



# AGENDA



- How We Got Here
- Radio System Statement of Work Spec
- System Design Overview – 2 Options
- Coverage Maps
- Warranty, Maintenance and Ongoing Support
- Pricing
- Emergency School Radios
- Budgetary Pricing vs Statement of Work Scope

A photograph of a tall, lattice-structured radio tower against a cloudy sky is positioned on the left side of the agenda slide. The Motorola Solutions logo is located in the top right corner of the slide's blue header.

## How we got here

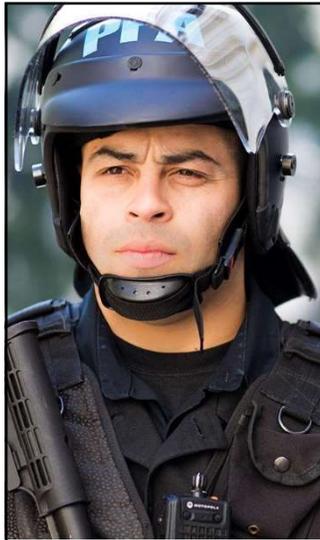
- Legacy VHF 911 Communication infrastructure continually failing
- Past FCC Narrow-banding negatively impacted VHF radio coverage
- Over time several larger public safety agencies within the county start upgrading mobile & portable radios to Motorola APX Dual Band subscribers allowing for use on current VHF system and future-proofing for 700/800 MHz channels
- Consultant hired to complete a radio communication needs analysis - Phase 1
- Consultant contracted to assist in writing spec and put RFP out for new radio system - Phase 2
- New Courthouse / Jail vote passes in 8/2018 forcing move of current PSAP
- New Motorola MCC7500 consoles are purchased and installed at temporary PSAP location at the County Admin Building
- The new consoles are directly connected through ICN Fiber to ISICS master cores allowing for immediate use of the ISICS mobile coverage provided by the Statewide system



## How we got here

- Decision is made to change consultant Phase 2 scope from RFP spec to SoW for Motorola due to desire to be on the Statewide system and money already spend with Motorola going that direction
- Simpson Law Repeater goes down leaving County law enforcement without 911 communications
- Move to ISICS 700 MHz channels because mobile coverage is already in Warren County, new consoles already directly connected to ISICS cores and several law enforcement agencies have Motorola 700 MHz TDMA capable radios
- EMA Commission votes to move forward with getting New county-wide infrastructure project moving. SoW is provided to Motorola.
- Motorola presents 2 coverage designs and related costs for EMA Commission to decide what they will present to BoS'





## Warren County's Statement of Work

### List of major spec items:

- Portable on-street coverage
- In-Building coverage in Schools
- 5 Channel Simulcast Design
- Microwave Backhaul
- VHF Paging
- Training
- Logging Recorder Upgrade
- DC Power Back-Up
- Network Management and Alarming

