



# MissionCriticalPartners

*Your Life Safety Mission Is Our Passion*

REQUEST FOR PROPOSAL



## RFP #5217: COUNTYWIDE RADIO COMMUNICATIONS INTEROPERABILITY AND SYSTEMS ENGINEERING SERVICES

### TECHNICAL PROPOSAL – ORIGINAL

SUBMITTED FEBRUARY 29, 2015 TO:  
ORANGE COUNTY, NORTH CAROLINA



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## TRANSMITTAL LETTER

February 29, 2016

Orange County, North Carolina  
Attn: Mr. David Cannell, Purchasing Agent  
200 S. Cameron Street  
Hillsborough, NC 27278

**Re: RFP #5217: Countywide Radio Communications Interoperability and  
Systems Engineering Services**

Dear Mr. Cannell:

Mission Critical Partners, Inc. (MCP) appreciates the opportunity to provide this proposal for radio communications interoperability and systems engineering services for Orange County. The MCP team serves as an independent agent with considerable experience in local government management roles, and extensive experience in performing public safety consulting services for state, local, and federal government entities.

As required, we are submitting the proposal in the following formats: One (1) signed original, along with five (5) copies, and one (1) electronic copy. One (1) original and one (1) copy of the Cost Proposal is provided in a separate sealed envelope.

Mission Critical Partners has identified Philip Penny as the point of contact and authorized representative for this request for proposal response. His contact information follows:

Philip L. Penny, ENP  
Business Development Specialist  
4801 Glenwood Avenue, Suite 200  
Raleigh, NC 27612

Cell: 919-210-5255  
Office: 919-390-0321  
Fax: 814-217-6807  
Email: [PhilipPenny@mcp911.com](mailto:PhilipPenny@mcp911.com)

I, John Spearly, Director of Administration at Mission Critical Partners, am the authorized representative signing and submitting this proposal on the Company's behalf. I may be contacted at 888-862-7911 or at [JohnSpearly@MCP911.com](mailto:JohnSpearly@MCP911.com). On behalf of our entire team, we stand behind Orange County to serve as your partner and your advocate.

Sincerely,

MISSION CRITICAL PARTNERS, INC.



John L. Spearly  
Director of Administration

**MissionCriticalPartners**

4801 Glenwood Ave, Suite 200 | Raleigh, NC 27612 | 888.8.MCP911 or 919-390-0321 | [www.MCP911.com](http://www.MCP911.com)



## RESPONSE TO GENERAL PROPOSAL REQUIREMENTS

### A. INTRODUCTION

Mission Critical Partners is the industry leader in Public Safety Consulting supporting many state and large county and city level projects across the country. The MCP team has unmatched depth and experience working with public safety agencies, offering land mobile radio, paging and alerting, and backhaul assessment and design, requirements definition and specification development, contract negotiation, vendor selection and project implementation. The County is seeking to address issues of coverage, capacity, reliability, and functionality for a diverse group of users. MCP understands that the County has completed partial and non-definitive studies in the past and now desires a comprehensive approach. We have provided a detailed scope of services, project approach, and timeline in our response that will provide a clear direction for County decision makers to identify and procure the right solution.

Our goal is to work in partnership with the Orange County Review Committee to conduct a detailed and comprehensive assessment incorporating all identified stakeholders and develop vendor neutral, performance based specifications that ensure that the communications system(s) and backhaul procured meets your needs. The procurement must provide for technologically advanced functionality on infrastructure that provides high availability for these mission critical systems. MCP understands that this will be a major procurement and expense for Orange County and its users and it is critically important that the procured systems are flexible enough to meet all current and future needs. This project must be done right because Orange County will not have an opportunity to upgrade or replace these systems for many years. The importance of this project to your mission is very clear.

The MCP team has vast experience in implementing complex and multi-discipline technology systems for agencies across the country, having worked with both large vendors and small vendors. We are proposing a very experienced project team that is led by former 9-11 Director Phil Penny and former Sheriff Mike Milas who are supported by senior technology specialists with expertise in all areas of communications. This balance is very important for the Orange County project because we can better identify requirements and seamlessly translate them into technical specifications because we have been in your seat. We have been on a traffic stop in the middle of the night, behind the console and on a fire scene and across the table from vendors. MCP will bring our record of proven success and ensure that the project brings; a cost effective solution, while keeping vendors on schedule and contractually compliant, and stakeholders engaged and informed.

MCP proposes two phases in our scope of work and project plan:

#### Phase I: Needs Assessment and Alternatives Analysis

Our system planning philosophy is to learn the problems, needs and requirements of the user first, and then identify and recommend the best available technology and design to solve those problems and meet those needs. We understand that many users of a common system may have greatly distinct needs, and that operational requirements for voice and data vary greatly by discipline.



For the technical baseline, MCP will conduct a thorough review of the radio resources, which includes surveys of all dispatch sites, radio sites, and control equipment. Interviews will be conducted with the appropriate technical staff, including County personnel and all identified stakeholders. This baseline will be used to develop conceptual designs and alternatives that will be presented to the Orange County Review Committee for the selection of the best alternative that meets the needs of the County and its users. This will be an iterative process and MCP will be providing and receiving feedback from the stakeholders throughout this process. During this phase the review committee will be kept informed of the project activities and updates through weekly conference calls in addition to the on-site meetings outlined in our scope of work.

### Phase II: RFP Procurement and Support Services

After MCP has worked with the County to select an alternative we will begin the process of creating a vendor neutral performance based specification incorporating the required coverage, capacity, interoperability and reliability standards. The draft of the specification will be reviewed on site with the Orange County Review Committee and changes and feedback will be incorporated prior to being finalized. MCP will support the procurement process from RFP publication, pre-proposal conference, proposal evaluation and recommendation, and contract negotiation.

MCP has also proposed an optional Phase III system implementation. This serves as an additional planning and informational tool to the County regarding the process of implementing a system. As an option, MCP can provide pricing for the implementation phase.

MCP is committed to your success because your mission matters and we stand ready to be your trusted advisor throughout this very important project.

***Remainder of page intentionally left blank.***



## B. ORGANIZATIONAL QUALIFICATIONS

### ***Corporate Profile***

Mission Critical Partners is committed to delivering top quality technical and operational consulting services to help managers overcome mission critical challenges.



A corporation founded on December 29, 2008 under the laws of the Commonwealth of Pennsylvania, and beginning business operations on February 2, 2009, Mission Critical Partners' staff brings over 30 years of experience in public safety communications. Our award-winning team consists of former public safety managers, project management professionals (PMPs), and technology, forensic and policy specialists. Mission Critical Partners principals have each invested more than three decades in the 9-1-1 industry and continue to serve in key leadership roles in all the major industry organizations, such as NENA, APCO, and iCERT; and as advisors to key federal and state governmental bodies. Our goal is to support our life safety communications clients through improved policy, systems and processes **because the mission matters.**

As former clients ourselves, we add value by understanding how policy, financing, governance, operations, and technology must converge to holistically solve complex issues. We are committed to listening, being responsive, consistent, accountable, objective and visionary. We work with our clients to develop a sound approach by seeking to understand the challenge, analyzing the data and information available and developing a durable resolution. We provide unbiased recommendations and are independent of vendors providing mission critical products.

### ***Office Locations***

Mission Critical Partners serves municipal, county, state and federal clients across North America with offices in the following locations:

#### **Corporate Headquarters**

690 Gray's Woods Blvd., Port Matilda, PA 16870  
Phone: 888-862-7911 / Fax: 814-217-6807

#### **Branch Offices**

502 N. Carroll Avenue, Suite 120, Southlake, TX 76092  
4801 Glenwood Avenue, Suite 200, Raleigh, NC 27612  
105 Bradford Road, Suite 400, Wexford, PA 15090  
2578 Interstate Drive, Suite 106, Harrisburg, PA 17110

### ***Areas of Specialization***

Mission Critical Partners is a comprehensive public safety consultant rather than a firm with a single focus or specialization. Our practice areas are driven by subject matter experts in each of the respective fields – in other words, our specialization is in *all areas of public safety – from operations to technology.*

The following pages are a brief overview of Mission Critical Partners' offerings:

**MissionCriticalPartners**

4801 Glenwood Ave, Suite 200 | Raleigh, NC 27612 | 888.8.MCP.911 or 919-390-0321 | [www.MCP911.com](http://www.MCP911.com)



## **Radio Wireless Services**

Mission Critical Partners has a staff of highly qualified radio experts with varied backgrounds ranging from technicians in large municipal radio systems to persons holding electrical engineering degrees. However, all of our staff has one thing in common – first-hand knowledge and experience as public safety users of two-way radios. This unique combination of experience and education brings you a team dedicated to the success of your project.



Our team approaches your project with only one task in mind – your success. This is accomplished through our unique approach that determines your operational needs and designs a radio network around your needs and budget. Many agencies have operational constraints because of the design and operation of their radio network. The network should serve public safety users, as well as be another tool to keep our first responders and communities safe. The protection of life and property begins with a single dispatch. From there, the radio system is the link that connects and delivers your response and services to your citizens. It is far too important to trust to anyone other than your partner, your advocate, and your agent for innovative solutions **because the mission matters**. Mission Critical Partners' staff works tirelessly to provide the guidance necessary for our clients to obtain the most capable, reliable and affordable communications systems, custom designed for their needs and budgets. Projects include, but are not limited to, operational and technical assessments, procurement support, Federal Communications Commission (FCC) licensing, performance acceptance testing and FirstNet support.

## **Public Safety Radio Communications**

As a company at the forefront of public safety communications, MCP understands the role and importance of today's emergency communication systems for both voice and data. Our company's Radio and Wireless Practice team (RWP) applies hands-on experience with land mobile radio systems including analog and digital Project 25 (P25), broadband data systems (LTE), and backhaul (microwave, fiber, etc.) to develop the solution that best fits the client's needs; planning, designing and integrating mission critical technology and operations into new communication systems. Our mission is to support our life safety communications clients through improved policy, systems and processes.

