



# Complete Wireless Solutions

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## Communications System Options for Metcom 911 Users

The following are options for Metcom 911 users to consider for a new county wide communications system that would meet the needs of all agencies.

### Option #1

Build out a VHF Simulcast Only System with 8 Channels on 5 Sites

- 5 Sites for Transmit and Receive
  - Crosby Rd, Silverton WT, House Mtn., Halls Ridge and Whipper
- County Wide Coverage on all Channels
  - Eight Talk Channels with Eight Talk Groups Only
  - All Units in County Hear all Conversations
  - Less coverage in the Stayton area than they have now on Fire and Police
- Licensing Pros and Cons for this option
  - High sites and wider area of coverage causes interference issues
  - Proximity to Portland and Eugene make frequencies hard to find with location of and elevation of sites
  - Less frequencies needed than other options
  - Long lead time for licensing
- No Subscriber Fees vs 700/800 Systems Per Unit Per Month Subscriber Fees
- Higher Cost to Build Out vs Nexedge Trunking System
- Higher Maintenance Costs Due to Complexity of Timing and Equipment
- No Back Up to a Site if the Microwave Path is Lost
  - Site is off air without the microwave path
- Master Site is the Only Redundancy in System without a Microwave Path
  - If microwave path is lost between sites the main site continues to operate
  - Crosby Rd site would be the master site due to accessibility and location
- Less Efficient Use of Frequencies versus a Trunking System with Regional and Wide Area Talk Groups
- Preliminary Estimate for System is \$937,661.00
  - All new NXR-5700K Transmitters
  - Includes needed combining equipment
  - Includes microwave hop from Crosby to Silverton WT
  - Stayton area will not have the coverage it has today with this option
  - Approximate Cost to Add a Stayton Area Site \$201,000.00
  - Includes Simulcast Engineering Fees

**Wireless, 2-Way, Sales, Service, Maintenance**  
**KENWOOD – FIRECOM – BENDIX KING – GLOBALSTAR**

## Option #2

Build out a VHF 2 Channel 5 Site Simulcast System with Regional Repeater Channels

- 5 Sites for Transmit and Receive on Simulcast
  - Crosby Rd, Silverton WT, House Mtn., Halls Ridge and Whipper
- One Simulcast for Fire Tap Out and One Simulcast for County Wide Ops
  - Simplex on tap out to save resources for regional repeaters
  - Repeated Channel for County Wide Fire/Police Ops
- Regional Repeaters for Fire and Police Ops
  - Crosby Rd. - 2 Fire Repeaters, 2 Police Repeaters
  - Silverton WT – 1 Fire Repeater, 1 Police Repeater, 1 PD2
  - Mt. Angel Abby WT – 1 Fire Repeater
  - House Mtn. - 2 Fire Repeaters
  - Halls Ridge - 1 Fire Repeater
  - Pine St. WT - 1 Fire Repeater
  - Regis St. WT - 1 Police Repeater
  - Whipper – 1 Fire Repeater, 1 Police Repeater
  - Turner WT – Rx Only Site for PD
- No Subscriber Fees vs 700/800 Per Unit Per Month Subscriber Fees
- Redundancy with Regional Repeaters if Microwave Link is Lost
  - Site will continue to process calls as an individual stand-alone site
- Licensing Pros and Cons for this Option
  - More frequencies needed than Simulcast
  - Easier to find frequencies due to smaller area of coverage from sites
  - Long lead time for licensing
- Preliminary Estimate for System is \$473,274.00
  - New NXR-5700K Transmitters for Simulcast Channels
  - Includes needed combining equipment
  - Includes microwave hop from Crosby to Silverton WT
  - Includes Duplexer for Pine St. Fire Site to convert to repeater
  - Utilizing existing equipment for regional repeaters on existing sites
  - Stayton area will not have the coverage it has today on Simulcast with this option
  - Approximate Cost to Add a Stayton Area Simulcast Site \$87,200.00
  - Includes Simulcast Engineering Fees