5



## 7 Site Design – Statement of Work Specification

## Solution Overview

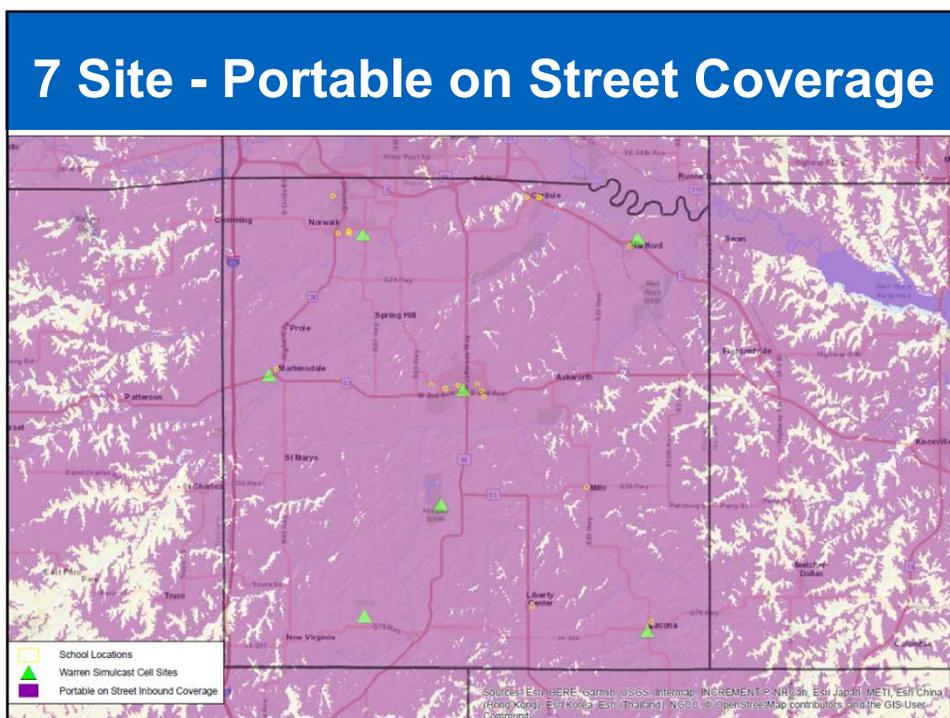
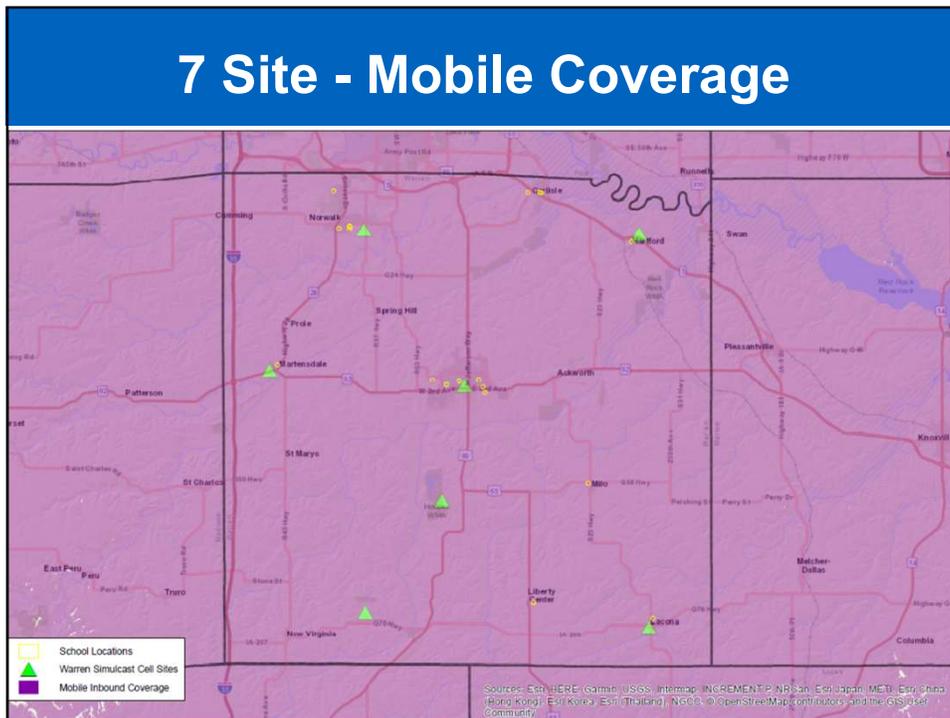
- 97% On-Street Portable Countywide
- In-Building Coverage where schools are located
- Countywide paging needed using current pagers
- System Coverage Testing when completed to guarantee coverage