MCP has amassed an extensive list of successfully completed large projects involving Land Mobile Radio (LMR) communications in a Mission Critical and Public Safety environment. Projects and clients supported by MCP and our staff include virtually every aspect of radio and wireless networks:

- Operational and technical needs assessments supporting the procurement and implementation of new Public Safety radio systems
- Interoperability planning and network development projects
- Spectrum acquisition and FCC licensing
- Propagation studies and RF system design
- Acceptance testing and validation
- Governance and cost-sharing of Multi-jurisdictional systems



MCP recognizes that as a consulting and engineering firm, our corporate capabilities are directly dependent on the capabilities and experience of our staff. With this in mind, MCP has assembled one of the most experienced and knowledgeable Radio and Wireless Practice teams in the country. MCP's in-house staff of Consultants, Engineers and Subject Matter Experts (SMEs) collectively has worked on hundreds of projects involving Mission Critical RF systems and operations. The depth and breadth of this experience includes competencies such as:

- Public Safety radio systems including analog, digital conventional and trunked voice radio systems and conventional and broadband wireless data systems. Extensive experience with wireless paging systems, including tone, voice and alpha-numeric.
- Development of Public Safety communications interoperability plans, both tactical and strategic.
- Design of network infrastructures, wireless technologies and hardware configurations providing redundant, reliable, high availability backhaul systems supporting Public Safety operations.
- Development of communication facility sites (e.g. towers, shelters) including civil site work, zoning and land use planning, site utilities, site construction and inspections and grounding and lightning protection.
- Project management of multifaceted Public Safety communications projects involving new/upgraded technology and assessing and assisting in the redefinition of Standard Operating Procedures (SOPs) and processes associated with the management and operation of Public Safety services.
- Development and administration of technology work plans, budgets, and status monitoring.
- Development of performance specifications and system procurement support including proposal review and evaluation, and providing clients with defensible recommendations for technical and non-technical audiences.
- Representing government clients in contract negotiations with Public Safety technology vendors.
- Design and oversight of training programs associated with Public Safety technology and operations.
- Design and management of transition and cutover plans for Public Safety communications centers when moving facilities.



Of particular note is the substantial experience MCP personnel have specific to trunked radio systems and P25 systems in particular. MCP personnel are very familiar with major vendor offerings through direct work on projects, as well as participation at vendor consulting seminars. MCP staff members are currently working, or have previously worked on projects such as Pueblo Colorado Army Chemical Depot's design, acquisition and implementation of a Motorola P25-compliant trunked system, York



County, Pennsylvania, and their implementation of a Harris P25 trunked simulcast system, and FirstEnergy and their implementation of a Raytheon/Tait regional P25 trunked system.

Current MCP staff members have direct relevant experience specific to the assessment of older proprietary trunked systems and development of upgrade recommendations and acquisition strategies for replacement with a P25 compliant platform. Projects involving the assessment of these older technology platforms that MCP and/or our current staff have supported include Centre County, Pennsylvania; with upgrade and implementation of their Motorola SmartNet system, and Montgomery County, Pennsylvania; with the upgrade to a Project 25 Phase II countywide system from their older SmartNet platform.

MCP staff members bring prior experience in similar projects at a State level. Several of our staff supported the State of Missouri in the procurement and implementation of their statewide Project 25 compliant trunked system provided by Motorola. These staff members also all worked with the State of Wisconsin in the procurement, implementation and commissioning of their Project 25 compliant statewide radio system provided by EF Johnson.

In addition to the technical and operational knowledge needed to support a large scale LMR upgrade or replacement project, MCP's experts have substantial experience supporting clients in the examination and development of recommendations for governance, management, sustainability, development of operational procedures and cost sharing of large, multijurisdictional networks. During their work on several of the aforementioned projects, these staff members developed recommendations for funding and governance on the State of Wisconsin statewide Project 25 trunked system, the State of Missouri P25 trunked statewide system, and the State of New Jersey statewide system. Similarly, MCP supported Indiana, Armstrong and Westmoreland counties in Pennsylvania in procurement of a regional P25 trunked system via a shared common core switch, and the associated approach to governance and cost-sharing of the network.

MCP and our staff are committed to supporting our clients in a vendor neutral environment. MCP takes pride in our proven track record of vendor independence. We have no ties or relationships with any vendor; and have no vendor alliances, allowing us to truly serve as an advocate for our clients, seeking the best solution(s) for them to meet their communications system requirements. Similarly, MCP's staff understands and supports this vendor neutral position as a key foundation of bringing our clients the best, unbiased advice and recommendations – driven only by an understanding of your needs.

### ***Executive Consulting Services***

Mission Critical Partners partner's with clients to develop customized technical and operational solutions for life safety communications **because the mission matters**. Our staff has extensive experience serving in public sector and public safety management roles and applies that depth of real-world knowledge to advocating for our clients. Through our first-hand experience, we have earned the reputation for being accountable, prudent, persistent, progressive and reliable problem solvers.



Mission Critical Partners provides services that are initiated at a strategic level. An integral part of our executive level consulting is providing master planning services. Our team of policy specialists collaborates with clients to create comprehensive plans that help direct decision making in the public safety sector. In developing a strategic plan, Mission Critical Partners incorporates master planning, organizational structuring, hiring assistance, fiscal planning, operations and technology and policy solutions.

By seeking to understand and assembling a strategy that serves as a guide, Mission Critical Partners is able to execute a comprehensive, tactical approach that addresses all elements of the client's sphere of influence. Our team directs its collective energy on understanding the full scope of the client's responsibility and objectives. We evaluate the unique challenges that stand in the way of achieving success. Mission Critical Partners mitigates those challenges by leveraging policy, as well as human, technological and fiscal assets to develop a sustainable solution.

Our clients are responsible for delivering reliable service 24 hours a day, seven days a week to first responders and the public while operating with limited resources. In recognition of the need to achieve more with less, Mission Critical Partners works to put the client in a position to do more with more. This means structuring organizations, programs and projects for available grant funding through policy development, technology and appropriate fiscal planning.

### ***Emergency Management Communications Services***

Emergency management coordinators lead the readiness efforts of local, county and state government through planning and organization. Mission Critical Partners supports emergency managers with expertise in emergency operations, incident command, and the planning and systems designated to support operational integrity before, during and after emergency incidents. By incorporating stakeholder viewpoints, policy, funding, operational requirements and technology into the execution of a successful solution, Mission Critical Partners staff ensures that our clients receive the best customized solution that meets their needs and budget.



Mission Critical Partners staff provides communications support services by following a disciplined, well-organized approach for realizing county, regional and statewide interoperability objectives **because the mission matters**. We not only are able to plan your program, but our track record demonstrates success in implementing and managing the solution. Projects include, but are not limited to, emergency management communications planning and integration, hazard vulnerability assessments, and public safety technology interoperability.

### ***Network 9-1-1 Services***

Mission Critical Partners staff has extensive experience with planning, designing, procuring, negotiating and implementing all Next Generation 9-1-1 (NG9-1-1) call delivery and processing elements. The Public Safety Answering Point (PSAP) environment will continually evolve with new technologies, processes and



expectations. Mission Critical Partners' goal is to help our clients implement resilient and effective future-focused solutions that will enhance emergency response and result in better outcomes for public safety **because the mission matters.**

The Mission Critical Partners approach includes funding models, system life-cycle analysis, objectives, incident processing approach, network resources, and governance opportunities, in order to establish a thorough understanding of the unique PSAP environment.

Mission Critical Partners develops a plan for incident processing in the PSAP, incident dispatch and data management. Mission Critical Partners develops a comprehensive Master Plan for the agency or region and a conceptual design to NG9-1-1 deployment. The Master Plan considers all options and establishes timely deployment by incrementally upgrading technology and recommending policy, funding and governance modifications. Projects include, but are not limited to, master planning, design and procurement support, Emergency Services Internet (ESInet) functions, and Internet Protocol (IP) networks.

### ***Operations and Facilities Practice Team***

Mission Critical Partners brings over 30 years of experience in planning, designing and integrating mission critical technology and operations into new and renovated facilities. We are passionate about creating environments, processes and systems with our clients; enabling them to excel at their life safety mission.



Our Operations Facilities Practice team applies hands-on experience with Public Safety Answering Points (PSAPs), Emergency Operations Centers (EOCs), Network Operations Centers, Security and Call Centers to develop a solution that best fits the client's needs **because the mission matters.** We are familiar with the requirements of mission critical facility architectural and engineering design and are highly qualified to manage the many complexities that arise with each building project. We also apply our understanding of all elements of the facility construction including site development, electrical, mechanical, structural, security and technology to coordinate systems install, acceptance, training and operational transition.

The focus of every project is to optimize the functional use of the space for operational integrity. Mission Critical Partners works closely with the client to develop the technology solutions, migration schedule and operations floor layout.



## ***Shared Services and Consolidation***

In today's market, everyone is asking, "How can we do more with less?" Communications centers are impacted by this question as budgets become tighter, technology matures, operational demands become more complex and training increases. Many are finding that consolidation is a solution to consider. The Mission Critical Partners team has extensive experience with consolidation efforts in past public sector roles and as consultants.



We recognize that elected and public safety leaders strive to provide the most effective and efficient emergency response system possible. Ultimately, the delivery of quality life safety services is the achievable objective. Mission Critical Partners develops a collaborative approach with our clients to assess the opportunity for operational and administrative efficiencies through potential consolidation, collocation or organizational change. The MCP team's impartial and even-handed approach has a proven track record of success.

Today's economic realities require a thorough program analysis to define a future path of economizing while effectively delivering service. Appropriately applied, consolidation or collocation can achieve operational efficiencies through systemic interoperability via staffing, scheduling, technology, training and reduction in systems cost basis.