### Option #3

#### Build Out a 2 Channel VHF Simulcast System with Multi-Site Nexedge Trunking System for Talk Channels

- 5 Sites for Transmit and Receive on Simulcast
  - Crosby Rd., Silverton WT, House Mtn., Halls Ridge and Whipper
- One Simulcast for Fire Tap Out and One for County Wide Ops
  - Simplex on tap out to save resources for regional repeaters
  - Repeated Channel for County Wide Fire/Police
- Nexedge Sites for Regional Communications
  - Crosby Rd. – with 5 Channels
    - 1 Control Channel and 4 Voice channels - 2 Fire and 2 PD
  - Silverton WT – with 4 Channels
    - 1 Control Channel, 3 Voice channels – Fire, PD and PD2
  - Mt. Angel Abby WT – with 2 Channels
    - 1 Control Channel and 1 Voice - Fire
  - House Mtn. – with 3 Channels
    - 1 Control Channel and 2 Voice - Fire
  - Halls Ridge – with 2 Channels
    - 1 Control Channel and 1 Voice - Fire
  - Pine St. or Regis St. WT – with 3 Channels
    - 1 Control Channel and 2 Voice – PD and Fire
  - Whipper – with 3 Channels
    - 1 Control Channel and 2 Voice – PD and Fire
- Less Expensive to Build Out than Simulcast System
- Lower Maintenance Costs Due to No Timing Equipment Needed.
- Redundancy or Fail-Safe Mode if Microwave Link is Lost
  - Site will continue to process calls as an individual stand-alone site
- No Subscriber Fees vs 700/800 Per Unit Per Month Subscriber Fees
- Licensing Pros and Cons
  - Dependent on a large cache of frequencies to utilize the same sites as today
  - Easier to find frequencies possibly than Simulcast due to lower sites and less frequencies on high sites than Simulcast
  - Long lead time for licensing
- No Scanning of Analog Channels When Using Digital Trunking
  - Scanning of talk groups on system available but not between digital and analog channels
- Preliminary Estimate for System is \$636,169.90
  - New NXR-5700K Transmitters for Simulcast Channels
  - Utilizing 8 Existing NXR-700K's and 14 New Units
  - Includes needed combining equipment but no Antenna for Pine/Regis St.
  - Includes microwave hop from Crosby to Silverton WT
  - Requires high speed internet to Mt. Angel Abby and Pine or Regis St. Site
  - Requires purchasing Nexedge subscriber units for all users
  - Stayton area will not have the coverage it has today on Simulcast with this option
  - Approximate Cost to Add a Stayton Area Simulcast Site \$87,200.00
  - Includes Simulcast Engineering Fees

### Option #4

#### Build Out a Multi-Site Nexedge Digital Trunking System on 7 Sites

- 7 Site Kenwood Nexedge Networked Digital Trunking System
  - Crosby Rd. Site with 5 Channels
    - 1 Control Channel and 4 Voice – 2 Fire and 2 PD
  - Silverton Water Tower Site with 4 Channels
    - 1 Control Channel and 3 Voice – Fire, PD and PD2
  - Mt. Angel Abby Water Tower Site with 2 Channels
    - 1 Control Channel and 1 Voice - Fire
  - House Mtn. Site with 3 Channels
    - 1 Control Channel and 2 Voice - Fire
  - Halls Ridge Site with 2 Channels
    - 1 Control Channel and 1 Voice - Fire
  - Pine St. or Regis St. WT Site with 3 Channels
    - 1 Control Channel and 2 Voice – Fire and PD
  - Whipper Site with 3 Channels
    - 1 Control Channel and 2 Voice – Fire and PD
- Less Expensive to Build Out than Simulcast System
- Lower Maintenance Costs Due to No Timing Equipment Needed
- Redundancy or Fail-Safe Mode if Microwave Link is Lost
  - Site will continue to process calls as an individual stand-alone site
- No Subscriber Fees vs 700/800 Per Unit Per Month Subscriber Fees
- Licensing Pros and Cons
  - Dependent on a large cache of frequencies to utilize the same sites that are being used today
  - Easier to find frequencies possibly than Simulcast due to lower sites and less frequencies on high sites than Simulcast
  - Long lead time for licensing
- No Scanning of Analog Channels When Using Digital Trunking
  - Scanning of talk groups on system available but not between digital and analog channels
- Preliminary Estimate for System is \$411,920.90
  - Utilizing 8 Existing NXR-700K's and 14 New Units
  - Includes needed combining equipment but no Antenna for Pine/Regis St.
  - Includes microwave hop from Crosby to Silverton WT
  - Requires high speed Internet or Microwave to Mt. Angel and Pine/Regis St. Site
  - Requires purchasing Nexedge subscriber units for all users

### Additional Hardware Cost

- Networking Routers, Switches and Cabling Not Included
- Davicom Site Monitoring Equipment Not Included
- Nexedge Base Stations for Dispatch with Options 3 or 4.
  - Number of bases dependent on talkgroups established
  - Estimated cost without installation is \$1,505.00 each
- Antenna System for Pine/Regis St. WT Site is Unknown at This Time
- Nexedge Subscriber Units will run approximately \$988,700.00 to \$1,251,750.00 at the current NASPO pricing

These options are a preliminary cost estimate with the best information available at this time. The prices will change as other factors are clarified and at that time a better estimate can be made. The pricing is intended to be used to make decisions as to which system would best fit the Metcom user's as a whole.

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