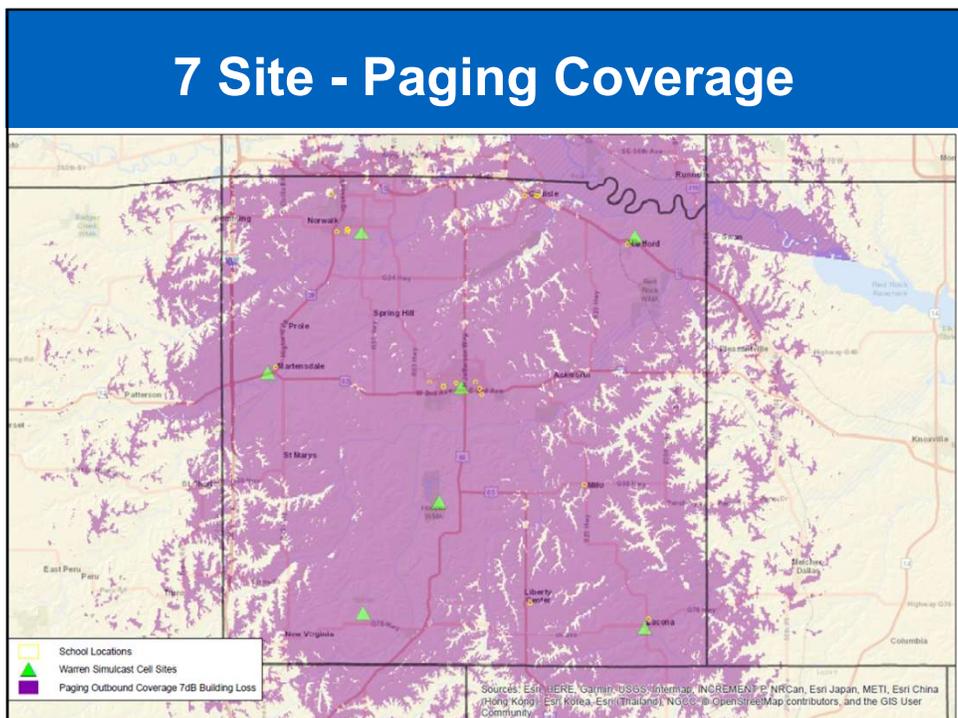
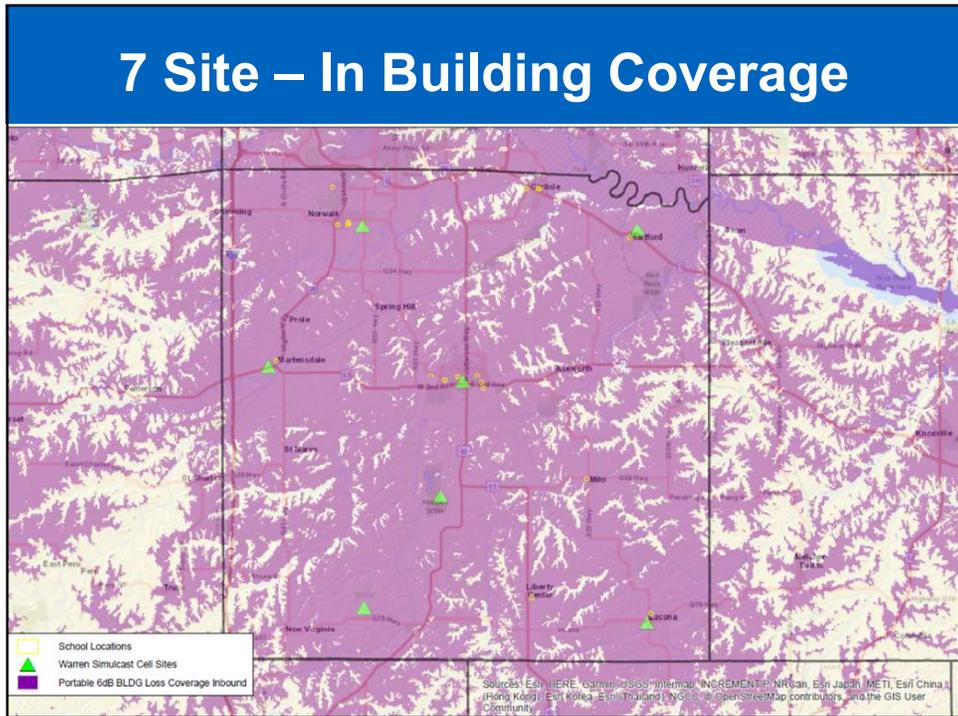