Mission Critical Partners appreciates the necessary balance required of seemingly competing objectives with operations, organizational, technology, fiscal, human resources, and governance issues. The variables and constraints associated with each are carefully weighed to develop an approach with a lasting solution. MCP is sensitive to the sense of ownership and loyalty each community and agency has with a local communications center. We honor the history of service while providing an independent view of how the community is best served by advancing to the future. To ensure a comprehensive transition that is as smooth as possible, we also provide assistance with the migration efforts and the many challenges inherent in combining organization, facility, technology and operational resources.

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## C. STAFF QUALIFICATIONS

MCP has identified the key team members from our staff that we plan to assign to this important project. Each of these team members brings a unique skill set and depth of experience in Mission Critical Land Mobile Radio in particular, but additional resources and subject matter experts are available as we are a full service firm focused on all aspects of public safety in and around the 911 center.

### **Philip L. Penny**

Phil Penny, a North Carolina resident working from our Raleigh North Carolina office, will serve the County as Client Manager. Phil has an extensive public safety career with over 29 years of progressive experience in a PSAP serving as a telecommunicator, supervisor, and executive director of the Raleigh/Wake County 911 Center. Philip brings an in-depth familiarity with the public safety community and practices in North Carolina. Through his participation on both the state and national level, Philip continues to play an active role in improving 9-1-1 services and is the current North Carolina NENA President.

### **Robert H. Sterner, Jr.**

Mr. Rob Sterner, a company Vice President, is proposed as the Project Executive and will work with the Client Manager, Mr. Phillip Penny, and will jointly be responsible for the success of this project. The role of the Project Executive and Client Manager is to ensure that the MCP team is meeting your expectations and that the project is successful. Rob brings 14 years of public administration and public safety experience together with 7 years of executive level consulting experience. As an Assistant County Administrator of a large county, Rob project managed a \$68 million dollar upgrade to the entire public safety infrastructure including a 24-site P25 Harris radio system with over 4,000 end users. Additionally, as a consultant his experience includes 7 additional public safety radio assessments, procurements, and implementations of both Harris and Motorola equipment.

### **Michael D. Milas**

MCP is pleased to propose Mike Milas as the Project Manager. Mike is conveniently located within a short driving distance to Orange County. As an experienced Public Safety Consultant and Senior Project Manager, he brings over ten years of related experience to the project team. He is a proven leader in the public safety field with solid senior management skills. Offering a combination of experience as a public safety practitioner plus public safety technology management, consulting and business management experience, Mike has the ability to successfully manage multiple projects with cross-functional teams while building and maintaining team competency. He develops positive long-term client relationships through demonstrating a commitment to integrity, honesty and professionalism to achieve project success for clients.

### **Christopher B. Kelly**

Christopher Kelly, ENP, EIT, is a Senior Technology Specialist that leads our Radio and Wireless Practice out of MCP's Corporate Headquarters. Chris will ensure that the technical requirements of our work meet your expectations. Chris has extensive experience and success in executing projects for local and state government agencies including large scale assessments and data gathering. His public



safety and project management background are accentuated by his strong organizational, communication, risk assessment and methodical traits.

### **Robert Arney**

Robert Arney is a Technology Specialist at MCP with over 42 years of experience providing assessments for a variety of communications systems including state networks, county 911 centers, trunked and conventional two-way radio systems, EAS (Emergency Alert System) equipment, microwave/fiber systems, electrical and emergency power as well as site and system grounding. Robert will be the lead technical resource supporting Mike Milas.

### **James D. Agostinelli**

James Agostinelli is a Technology Specialist with over 25 years of experience dedicated to public safety emergency radio communications systems and facilities. MCP's team includes two technology specialists that are certified in Motorola R56 that includes James Agostinelli and Jim Krebs. James will be providing the site assessments for the team supporting Robert Arney.

### **Tim Hennemann**

MCP is proposing Tim Hennemann, EIT, as a Technology Specialist. Tim brings hands-on experience with RF design and a specialty that includes utilizing RF propagation software to design networks that meet the defined performance specifications of the customer. Tim has engineering experience and provided technical design support on numerous similar county and state trunked radio system upgrade projects.

### **Nick Falgiatore**

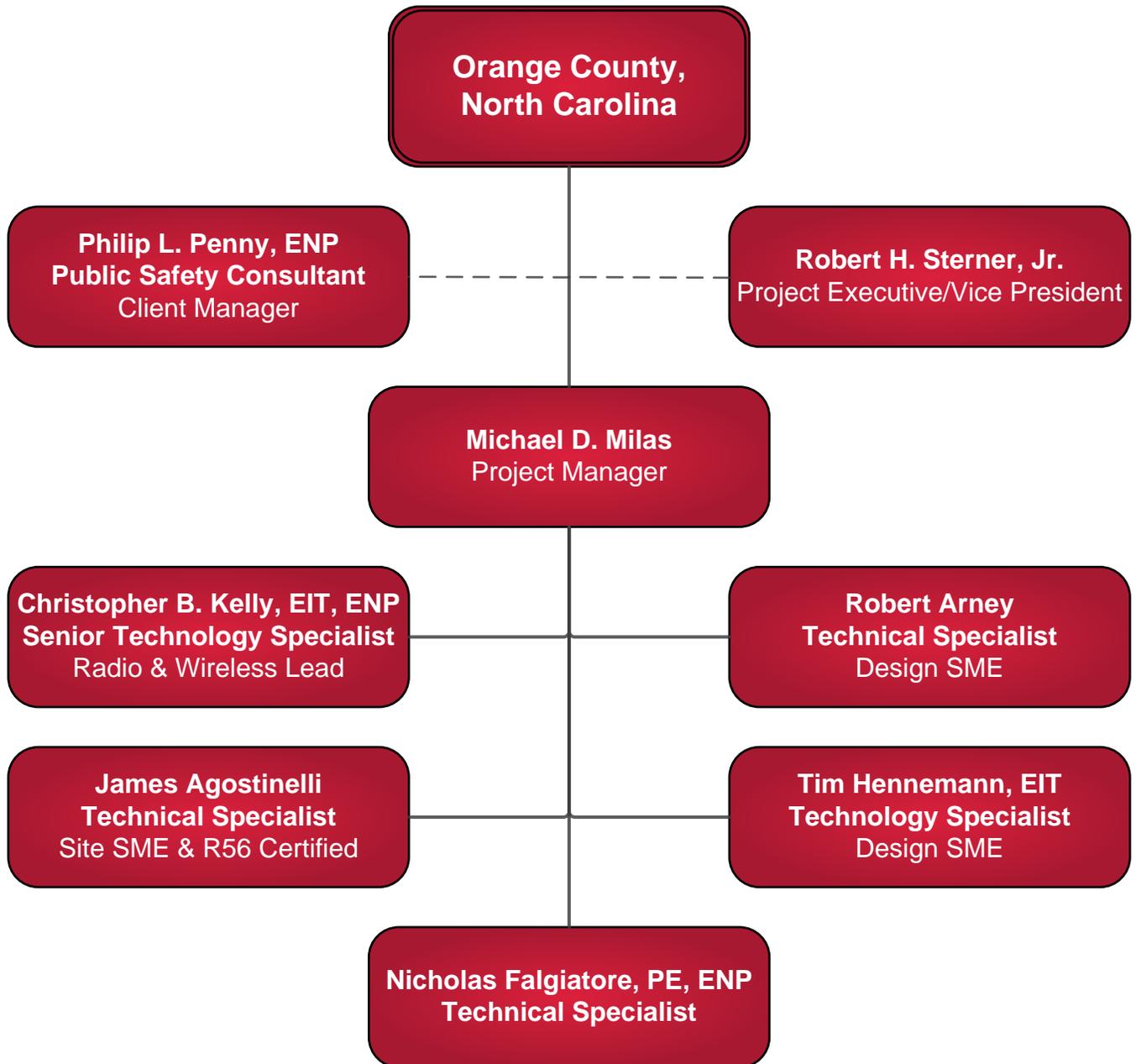
Mission Critical Partners is proposing Nicholas Falgiatore, PE, ENP, MSEE, as a Technical Specialist. Nick is a Senior Technical Specialist supporting this project on data gathering, design, and licensing with three years' experience at MCP. Nick is a Bachelor and Masters degreed engineer from the University of Central Florida and brings over nine years of experience across a range of similar radio system upgrade projects at a County and state level. Nick also brings substantial specific experience in spectrum planning and licensing matters. Nick will be involved in system design and engineering, propagation mapping, and user equipment selection and recommendation. Over Nick's three years with MCP, he has supported over 30 projects in a variety of roles.

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### Organizational Chart

The following is an organizational chart depicting the structure of MCP's proposed core team. Names and anticipated roles for each include:





## **Project Team Resumes**

### **Philip L. Penny, ENP**

*Public Safety Consultant*

Philip is a Public Safety Consultant and Business Development Specialist for Mission Critical Partners, Inc. He has over 35 years of progressive experience in the PSAP serving as a telecommunicator, supervisor, and executive director in a major 9-1-1 center. Through his participation on both the state and national level, Philip continues to play an active role in improving 9-1-1 services and is the current North Carolina NENA President. Prior to his retirement, Philip oversaw the construction of a fully redundant, 16 seat back up 9-1-1 center which was collocated with a city fire station.

