager Tone and Voice</b>							
XTL2500 Mobile, 1/4 Wave, Center Trunk Mounted at 3.3 ft.	Outdoors Only	Northumberland County Only. Service Area (On-Roads only)	7633	95%	DAQ 3.0	Subjective DAQ	Talk-in/Talk-out
XTS2500 Portable, swivel case, 1/4 Wave Wide band, transmit at head level 4.9ft, receive at hip level 3.3ft.	Outdoors Only	Northumberland County Only. Service Area (On-Roads only)	7633	95%	DAQ 3.0	Subjective DAQ	Talk-in/Talk-out
XTS2500 Portable, swivel case, 1/4 Wave Wide band, transmit at head level 4.9ft, receive at hip level 3.3ft. (Portable will be setup to simulate 12dB buildings on street)	In Building Only (12dB)	Northumberland County Only. Service Area (On-Roads only)	7633	90%	DAQ 3.0	Subjective DAQ	Talk-in/Talk-out
Minitor Pager, receive at hip level 3.3ft	Outdoors Only	Northumberland County Only. Service Area (On-Roads only)	7633	95%	DAQ 3.0	Subjective DAQ	Talk-out only (Tone & Voice)









# Additional Coverage Options

- Optional 7<sup>th</sup> site
  - Location to be determined at a later date
- Digital Vehicular Repeater System
  - “In-vehicle” repeater
  - For heavy in-building coverage

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# Subscriber Equipment

- APCO Project 25 Compatible Equipment
  - MANY different manufacturers
  - Icom, Relm, Harris, Kenwood
- County will provide equipment to **fire** stations
  - (70) mobiles to be allocated
  - (379) portables to be allocated
  - (10) pagers per station

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# Subscriber Equipment

- County-supplied equipment
  - APX6000 Portable
    - Includes programming, remote speaker microphone and single charger
  - APX4500 Mobile
    - Includes programming and installation in apparatus
  - Minitor V
    - Includes programming, charger.



# Interoperability

- Direct interoperability from the radio
  - Digital operation on Northumberland System
  - Analog operation for Snyder, Union, Columbia
- Fireground/talkaround channels **can be** analog to support mutual aid
- Programming will be determined during “fleetmapping” process



# Schedule/Future Meetings

Activity	Date
Contract Design Review with Motorola	9/2013 – 11/2013
System Staging/Shipping	1Q2014
System Installation & Testing	2Q2014
User Training	2Q2014
System Use – Countywide	2Q2014



# Schedule/Future Meetings

- September, 2013 – Detailed Subscriber Equipment Meetings
  - Representatives from Motorola and Keystone Communications
  - Demo of alternative subscriber equipment vendors
  - Discussion of features, options, pricing, purchasing



# Contact Information

- Web-site for information established
  - <http://publicsafety.norrycopa.net/>
- E-mail questions
  - [radioproject@norrycopa.net](mailto:radioproject@norrycopa.net)
- Mission Critical Partners
  - Sean Petty – [SeanPetty@mcp911.com](mailto:SeanPetty@mcp911.com)  
or 484-294-6734

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