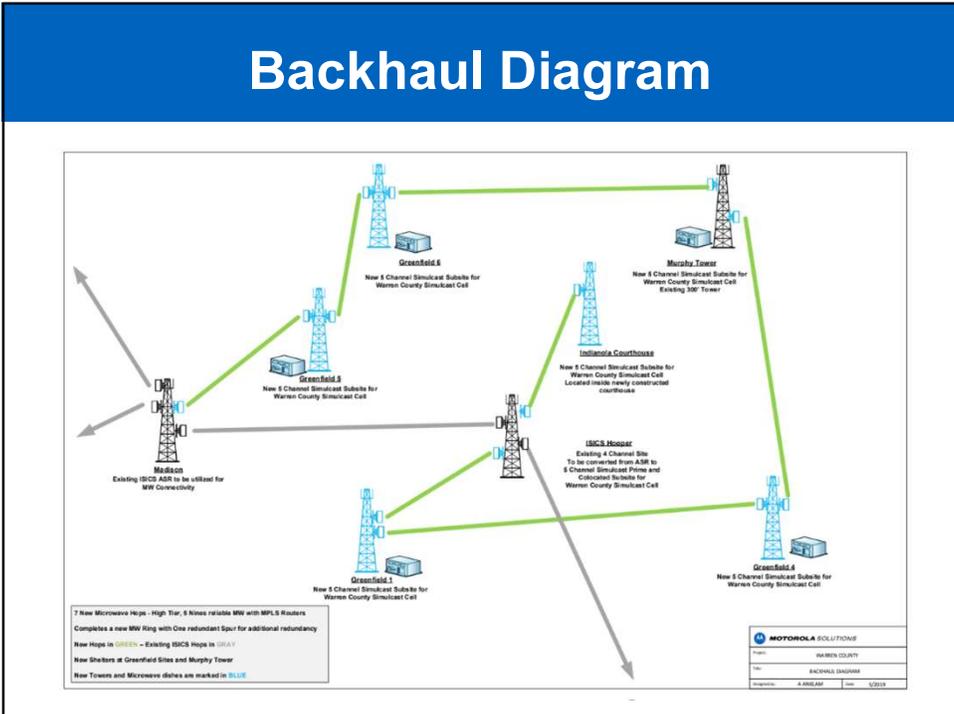
## System Design

- 97% Portable on Street
- In Building coverage at school locations
- 7 Transmit Receive Sites
  - 5 Greenfield Towers - Lacona, Norwalk, New Virginia, Martensdale, Indianola
  - Existing Towers - Murphy Tower, Hooper ISICS site
  - Prime site located at Hooper ISICS
  - New Shelters at 6 sites to house new equipment
- 5 Channel 7/800 MHz TDMA Simulcast
- 1 VHF GTR 8000 and Antenna Assembly at every site for VHF paging
- DC Power and Battery Plant backup
- Upgraded Audio Logging
- Redundant Aviat Microwave backhaul
  - Ring configuration throughout the county except Indianola which utilizes a redundant link









## Solution Overview



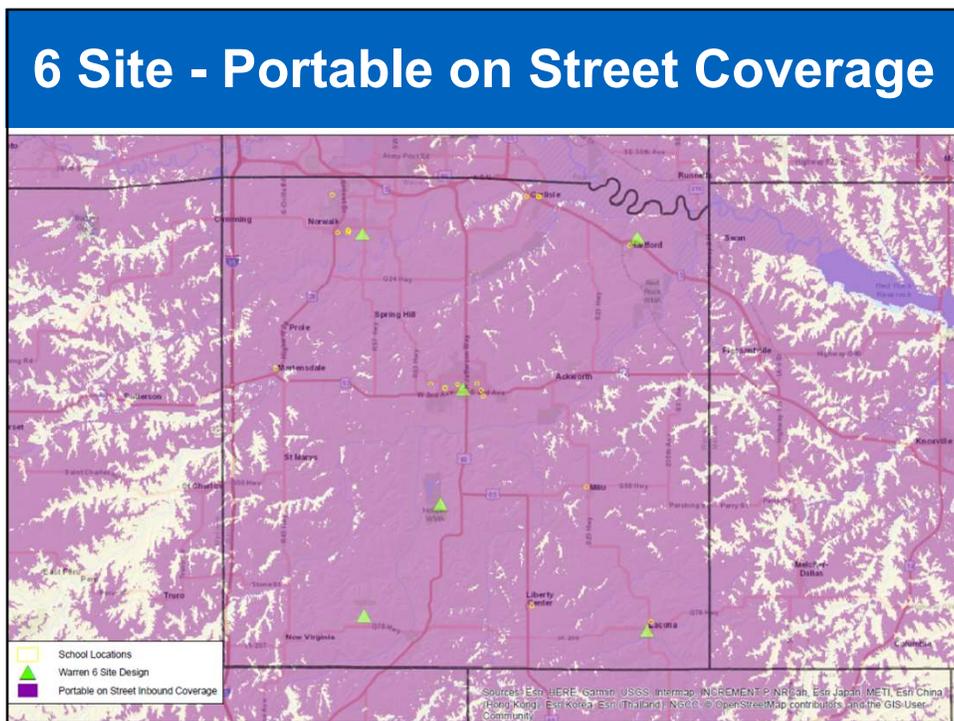
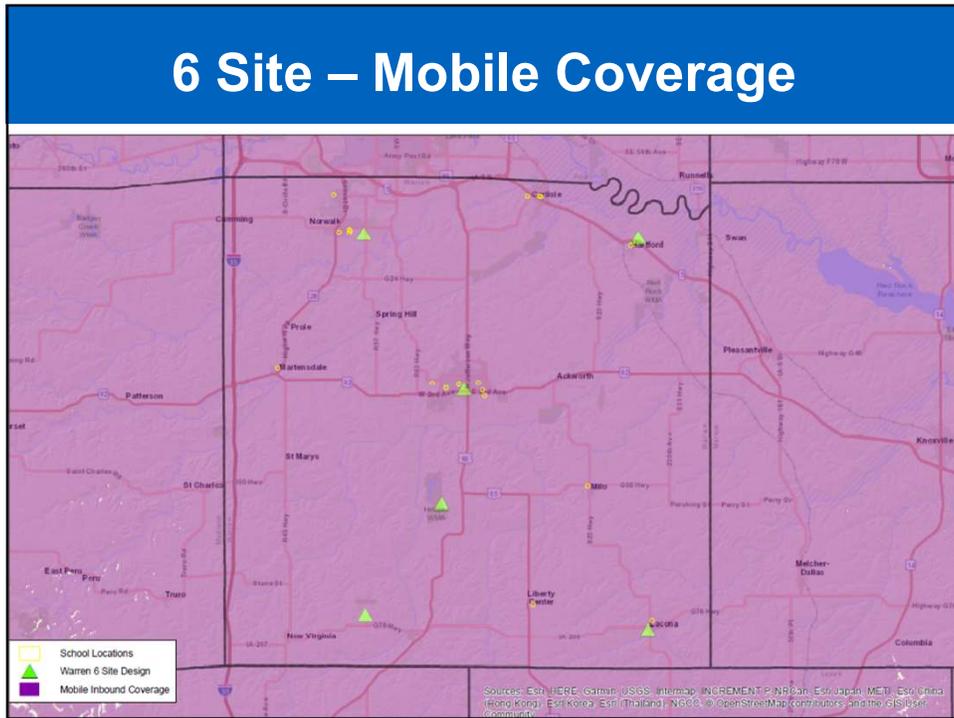
- 95% On-Street Portable Countywide Coverage
- No requirement for In-Building Coverage where schools are located
- Other requirements of SOW remain the same