### **Professional Experience**

- Wake County, North Carolina – Client Manager, Radio System Assessment, Procurement and Implementation
- Macon County, North Carolina – Client Manager, Radio System Assessment
- Martin County, North Carolina – Client Manager, Grant Application Assistance
- Hyde County, North Carolina – Client Manager, Grant Application Assistance
- Graham County, North Carolina – Client Manager, Grant Application Assistance
- Richmond County, North Carolina – Client Manager, Grant & PSAP Consolidation
- Rutherford County, North Carolina – Client Manager, Grant Application Assistance
- Swain-Jackson Counties, North Carolina – Client Manager, Program Management
- Dare-Tyrrell Counties, North Carolina – Client Manager, PSAP Consolidation
- Haywood County, North Carolina – Client Manager, PSAP Consolidation
- Henderson County, North Carolina – Client Manager, Facility Move
- City of Durham, North Carolina – Client Liaison, Tariff Assessment
- City of Charlotte, North Carolina – Client Manager, Communications Staff Analysis
- Cumberland County, North Carolina – Client Manager, Radio Console Procurement
- Account Executive/North Carolina/South Carolina State Manager
  - Determined the company's capability of filling business needs; supported RFP activities and the development of their responses; and communicated with management from all divisions
- City of Raleigh, North Carolina – Raleigh-Wake 911 Center, Director
  - Supervised and coordinated communications services for police, fire, and emergency medical services personnel; responsible for the overall direction and evaluation of technology and budgetary needs
- City of Raleigh, North Carolina – Raleigh-Wake 911 Center Assistant Director
  - Executed programs and policies relating to communications procedures; directed and supervised the activities of contractors; and responsible for staff assistance to police, fire and emergency medical services personnel concerning center operations and activities

### **Certifications**

- Emergency Number Professional (ENP)

### **Affiliations**

- Current North Carolina NENA 1st Vice President
- National NENA, Regional Vice President
- Garner EMS and Rescue Squad, Chairman of the Board
- Beacon Ambulance Service, Emergency Medical Technician
- North Carolina NENA, Past President
- Former North Carolina Wireless 911 Board member representing North Carolina NENA
- Garner Fire Department, Volunteer Fireman

### **Awards**

- 2003 – Communications Manager of the Year, North Carolina Chapter of the Association of Public-Safety Communications Officials (APCO)
- 2006 – North Carolina NENA President's award

### **Publications / Other**

- *"The Long, Winding, Bumpy Road," Public Safety Communications, June 2015*
- NC NENA Hall of Fame



## **Robert H. Sterner, Jr.**

*Project Executive/Vice President*

Rob is a Vice President with Mission Critical Partners, Inc. As a former County Director, Rob provides executive level consulting services involving upgrades to a multi-million dollar public safety communications infrastructure projects, grant identification and writing, contract management, and analyzing Federal and State legislation and policies that impact public safety. He has researched and developed new public safety and communication's technology services to assist clients in state and county government markets. Rob is a proven communicator who maintains direct contact with public safety clients to resolve project issues. Rob has also served as a key staff member in the U.S. House of Representatives, Pennsylvania Senate and PA Executive Branch.

### **Relevant Project Experience**

- Provided oversight of client satisfaction of deliverables and service for complex public safety projects
  - ESInet Project (10 counties and cities) – Northeastern Pennsylvania
  - Customer premises equipment (CPE) replacements – Blair and York counties, PA
  - **Land Mobile Radio (LMR) Projects**
    - **Adams County, PA**
    - **Armstrong County, PA**
    - **Berks County, PA**
    - **Bucks County, PA**
    - **Indiana County, PA**
    - **Schuylkill County, PA**
    - **Union County, PA**
- York County, PA
  - Project/Fiscal Services Manager
    - Served as Deputy County Administrator
    - Provided oversight of County budget process
    - Project management of all capital projects
    - Oversight of grant coordination, purchasing and the Center for Traffic Safety
  - Director, Emergency Services Center Project
    - Directed Comprehensive upgrade of the County's Public Safety Communications infrastructure (New Emergency Services Center Facility, **24 site P25-LMR**, CPE, Computer Aided Dispatch)

### **Professional Experience**

- Pennsylvania DCED, Governor's Center for Local Government Services
  - Local Government Policy Specialist
- Pennsylvania Department of Labor and Industry
  - Executive Assistant for Safety and Labor Management Relations
  - Division Chief, Bureau of PENNSAFE
- U.S. House of Representatives, Committee on Education and the Workforce
  - Oversight/Professional Staff
- Senate of Pennsylvania
  - Legislative Assistant
- United States Army Reserve
  - Nuclear Biological and Chemical Warfare Non-Commissioned Officer

### **Education**

Bachelor of the Arts, Government/Public Administration Concentration, York College of Pennsylvania

### **Affiliations**

- National Emergency Number Association (NENA)
- **Association of Public-Safety Communications Officials (APCO)**



**Michael D. Milas**  
*Project Manager*

As a Client Manager with Mission Critical Partners, Inc., Mike brings experience as a proven leader in the public safety field with solid senior management skills. Offering a combination of experience as a public safety practitioner plus public safety technology management, consulting, business development and sales experience, Mike has the ability to successfully manage multiple projects with cross-functional teams while building and maintaining team competency. He develops positive long-term client relationships through demonstrating a commitment to integrity, honesty and professionalism to achieve project success for clients.

**Professional Experience**

- Past responsibility for leading two public safety and wireless consulting practices managing a group of engineers, technicians and subject matter experts who provided a broad range of consulting services to the public safety and utility marketplace
- As Executive Director of a Regional Joint Powers Authority in California he supported the creation of the JPA and managed large scale public safety technology projects and provided regional research and planning support to public safety agencies
- Past experience in senior staff roles supporting project management, customer relations and serving as a Public Safety Subject Matter Expert (SME) for a major radio system and equipment provider.
- Elected for three consecutive terms as Sheriff of a full-service county sheriff's department in Wisconsin with 125 full-time employees
- Served as the lieutenant shift commander of a county sheriff's department, as an investigator and supervisor of the drug unit as well as positions in Patrol, Communications and Corrections.
- Former Commissioned Officer in the Army Reserve and WIARNG.

**Project Experience**

- Miami-Dade Trunked Radio System, Transit Data, Testing and Acceptance
- Collier County, FL Trunked Radio System
- City and County of Honolulu Trunked Radio System
- Johnson County, IA; Trunked Radio System, Dispatch Consolidation
- Bridgeport, CT; Radio System Upgrade, Dispatch co-location project
- SVRCS Regional Radio System Needs Assessment, Procurement and staged implementation
- SVRIA Regional Micro-wave System upgrade initiative
- Barnstable County, MA Sheriff's Office; Dispatch Consolidation and new PSAP Planning Project
- State of Nevada; State-wide Radio System Replacement Needs Assessment

**Education**

Bachelor of Science, Business Administration/Human Resources Management, Marquette University, Milwaukee, WI

Has completed extensive course-work in Law Enforcement and Public Sector Management and Supervision

**Professional Memberships**

- National Sheriff's Association (NSA)
- International Association of Chiefs of Police (IACP)
  - Past Alternate member of IACP Communications and Technology Committee
- Police Executive Research Forum (PERF)

**Affiliations**

- Wisconsin Attorney Generals Round Table Advisory Panel – Past Member
- Marquette University Criminal Justice Departments Advisory Committee – Past Member
- Fox Valley Technical Colleges Law Enforcement Management Training Advisory Committee – Past Member



**Christopher B. Kelly, ENP, EIT**  
*Senior Technology Specialist*

As a Senior Technology Specialist with Mission Critical Partners, Inc., Chris brings more than ten years of telecommunications and RF experience, including managing a group of engineers and consultants responsible for all aspects of radio and wireless services. Chris has been responsible for public safety communication systems from assessment of user needs and requirements definition to project implementation, testing and acceptance. In addition to radio, microwave, and paging experience, Chris has been project managing and overseeing aspects of FirstNet's State and Local Implementation Grant Program (SLIGP) requirements.

**Professional Experience**

- State of Missouri – Project manager (PM) for the Missouri Statewide Interoperability Network (MOSWIN) site analysis and coverage verification for additional sites. Direct oversight to multiple projects including MOWSIN testing, FirstNet SLIGP task support, and Statewide Communication Interoperability Plan (SCIP) updates. Previously led RFP development for statewide communications network and technical oversight for implementation support of P25 trunked radio system.
- Centre County, Pennsylvania – PM and technical support for public safety communications systems assessment and planning, contract negotiations, site acquisition and implementation for a P25 trunked radio system. Project manager for new 9-1-1 dispatch renovations for technology integration and cable plant design.
- Wake County, North Carolina – Program management and technical support for radio system assessment and procurement.
- State of Wisconsin – PM and technical support for conceptual design and assessment; RFP development for statewide network Wisconsin Interoperable System for Communications (WISCOM); Lead consultant for implementation support; Technical support and program manager for local county assessment projects to join WISCOM and subscriber certification for operation on WISCOM.
- FirstEnergy, West Virginia – Conducted existing P25 trunking system contractual document analysis, coverage analysis and drive testing.
- Franklin County, North Carolina – PM and technical support for RF propagation analysis, RFP development for simulcast P25 trunked radio system; Lead consultant and PM for implementation and oversight.
- Senior Technical Leader/RF Consultant
  - Responsible for needs assessment and requirements definition, analog/digital system designs including coverage analysis, microwave path design, specifications, project implementation, testing and acceptance.
  - Assessed existing public safety radio, microwave, data and paging systems, developed an understanding of user needs and requirements, and incorporated into a conceptual system design and recommendation.
  - Developed functional and performance-based specifications in Request for Proposals.
  - Assisted in implementation of systems and participated in development and execution of vendor test plans.

**Specialized Training and Experience**

- Cisco Systems, Inc., CCNA Training
- Microwave Transmission with Digital Applications
- Network Management; Radio Operations and Maintenance
- Radio Frequency Interference Training; (MPE) Application Training

**Education**

Bachelor of Science, Electrical Engineering, Pennsylvania State University, University Park, PA

**Certifications**

- Emergency Number Professional (ENP)
- Engineer in Training (EIT)

**Affiliations**

- Association of Public-Safety Communications Officials (APCO)
- Institute of Electrical and Electronics Engineers (IEEE)



## **Robert Arney**

*Technology Specialist*

Robert is a Technology Specialist with Mission Critical Partners, Inc. Robert has over 42 years of experience in the electronics industry providing assessments to a broad variety of communications systems equipment including county 911 centers, trunked and conventional two-way radio systems, EAS (Emergency Alert System) equipment, microwave/fiber systems, electrical and emergency power as well as site and system grounding.