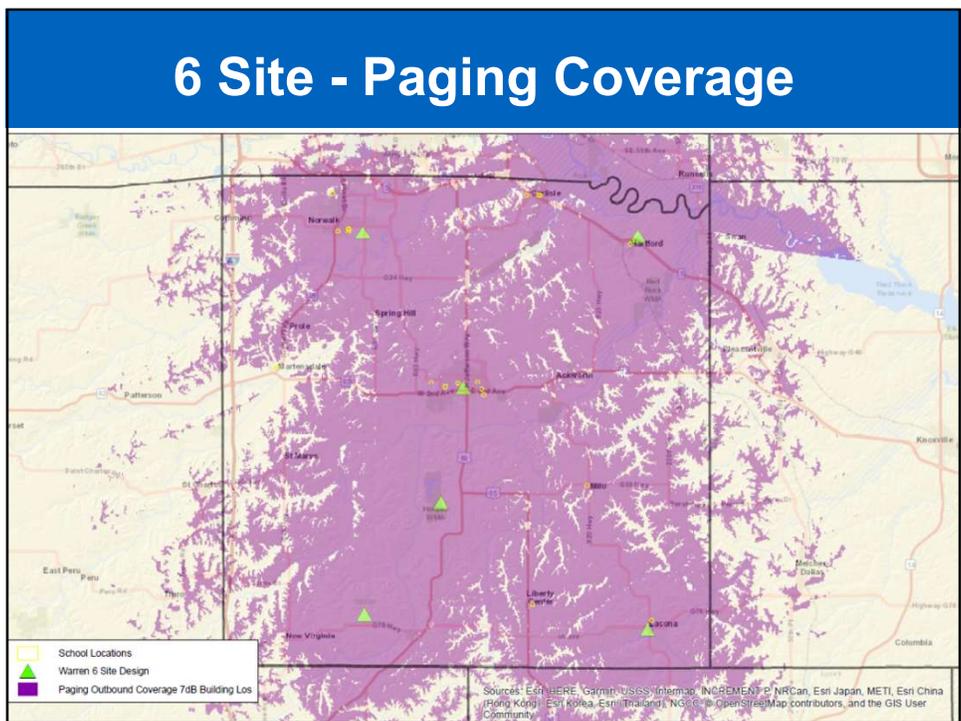
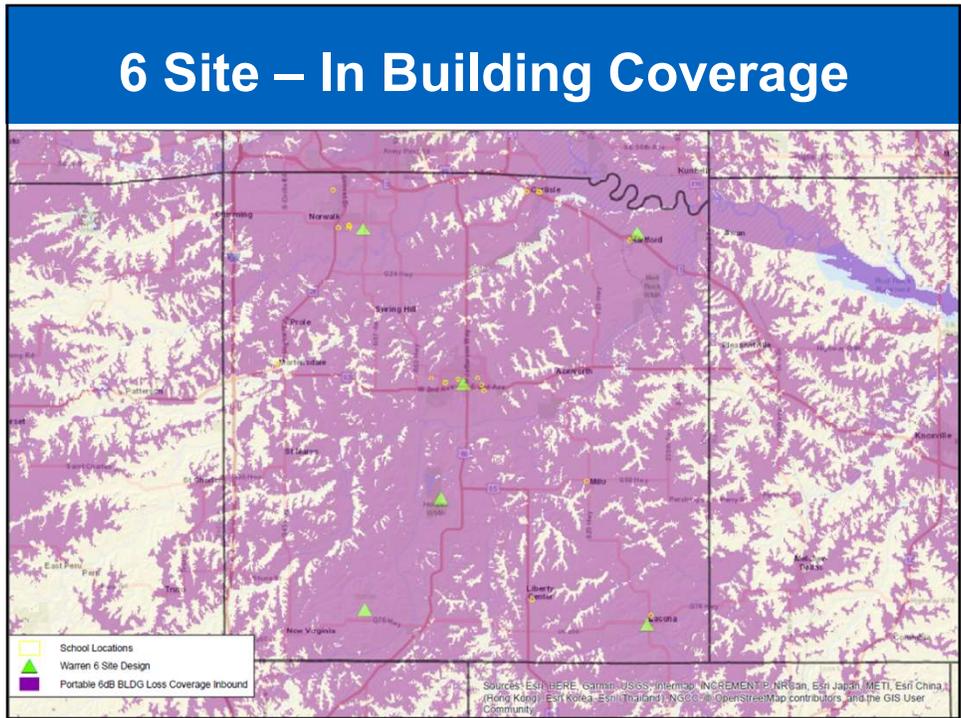