### **Professional Experience**

- Wake County, North Carolina – Technical support for radio system assessment with site/equipment analysis and microwave/console specifications for procurement.
- Federal Emergency Management Agency/ Department of Homeland Security (FEMA/DHS) Chemical Stockpile Emergency Preparedness Program (CSEPP) emergency communications, warning, and alert systems – Madison County, Kentucky
  - Developed a Request for Proposal to procure a new dispatch console system
  - Developed a Request for Proposal for new RACES amateur radio equipment, with a fiber network interface
  - Oversight of SR-10A upgrade of its Harris P-25 System
- Perry County, Pennsylvania – Technical support for public safety communications systems assessment and planning, site acquisition for a P25 trunked radio system.
- Huntingdon County, Pennsylvania – Technical support for public safety communications systems assessment
  - Provided proposal strategies and pricing for field service activities.
  - Developed county maintenance contracts, pricing and identify maintenance responsibilities.
  - Project Manager of a \$33 million 800 MHz county radio project. Provided project management and installation oversight of the 800 MHz trunked radio system as well as assisted in the design and acceptance of the DS3 microwave system.
  - Provided technical support dedicated to the Pennsylvania State Police statewide radio system. Responsibilities included repairing and maintaining statewide system, spare equipment, training, system preventive maintenance and technical field assistance.

### **Related Experience**

- Managed technical personnel, coordinated subcontractors and assisted in system installation, testing, implementation and maintenance of a new countywide radio/microwave communications system.
- Managed technical personnel and assisted in the installation, testing and initiation of a single path digital microwave system.
- Managed installation and set-up of new countywide radio communications system. Project involved reconfiguration of pre-existing base station and microwave equipment and set-up, installation and extensive modification of new base and voting equipment. Coordinated transfer of existing communications center and establishment of the new communications center. Installation of new four-site digital microwave system.
- Managed the installation of a 60+ vehicle mobile data system including custom installation of mobile equipment. Modification installation and interface of base equipment for MDT system usage.
- Installation of 2 microwave systems in the Southeast Region to interface the regional PGC office with the PSP microwave system. This allowed the addition of base four base station locations.
- Developed and utilized advanced electronic technical capabilities to provide service and maintenance to broad variety of communications systems equipment, including mobile and portable radios, fixed RF equipment, County 911 Systems, communication consoles and microwave systems.

### **Education**

Attended the United States Air Force Ground Radio Repair School

### **Certification**

- First t Class Federal Communications Commission Radio Telephone License/General Radio License



**James D. Agostinelli**  
*Technical Specialist*

Jim is a technical specialist with Mission Critical Partners. He is an accomplished industry technical specialist and consultant with over 25 years of experience in successful project management dedicated to public safety emergency radio communications systems and facilities. His background includes site acquisition, specifying, building and managing communications towers and site facilities; client surveys, needs analysis, RFP development and procurement, factory staging, deployment, coverage testing and acceptance. Jim is experienced in RF MPE measurement, site testing, coverage testing, ground system testing, and interference mitigation and in building DAS systems serving public safety radio communications systems.

**Professional Experience**

- State of Oklahoma – Performed statewide multi-county tower site, shelter, PSAP and EOC facilities surveys
- State of Missouri- Department of Public Safety and Missouri State Highway Patrol providing technical support in site assessments, construction, and testing with over 20 facilities in on-site inspections
- Memphis Police Department Law Enforcement – Lead technical evaluation for complete facilities and technology assessment for all radio system infrastructure
- Ontario County, New York – Lead technical resource for Law and Fire Communications Center relocation to a new facility including consoles, grounding, radio infrastructure and tower infrastructure. On-site technical oversight for consoles, grounding, and construction.

**Related Experience**

- Leveraging personal industry project experience to the benefit of clients on all phases of Public Safety emergency radio communications and commercial land mobile networks and facilities
- Participated in all phases of facility/tower design, site acquisition and tower deployment from Greenfield to commissioning
- Ushered application process and attended local jurisdictional forums, performed needs analysis, assisted in design, and site surveys, RFP and bidding documents, vendor selection, implementation, construction management, and cut-over for analog, P25 UHF, 700 and 800 MHz trunked radio and paging systems
- Monitored civil work, facility grounding systems, , tower, shelter and antenna installations
- Inspected grounding system for R56 and Harris 4618 standards compliance
- Prepared cost estimates, monitored upgrades and prepared communications site RFP's for tower, shelter, grounding, generator antenna system and alarms
- Ability to read and interpret drawings, schematic diagrams, operate and interpret data from spectrum analyzers, network analyzers, soil resistivity testing and various test equipment

**Education**

- MBA, Rochester Institute of Technology
- B.S. Business Administration, Rochester Institute of Technology

**Licenses**

- Federal Communications Commission (FCC) – Commercial General Class Radio/ Telephone / Radar Endorsement
- FAA Private Pilot – FCC Amateur Radio General Class

**Certifications and Affiliations**

- Motorola R56 Certified – Attended Jocelyn Lightning and Surge Suppression Seminar
- Loral / Narda Microwave – Non-Ionizing RF Radiation Safety Certification
- Andrew DAS In-Building Amplifier Design Certification
- Member of Motorola Dealer Advisory Committee – 3 years
- Participated in Emergency Number Professional (ENP) training course
- Member of Project Management Institute (PMI)
- Association of Public Safety Communications Officials (APCO)



## **Tim Hennemann**

*Technology Specialist*

Tim is a Technology Specialist for Mission Critical Partners, Inc. With over eight years of RF technical expertise, he brings hands-on experience with RF design with a specialty that includes utilizing RF propagation software to design networks that meet the defined performance specifications of the customer. Tim is a listener who possesses a keen awareness of the customer's needs. With an eye for detail, he accomplishes goals through persistence and hard work.

### **Professional Experience**

- Technology Specialist / Consultant
  - Utilized RF propagation software and prepared coverage prediction maps to both internal project team and the customer
  - Produced analysis and reports for microwave and LMR applications
  - Provided licensing services through the FCC Universal Licensing System and SpectrumWatch
  - Assigned to the Commonwealth of PA's statewide 800MHz digital voice and data network project
  - Provided MapInfo support to the internal and project management teams

### **Selected Project Experience**

- Wake County, North Carolina
  - Technical support for radio system assessment, design, and procurement
- Montgomery County, PA
  - Responsible for coverage maps for use in site selection
  - Responsible for final coverage design and site selection
- Lawrence County, PA
  - Conducted frequency search and interference contour studies as part of countywide licensing task
  - Development of master specification for a P25 radio system, microwave backhaul network, site civil work, and subscriber equipment
- Northumberland County, PA
  - Responsible for coverage maps for use in site selection
  - Responsible for site transition plan as part of P25 radio system deployment
- FirstEnergy Corp.
  - Provided coverage studies of existing system
  - Conducted coverage tuning based on drive test data
  - Provided coverage studies for candidate sites using tuned coverage model
- South Central Pennsylvania Regional Counter Terrorism Task Force (SCTF)
  - Responsible for the design of a multi-band (VHF, UHF, 700MHz and 800MHz) RF overlay and interoperability gateway network engineering study for the SCTF region
  - Responsible for the analysis, design, and system acceptance testing for an eight county, 20-hop microwave network for interconnecting the PSAPs and emergency management agencies
- Lancaster County, PA
  - Performed RF propagation, FCC license research and filings
  - Provided GIS support using MapInfo; conducted intermodulation studies
  - Responsible for the engineering and licensing for the narrow banding project for the county and municipalities/entities within the county
- State of Florida
  - Project work that included the creation of the network Statewide Law Enforcement Radio System

### **Expertise**

- |                  |                    |
|------------------|--------------------|
| • Comsite Pro    | • MapInfo          |
| • EDX Signal Pro | • ESRI             |
| • MATLAB         | • Microsoft Office |
| • RAPTR          | • TSB88 Standard   |

### **Education**

BS, Electrical Engineering, Iowa State University, 2001



## **Nicholas Falgiatore, PE, ENP**

*Technology Specialist*

Nick is a Technology Specialist for Mission Critical Partners, Inc. and is a licensed Professional Engineer. As a public safety radio and wireless specialist, Nick has served over 50 public safety clients ranging in size from small municipalities to state agencies. His experience encompasses all aspects associated with the implementation of public safety communications systems, including needs assessments, system procurements and implementation engineering support. This work has been applied to analyzing and designing VHF, UHF and 700/800 MHz conventional and trunked Public Safety land mobile radio systems. Nick has managed county and statewide projects and is knowledgeable of P25 Phase I and Phase II equipment vendor solutions. He is actively supporting numerous states through the SLIGP grant as they work toward the build out of FirstNet, the national public safety broadband network. His expertise also includes FCC licensing, propagation modeling, interoperability planning, data gathering, 800 MHz rebanding, system design, P25 subscriber certification, coverage testing, and site assessments.

### **Professional Experience**

- Technical Specialist
  - Recommend radio system technologies
  - Perform assessments of public safety radio systems
  - Develop conceptual trunked and conventional system designs and cost estimates
  - Perform propagation studies to model radio system coverage and interference
  - Develop radio system specifications, assess radio sites for compliance with industry standards
  - Develop system specifications and conduct competitive procurements
  - Provide engineering support through the implementation of radio and wireless systems
  - Develop and update strategic state and tactical interoperability plans, including SCIPs and TICPs
  - Support state-level FirstNet initiatives, including outreach and education data gathering
- Wireless Technology Specialist
  - Performed frequency coordination in the VHF, UHF, 700/800 MHz bands
  - Provided project management and analysis support for 800 MHz rebanding projects
  - Represented clients before the FCC and RPCs
  - Performed spectrum management services
  - Represented company at TIA/P25 standards development meetings
  - Developed MPE and Intermodulation studies for perspective tower sites

### **Project Experience**

- State of Missouri – Statewide P25 VHF trunking system implementation, FirstNet support, SCIP update
- Broward County, FL – Radio system needs assessment and procurement
- Lawrence County, PA – Radio system needs assessment, procurement, and implementation P25 Phase II system
- Tarrant County, TX – Radio systems interoperability assessment and procurement
- Northern Virginia Emergency Response System (National Capital Region) – ISSI assessment
- FirstEnergy Corp. – CDMA and EVDO coverage test plan development and execution
- Montgomery County, PA – Radio system needs assessment, procurement and implementation support for 30-site P25 Phase II system
- Franklin County, OH – 800 MHz P25 Request for Proposal (RFP) development
- Metropolitan Washington Airport Authority – Radio system needs assessment
- State of Wisconsin – P25 subscriber certification testing
- State of West Virginia – Rural broadband grant support
- Berks/ Bucks County, PA – 700 MHz licensing and engineering support; narrowbanding waiver development
- City of Clarksville, TN; State of Oklahoma; Howard County, MD – 800 MHz rebanding support

### **Education**

MS, Electrical Engineering, University of Central Florida, 2010

BS, Electrical Engineering, University of Central Florida, 2008

### **Licenses**

- Professional Engineer (PE), FL

### **Certifications**

- Emergency Number Professional (ENP)

### **Specialized Training & Experience**

- EDX, RFCad, ComStudy, MATLAB, ComSite Pro, C, C++



## D. EXPERIENCE

### RADIO AND WIRELESS QUALIFICATIONS

As a company at the forefront of public safety communications, Mission Critical Partners understands the role and importance of today's emergency communication systems for both voice and data. Our company's Radio and Wireless Practice team (RWP) applies hands-on experience with land mobile radio (LMR) systems including analog and digital P25, broadband data systems (LTE), and backhaul (microwave, fiber, etc.) to develop the solution that best fits the client's needs by planning, designing and integrating mission critical technology and operations into new communication systems. Our team is passionate about creating environments, processes and systems with our clients, enabling them to excel at their life safety mission.

This overview of our RWP team and the supporting project experience descriptions and references demonstrates our expertise (subject matter knowledge and relevant experience) with current public safety radio communications systems and technology, the most current industry trends and initiatives as set forth by organizations such as the Association of Public Safety Communications Officials (APCO), the National Public Safety Telecommunication Council (NPSTC), and dominant radio system manufacturers. MCP and our staff are intimately familiar with governing rules and regulations as issued by the FCC and other relevant agencies (Federal Aviation Administration (FAA), National Telecommunications and Information Administration (NTIA), etc.) and possess demonstrated subject matter expertise and hands-on experience.

MCP's in-house staff of consultants, engineers and SMEs collectively has worked on more than 325 projects involving Mission Critical RF systems and operations similar to this project for Chatham County. This experience and specific capabilities include all of the specific items listed ranging from dispatch console subsystems, P25 trunked radio, FCC licensing and spectrum pursuits, communications system facilities such as towers/shelters and environmental control equipment, to high capacity connectivity networks such as microwave and fiber.

MCP has amassed an extensive list of successfully completed large projects involving LMR communications in a mission critical and public safety environment. Projects and clients supported by MCP and our staff include virtually every aspect of radio and wireless networks:

- Operational and technical needs assessments supporting the development of user requirements, procurement and implementation of new public safety radio systems
- Interoperability planning and network development projects
- Spectrum acquisition and FCC licensing
- Propagation studies and RF system design
- Acceptance testing and validation
- Governance and cost-sharing of multi-jurisdictional systems



The depth and breadth of our team's project experience includes competencies such as:

- Public safety radio systems including analog, digital conventional and trunked voice radio systems and conventional and broadband wireless data systems. Extensive experience with voice logging recorders and wireless paging systems, including tone, voice and alpha-numeric.
- Development of public safety communications interoperability plans, both tactical and strategic, for clients that include local, regional and statewide applications.
- Design of network infrastructures, wireless technologies and hardware configurations providing redundant, reliable, high availability backhaul systems supporting public safety operations
- Development of communication facility sites (e.g. towers, shelters) including civil site work, zoning and land-use planning, site utilities, site construction and inspections and grounding and lightning protection
- Project management of multifaceted public safety communications projects involving new/upgraded technology and assessing and assisting in the redefinition of standard operating procedures (SOPs) and processes associated with the management and operation of public safety services
- Development and administration of technology work plans, budgets, and status monitoring
- Development of performance specifications and system procurement support including proposal review and evaluation, and providing clients with defensible recommendations for technical and non-technical audiences
- Representing government clients in contract negotiations with public safety technology vendors
- Design and management of transition and cutover plans for public safety communications centers when moving facilities

Of particular note is the substantial experience MCP personnel have specific to trunked radio systems and P25 systems in particular. MCP personnel are very familiar with all major vendor offerings through direct work on projects, as well as participation at vendor consulting seminars. MCP staff members are currently working, or have previously worked, on projects such as Pueblo Colorado Army Chemical Depot's design, acquisition and implementation of a Motorola P25-compliant trunked system, York County, Pennsylvania and their implementation of a Harris P25 trunked simulcast system, and FirstEnergy and their implementation of a Raytheon/Tait regional P25 trunked system.

Current MCP staff members have direct relevant experience in the assessment of older proprietary trunked systems and development of recommendations and acquisition strategies for replacement with a P25 compliant platform. Projects involving the assessment of these older technology platforms that MCP or our current staff have supported include Centre County, Pennsylvania, with upgrade and implementation of their Motorola SmartNet system; and Montgomery County, Pennsylvania, with the upgrade to a P25 Phase II countywide system from their older SmartNet platform.

Mission Critical Partners is actively supporting projects involving the latest contemporary and emerging mission critical technologies, including experience with radio systems infrastructure and subscriber hardware. Our team provides the capabilities to complete designs for radio communications systems, perform radio propagation studies, complete frequency plans with associated FCC filings, design and procure microwave backhaul networks, and identify requirements for voice logging interfaces. We possess the in-house expertise needed to identify available frequencies, secure approval from Regional



Planning Committees, prepare FCC 601 forms, prepare interference studies, and oversee the successful frequency coordination and FCC processing.

To demonstrate our knowledge in the trends and directions of public safety radio networks, automated systems, facilities and operations, MCP is actively supporting public safety clients across the country with the implementation of the latest public safety technologies, including supporting facilities and operational components. Many MCP staff members regularly prepare, submit, and present educational break-out sessions for NENA and APCO national, regional, and state-based conferences. The following table provides a brief description of educational sessions and organizations that MCP staff have presented over the last two years.

**Table 1 – MCP Staff Educational Sessions**

Association / Organization	Topic
International Wireless Communications Expo (IWCE)	Cellular Interference to Land Mobile Radios – Case Study
IWCE	800 MHz Post Rebanding Interference Workshop
APCO / NENA	Goldilocks’ and the Three I’s – Information, Interoperability, and Incidents
APCO / NENA	Figuring Out FirstNet
North Carolina PSAPs	NC Grant Writing Seminar
PEMA	911 Grant Program Overview
Region 13, Pennsylvania	ESInet 101
Region 13, Pennsylvania	ESInet 102
Penn State University, Information Technology	The Face of Cyber Security in the Public Sector
Environmental Services Research Incorporated (ESRI)	How GIS Will Save the NG9-1-1 World
IWCE	Public Safety Application Development
APCO	Public Safety 101
APCO Emerging Technologies Forum	NG9-1-1 Solutions, Planning and Options
APCO / NENA	NG9-1-1 Operational Impacts – Separating Facts from Fiction
APCO / NENA	Shared Resources – Economies of Scale
APCO / NENA	Operational Issues and Planning for NG9-1-1 NENA
APCO / NENA	GIS - The Core Database in NG9-1-1 – Great Expectation
APCO / NENA	Hackers, Malware & Viruses – Rethinking Security in an NG9-1-1 World
APCO / NENA	Getting Ready for Text to 9-1-1
APCO / NENA	NG9-1-1 Data Needs – A High Level Overview
APCO / NENA	Virtual PSAP Consolidation – Brick and Mortar Not Required
APCO / NENA	Making NG9-1-1 Understandable



Association / Organization	Topic
NENA	Databases in NG9-1-1 – What You Need to Know
NENA	ENP Study Group (Also bi-annually offered to clients by MCP)
NENA	Operational Impacts of NG9-1-1 Additional Data
NENA	Advanced Automatic Crash Notification – California Roadmap
NENA	SOP Development (course)
NENA	Next Generation Employees

### 700/800 MHZ P25 TRUNKED SYSTEMS EXPERIENCE

Mission Critical Partners personnel are well versed in the procurement, implementation, and testing of 700/800 MHz P25 trunking systems. An overwhelming majority of our radio projects include the procurement and implementation of P25 systems. Our team regularly attends trade shows and consultant seminars to remain up-to-date with the latest P25 offerings and technologies. We frequently participate in the TIA TR8 taskgroup which is responsible for developing the P25 standards.

As evidence of our P25 experience, Table 1 below summarizes the 700/800 MHz P25 projects we are supporting and all include project management and technical support.

**Table 2 – P25 Projects**

Client Name	Description
Broward County, FL	Will procure new countywide P25 Phase 1 or 2 700/800 MHz system
Centre County, PA	Supported procurement and implementation of countywide P25 Phase 1 800 MHz system
Gloucester County, NJ	Procured P25 Phase 2 700 MHz system and will be fully operational in early 2016
Wake County, NC	Will procure and implement new countywide P25 Phase 1 or 2 700/800 MHz system
Montgomery County, PA	Supporting implementation of countywide P25 Phase 1 and Phase 2 700/800 MHz system
City of Memphis/Shelby County, TN	Will procure new countywide P25 Phase 1 or 2 700/800 MHz system
Horry County, SC	Will procure and implement new countywide P25 Phase 1 or 2 700/800 MHz system
Armstrong County, PA	Procured and implemented new P25 Phase 1 800 MHz system
Butler County, PA	Will procure and implement new countywide P25 Phase 1 or 2 700/800 MHz system
City of Terrell, TX	Procured and implemented new P25 Phase 1 700 MHz system



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Client Name	Description
Franklin County, OH	Developed specifications for new countywide 800 MHz system
Pueblo County, CO	Procured and implemented new countywide 800 MHz P25 Phase 1 system

Mission Critical Partners staff have experience working with Homeland Security Grant Programs, including Assistance to Firefighter Grant Programs (AFG), and **North Carolina 9-1-1 State Board Grant Program**. MCP subject matter experts have provided technical assistance to several counties in seeking grant funding for various communications related projects. This work includes supporting a Regional AFG grant to provide infrastructure and subscriber equipment for new countywide radio systems in both Lawrence and Centre counties in PA. **In addition, MCP staff have assisted several North Carolina counties in applying for funds to support their 9-1-1 and were successful in acquiring over \$40 Million in grant funding from the 9-1-1 State Board.**

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## E. STATEMENT OF OBJECTIVITY

Mission Critical Partners and our staff are committed to supporting our clients in a **vendor neutral** environment. MCP takes pride in our proven track record of vendor independence. We have no ties or relationships with any vendor and have no vendor alliances, allowing us to truly serve as an advocate for Orange County, seeking the best solution(s) for you to meet your communications system requirements. Similarly, MCP’s staff understands and supports this vendor neutral position as a key foundation of bringing our clients the best, unbiased advice and recommendations—driven only by an understanding of your needs.