## System Design

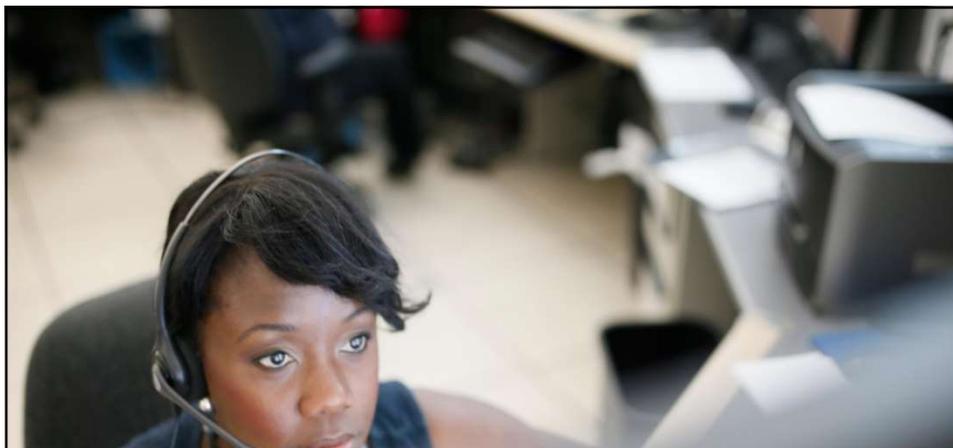
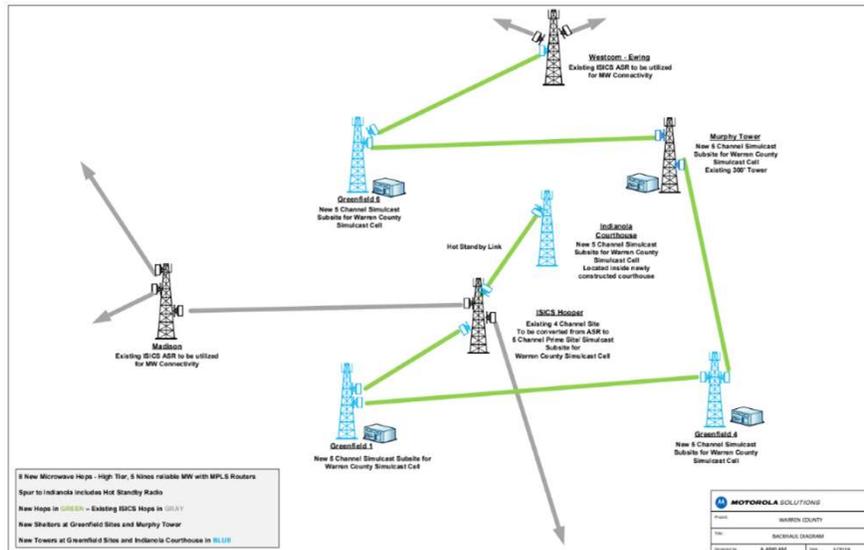
- 95% Portable on Street
- 6 Transmit Receive Sites
  - 4 Greenfield Towers - Lacona, Norwalk, New Virginia, Indianola
  - Existing Towers - Murphy Tower, Hooper ISICS site
  - Prime site located at Hooper ISICS
  - New Shelters at 5 sites to house new equipment
  - Martensdale tower removed
- 5 Channel 7/800 MHz TDMA Simulcast
- 1 VHF GTR 8000 and Antenna Assembly at every site for VHF paging
- DC Power and Battery Plant backup
- Upgraded Audio Logging
- Redundant Aviat Microwave backhaul
  - Ring configuration throughout the county except Indianola which utilizes a redundant link
  - Ring now links into Ewing rather than Madison