The proof of MCP and our staff’s vendor independence and successful track record of competitive procurements is best reflected in the mix of vendor awards and projects our staff has been involved with while here at MCP, and during their tenure at other firms. The following table illustrates some of the specific project experience of our staff and demonstrates the wide range of vendors our staff has engaged with and that have earned our clients business on each specific project.

**Table 3 – Staff Project Experience – Vendor Neutrality Illustration**

Staff Member(s)	Project	Vendor(s)
Sean Petty Tim Hennemann Nick Falgiatore Bill Waugaman	Gloucester County, NJ – Assessment, procurement and implementation of user needs, and development of recommendations for conceptual design, approach and frequency band for new countywide P25 Phase 2 trunked system	Motorola / Microwave Networks
Bill Waugaman Tim Hennemann Nick Falgiatore	Lawrence County, PA – Assessment of user needs, and development of recommendations for conceptual design, approach and frequency band for new countywide P25 Phase 2 trunked system	Motorola / Microwave Networks
Brian Malinich Chris Kelly Nick Falgiatore John Cunnington Jim Agostinelli	DHS/FEMA – Chemical Stockpile Emergency Preparedness Program (CSEPP) – Interoperable radio communications projects in ten counties in Kentucky, Colorado and Utah. P25 Phase 1 systems	Vendors for the various projects and systems in the different CSEPP regions included Motorola, Harris, and Tait
Bill Waugaman Richard Gaston	City of Terrell, TX – Assessment, procurement and implementation of a P25 Phase 1 radio system	Motorola
Nick Falgiatore Chris Kelly William Rudoff	First Energy – VHF P25 Phase 1 Regional Trunked System – design validation, and implementation oversight	Raytheon / Kenwood
Nick Falgiatore Chris Kelly Kevin McGearry William Rudoff	State of Missouri – Validation of concept, procurement and implementation support of P25 Phase 1 VHF/700 Trunked Statewide Radio System	Motorola / AT&T
Sean Petty Kevin McGearry Jim Agostinelli	Southeastern PA Regional Task Force – Regional interoperability network and microwave connectivity	Harris / Alcatel-Lucent



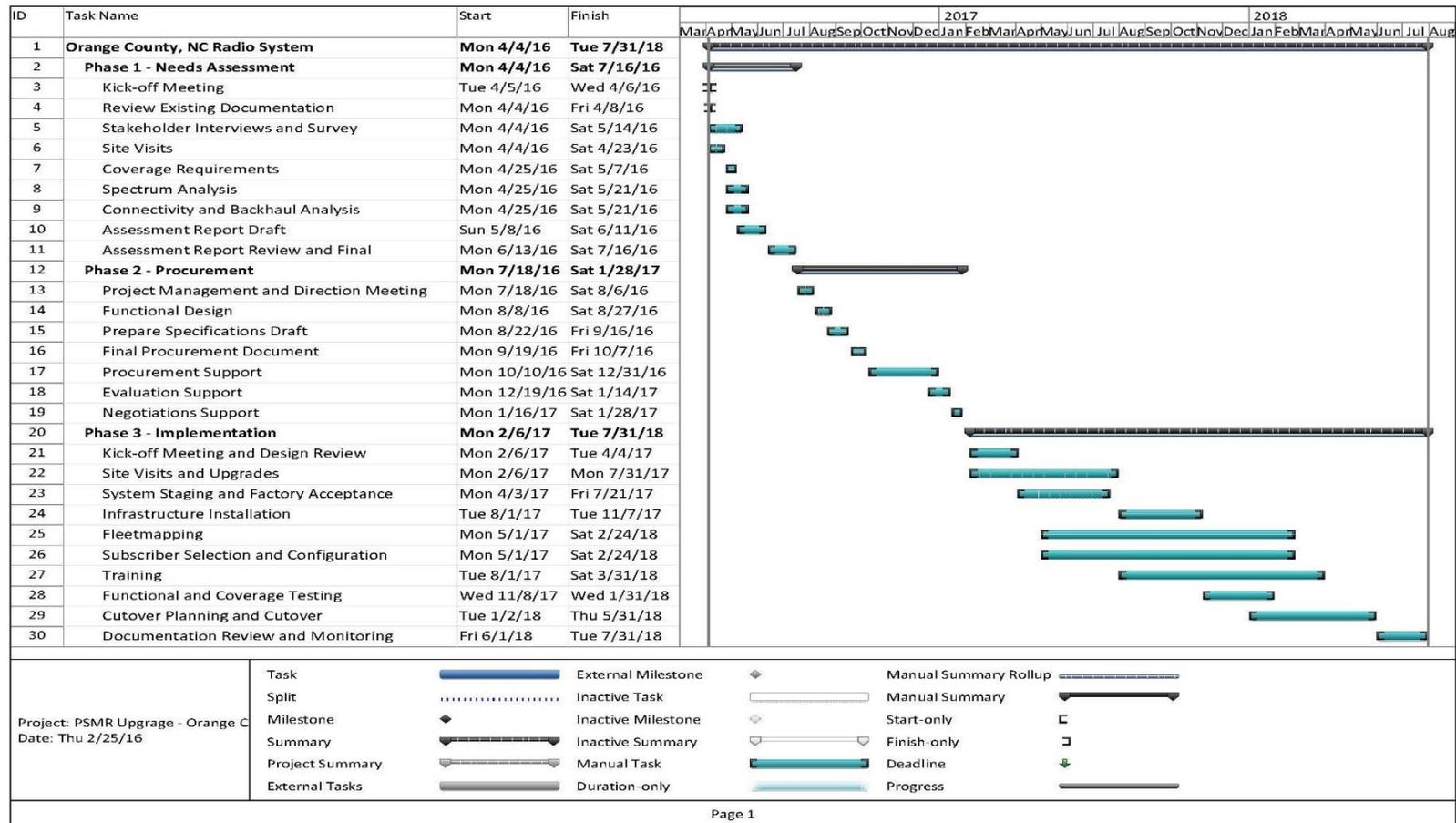
Staff Member(s)	Project	Vendor(s)
Chris Kelly Brian Malinich	Centre County, PA – Upgrade/replacement strategy for Motorola SmartNet simulcast system to P25 Phase 1, procurement and implementation support	Motorola / NEC
Brian Malinich	Madison County, KY – P25 800 MHz, Phase 1 trunked simulcast system upgrade	Harris
Chris Kelly Bill Waugaman Nick Falgiatore Kevin McGeary	State of Wisconsin – Validation of concept, procurement support and implementation support of P25 Phase 1 VHF statewide trunked system; subscriber certification testing for P25 compliance	EF Johnson
Nick Falgiatore	Alamo Area Council of Governments – Assessment and recommendations for expansion/sharing of Lower Colorado River Authority regional trunked system	Harris
Chris Kelly Nick Falgiatore Brian Malinich	Franklin County, NC – Needs assessment, recommendations, procurement and implementation support for new countywide P25 Phase 1 trunked system	Harris / Aviat
Bill Waugaman Nick Falgiatore	Municipal Public Safety Communications Consortium of Palm Beach County, FL – Design and implementation oversight, shared 800 MHz trunked system	Harris (OpenSky)
Tim Hennemann	Lancaster County, PA – Assessment and recommendations to procure a new countywide P25 Phase 1 trunked system	ARINC / Cassidian / Aviat
Bill Waugaman Chris Kelly Nick Falgiatore John Cunningham	York County, PA – User needs assessment, and development of conceptual design, approach and frequency band for new countywide P25 Phase 1 trunked system, procurement and implementation support	Harris / Alcatel

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## F. PROJECT SCHEDULE AND WORK PLAN

MCP has provided a detailed workplan in the Response to Technical Requirements – Scope of Work section in this proposal. Below is the schedule that corresponds to that detailed work plan.





## G. PROPOSER REFERENCES

Mission Critical Partners has worked on, or is currently working on, a number of County level engagements in North Carolina. Many of these projects include some elements of support related to radio systems and supporting subsystems such as dispatch consoles, interoperability planning, system consolidation, etc. This work is being performed as part of broader consulting and support MCP is providing related to radio console procurement, dispatch facility development and/or consolidation, NG9-1-1 development, and similar efforts. A summary level view of these other MCP projects in North Carolina is captured in the following chart.