# Backhaul Diagram



**WARRANTY, MAINTENANCE,  
AND UPGRADES**

## Service, Maintenance and Upgrades

The proposed offering consists of the following specific services:

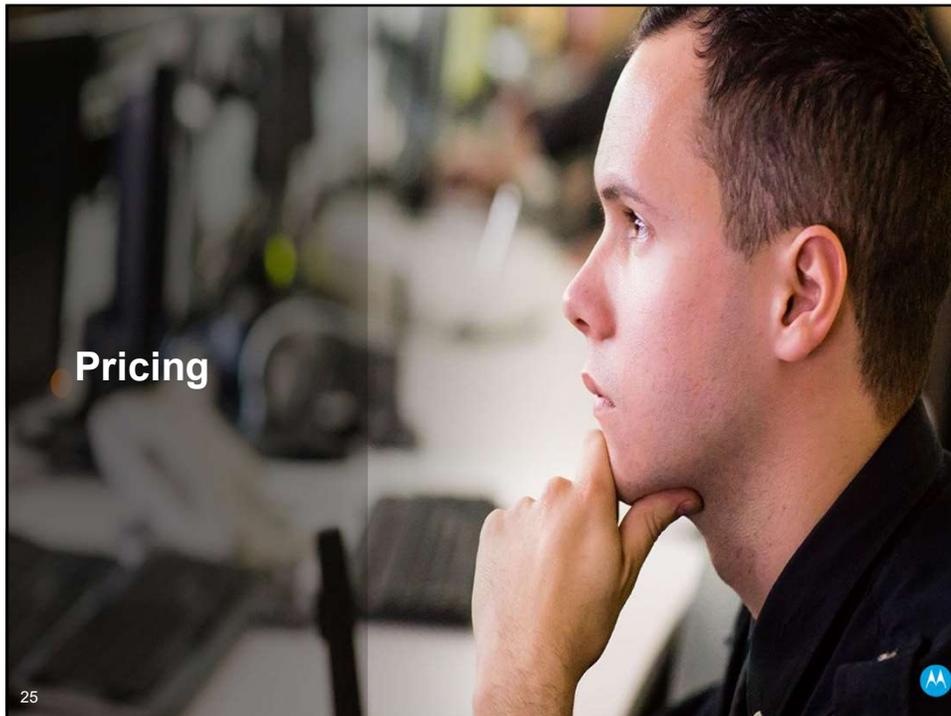
- Service Desk
- Technical Support
- Network Event Monitoring
- Onsite Support
- Annual Preventative Maintenance
- Network Hardware Repair with Advanced Replacement
- Remote Security Patch Installation
- Network Updates (SUAll)



## Local Service Provider *Electronic Engineering*

- Motorola Solutions P25 Certified Service Center
- Local to Warren County
- Radio and Communications since 1946
- Expertise in installing equipment, highly trained technicians also travel onsite to install radios, base stations, repeaters, consoles and other communications equipment
- Will manage system with Motorola Customer Service Manager post-warranty period and be an integral part of implementation





Pricing Summary – 7 Site Design	
<b>Infrastructure</b>	\$ 10,675,000
<ul style="list-style-type: none"> <li>• 7 Site Five Channel Simulcast System</li> <li>• 5 New Tower Sites - Lacona, Norwalk, New Virginia, Martensdale, Indianola</li> <li>• 2 Existing Sites – ISICS Hooper, Murphy Tower</li> </ul>	
<b>Paging System</b>	\$ 343,000
<ul style="list-style-type: none"> <li>• 7 Site (1) Channel VHF Simulcast Paging Sub-System</li> </ul>	
<b>Subscriber Radios</b>	\$ 1,453,000
<ul style="list-style-type: none"> <li>• 72 Mobiles</li> <li>• 213 Portables</li> <li>• 11 Emergency School Radios (INCLUDED at NO COST)</li> </ul>	
	\$12,471,000
<b>System Discount (sign by June 25<sup>th</sup>)</b>	<b><u>\$ 1,480,000</u></b>
<b>7 Site Design Total</b>	<b>\$ 10,991,000</b>
<b>10 Year System Maintenance &amp; Upgrades</b>	\$ 2,426,000



## Emergency School Radio

1 Radio per school for direct connection to First Responders in time of need



 **MOTOROLA SOLUTIONS**

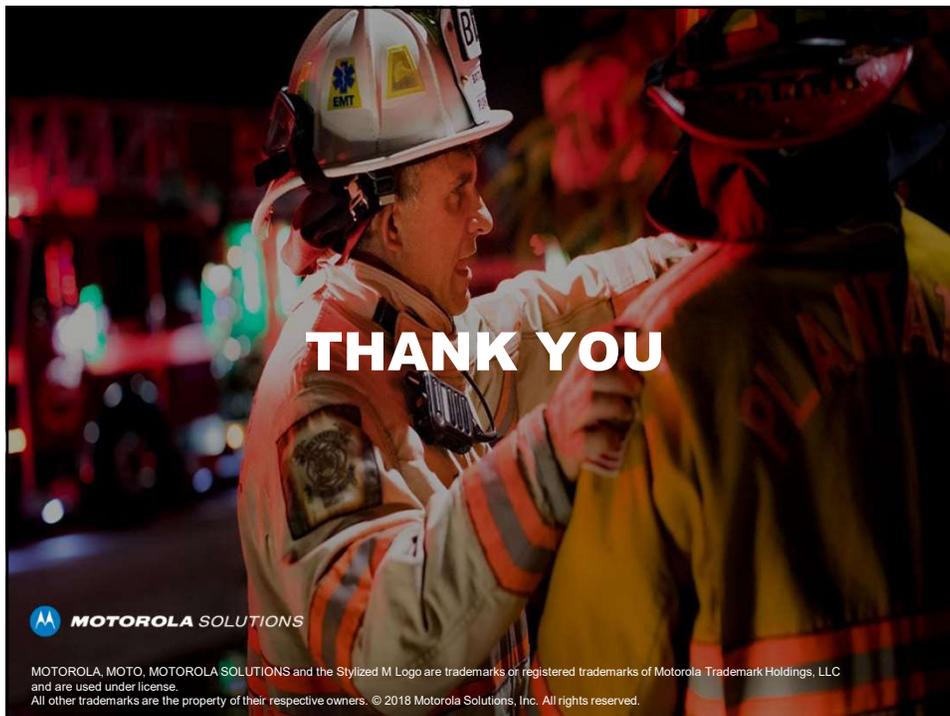
## Pricing Summary – 6 Site Design

<b>Infrastructure</b>	\$ 10,675,000
<ul style="list-style-type: none"> <li>• 7 Site Five Channel Simulcast System</li> <li>• 5 New Tower Sites - Lacona, Norwalk, New Virginia, Martensdale, Indianola</li> <li>• 2 Existing Sites – ISICS Hooper, Murphy Tower</li> </ul>	
<b>Paging System</b>	\$ 343,000
<ul style="list-style-type: none"> <li>• 7 Site (1) Channel VHF Simulcast Paging Sub-System</li> </ul>	
<b>Subscriber Radios</b>	\$ 1,453,000
<ul style="list-style-type: none"> <li>• 72 Mobiles</li> <li>• 213 Portables</li> <li>• 11 Emergency School Radios (INCLUDED at NO COST)</li> </ul>	
	\$ 12,471,000
	System Discount (sign by June 25 <sup>th</sup> ) <u>\$ 1,480,000</u>
	<b>\$ 10,991,000</b>
	<b>Remove Martensdale Site</b> <u>\$ 1,200,000</u>
	<b>\$ 9,791,000</b>
<b>10 Year System Maintenance &amp; Upgrades</b>	\$ 1,944,000

 **MOTOROLA SOLUTIONS**

# Budgetary vs Statement of Work

Major Scope Differences	\$9M Budgetary	SOW
Indoor/Outdoor Microwave Equipment	Indoor / Outdoor Mix	Indoor only
Warehouse Storage	Customer responsibility	Motorola responsibility
Training	APX train the trainer	In-field system admin and technician training, console refresh training, APX Train-the-Trainer training
Main CATP	Coverage test for informational purposes only	Verification and documentation for inbound/outbound BER, signal strength, and DAQ
VHF CATP	Coverage test for informational purposes only	Verification and documentation
Eventide Logging Recorder Upgrade (Wahtek)	Not included	Included
AIS	Not included	Included
Network Management Licenses and Clients Qty 2	Not included	Included
Add diversity antenna at 5 sites	Not included	Included
MSB Requirements	Standard 12x16 building and generac generators	Ballistic requirements, Cummins ONAN generator, rubberized roofing...
Tower Steel Requirements	300 ft self support	Solid leg tower, 100% loading, 2 heavy cellular array platforms
Tower Foundation Requirements	Concrete pads	Increased foundation requirements for additional loading
Relocate consoles and decommission temp PSAP (remove old wiring etc assoc with the MCC's)	Not included	Included
Remove / Dispose legacy Eqpt	Not included	Included



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