North Carolina Client	Project	Client Contact
Wake County	Radio Communications Needs Assessment, Procurement and Implementation	John Higgins, CGCIO, Deputy Chief Information Officer, Wake County IS Department P.O. Box 550 Raleigh, NC 27602 919.664-5575 <a href="mailto:john.higgins@wakegov.com">john.higgins@wakegov.com</a>
Pasquotank County	Radio Communications Needs Assessment	Ronnie D. Barefoot, Technical Operations Manager Pasquotank County Sheriff's Office 200 E. Colonial Avenue Elizabeth City, NC 27909 252-338-3772 <a href="mailto:barefootr@co.pasquotank.nc.us">barefootr@co.pasquotank.nc.us</a>
Macon County	Radio Communications Needs Assessment	James Tate, Commissioner Macon County NC Government 104 E. Main Street Franklin, NC 28734 828-526-8953 / <a href="mailto:jamesptate@aol.com">jamesptate@aol.com</a>
Johnston County	VHF Countywide Paging System Consulting	Jason Barbour, 911 Director Department of Emergency 911 Communications Courthouse Basement Johnston County Courthouse Smithfield, NC 27577 919-989-5611 <a href="mailto:jason.barbour@johnstonnc.com">jason.barbour@johnstonnc.com</a>
Rockingham County	Program Manager for 9-1-1 Communications Consolidation / Facility Consulting Services	Reese Pyrtle Chairman of PSAP Governance Board 308 E. Stadium Drive Eden, NC 27288 336-623-9755 / <a href="mailto:Rpyrtle@edennc.us">Rpyrtle@edennc.us</a>

MCP provides the following project experience sheets as further evidence of our qualifications and experience in similar projects, as well as providing contact information for use as client references.

These detailed project sheets reflect projects specifically focused on upgrade or replacement of public safety radio systems, similar to the work proposed for Chatham County. MCP staff that supported such projects has also been identified. Each project reference includes contact information, a description of the project and cost information for budgeted and actual costs. Following the representative projects is a list of all North Carolina specific MCP clients, 700/800 megahertz (MHz) P25 trunked experience since 2008 and a list of projects with multiple manufacturers in a P25 implementation.



## H. REPRESENTATIVE PROJECT EXPERIENCE

- CLIENT:** Macon County, North Carolina
- SERVICES PROVIDED:** Radio Communications Needs Assessment
- CLIENT CONTACT:** James Tate, Commissioner  
Macon County NC Government  
828-526-8953  
jamesptate@aol.com
- PROJECT DATES:** September 2013 to March 2014



**CHALLENGE:** As one of the fastest-growing counties in the Nantahala National Forest region of North Carolina, Macon County (County) strives to serve its citizens, vibrant business community, and visitors with the most up-to-date resources available. Committed to constant improvement, the County is continually seeking ways to improve the quality of life for its community. One such improvement was the County's lacking communications system. The need to assess the communications system was recognized in response to frequent user complaints regarding the coverage and capabilities that the existing system provided. The County contracted with Mission Critical Partners, Inc. (MCP) to assess its existing conventional analog communications system and determine the best approach for improving communications within the county.

**SOLUTION:** MCP's assessment focused on establishing both a technical and operational baseline for the existing communications system. The technical baseline is objective and establishes what equipment is in place today. To complete the technical baseline, MCP interviewed Macon County technical staff, surveyed radio sites, reviewed Federal Communications Commission (FCC) licenses, and performed radio system coverage studies. The operational baseline is subjective and establishes the perspective of first responders to the existing communications system. To complete the operational baseline, MCP conducted focus group sessions with police, fire and emergency medical services (EMS) first responders. A web survey was conducted to facilitate additional input from any interested system user within the county. MCP's high-level analysis and data collection included a coverage, backhaul, site, and interoperability analysis.

**KEY RESULT:** Macon County was presented with a Radio Systems Needs Assessment report that identified the underlying limitation of the County's communications system and provided next step recommendations for improved radio communications. The report included cost estimates for multiple options ranging from \$2.1M to \$8.0M. MCP understands the challenges faced by the County and what must be accomplished to provide a long-term communications solution that will satisfy the needs of first responders, and is prepared to work closely with County officials on its next steps. The County has not approved funding to move forward to date.

**CLIENT:** Centre County, Pennsylvania

**SERVICES PROVIDED:** Radio System Upgrade

**CLIENT CONTACT:** Dale Neff, 9-1-1 Director  
814-355-6800  
dineff@centrecountypa.gov



**PROJECT DATES:** January 2012 to February 2015

**CHALLENGE:** Centre County, in late 2007, contracted consulting services for a complete study relating to the options of upgrading the County's aging radio system. During the course of the contracted consulting services an unsolicited radio vendor proposal for a radio system design, implementation and turnkey finance/leaseback was submitted to the County for their consideration. The proposed radio system alternatives and their associated cost estimate were in excess of the County's budget and making it difficult to proceed forward with implementation. The newly elected Board of Commissioners for Centre County wanted to see progress in obtaining the necessary upgrades and decided there was a need to update the radio system study and request information to ascertain new vendor cost projections.

**SOLUTION:** Mission Critical Partners, Inc. (MCP) was selected by the County as an objective, third-party consultant to update the radio system design, negotiate with vendors and work closely with stakeholders to meet solution expectations that were in line with the County's budget. This multiple step process began with the definition of a strategy for the implementation phase. The following tasks were identified:

- Site visits for Audits (Towers)
- Updating Radio System Requirements
- Preparation of a System SOW
- Meetings with Key Stakeholders
- Management of County Contracted Vendors
- Development of a Radio System Budget/Schedule for Phase II
- Management of Integration with Pennsylvania State University Public Safety Dispatch
- Project Management and Technical Support for Implementation
- Testing and Validation

MCP performed services that included system design, preparation of specifications, bidding, assistance with awards, negotiation of contracts, site acquisition and system build out. MCP team members supplied direct project support to the County for all facets of the implementation project.

**In addition, the Centre County radio system upgrade project required MCP to manage the integration of the Pennsylvania State University (Penn State) Public Safety dispatch into the Centre County 9-1-1 PSAP.**

Integration of the systems and services included: new trunked radio system consoles; a separate radio cell for university campus coverage and capacity; upgrades to site infrastructure; modifications to standard operating procedures; revised fleet map to accept the new capabilities; and training for the upgraded systems.

**KEY RESULT:** Using MCP's research and project management processes, valuable information was gathered and used to prepare detailed, relevant, and thoughtful system requirements, statement of work, a modified radio design and budget. Users transitioned to the new system in early 2014 after successful coverage testing and validation. MCP helped the County save on costs from the original \$24M estimate to \$18M by splitting the procurements into separate components and strong negotiations.

**CLIENT:** Armstrong County, Pennsylvania

**SERVICES PROVIDED:** Executive Consulting and Master Planning  
Interoperable Regional Radio Systems  
Emergency Operations Center Oversight  
Migration Plan

**CLIENT CONTACT:** Randall J. Brozenick, Director of Public Safety  
724-548-3430; rjbrozenick@co.armstrong.pa.us

**PROJECT DATES:** May 2010 to September 2013



**CHALLENGE:** Armstrong County, located in southwestern Pennsylvania, took the initiative to upgrade three significant components of its county-wide emergency and non-emergency communications system. The upgrade included:

- Working in partnership with adjoining Indiana County to secure federal funding for and provide broadband capabilities throughout rural communities in both counties
- Replacement of an aging public safety VHF radio system with a P25-compliant digital radio system that meets Federal Communications Commission (FCC) narrowbanding requirements
- Designing and constructing a new county Emergency Operations Center (EOC) and Public Safety Answering Point (PSAP)

*“We have been with Mission Critical Partners from their inception and I can say they have put together a truly professional and qualified team. MCP works side by side with us in accomplishing our goals. They truly are our partner in this major public safety initiative.”*  
—Randall J Brozenick, Director of Public

**SOLUTION:** The County selected Mission Critical Partners, Inc. (MCP) to serve as Program Manager of this multi-faceted public safety capital improvement project. As its first step, MCP developed a research-based approach which considered the project’s purpose, scope, cost and schedule in relation to the County’s communication mission. This approach guided the MCP team as it managed the process of combining the three projects into one comprehensive solution. This solution included:

- A multi-county public-private partnership that would bring broadband capabilities to rural underserved areas. Armstrong County leveraged the broadband network by using it for all levels of connectivity for public safety radio, county telephony and data transport.
- A 14-site P25 800 MHz radio system that was developed by leveraging a fully interoperable Inter-County Regional Radio System (ICORRS), master switch in adjacent Westmoreland County for multi-county interoperable communications capability and 95/95 portable coverage.
- An EOC project programmed by MCP in coordination with SCHRADERGROUP architecture, LLC.

As part of its project oversight responsibilities, MCP developed capital and operating budgets for the project. The original radio system budget was \$7.7M and remained the same throughout the implementation. In addition, MCP managed the scope of various vendors, professional service providers and contractors on behalf of the County, as well as system implementation, commissioning and decommissioning.

**KEY RESULT:** Armstrong County Department of Public Safety and E911 opened its new 5,000 square foot EOC and PSAP in March 2013. The upgrade to a multi-county, P25 compliant digital trunked radio system went “live” in June 2013. The digital trunked radio sites connected by the completed in-county fiber optic network was completed in September 2013.



**CLIENT:** Pueblo County, Colorado / FEMA / CSEPP

**SERVICES PROVIDED:** Radio System Upgrade

**CLIENT CONTACT:** Mark Mears, Bureau Chief  
Emergency Services Bureau Director  
Pueblo County, Colorado  
320 W. 10<sup>th</sup> Street, B1  
Pueblo, CO 81003  
719-583-6201  
Mears@co.pueblo.co.us



**PROJECT DATES:** May 2012 to August 2015

**CHALLENGE:** Pueblo County (County) requested assistance from the Federal Emergency Management Agency (FEMA) through the Chemical Emergency Stockpile Emergency Preparedness Program (CSEPP) to upgrade their radio system. The system was nearing capacity and relied on a network connection to the Denver zone controller, over 100 miles away, via the longest and oldest microwave connection in the network. This equipment was at end-of-life and was no longer supported by the manufacturer. This system was a single point of failure, leaving Pueblo County with no mission critical communications on multiple occasions.

**SOLUTION:** Mission Critical Partners, Inc. served as the technical lead for the project, providing oversight of the design process, as well as the procurement and installation of the radio system. Specific tasks performed by MCP include:

- Documentation of technical requirements
- Development of system design options for consideration
- Preparation of detailed procurement specifications
- Project management and technical support
- Implementation and cutover
- Testing and acceptance

MCP worked closely with stakeholders to ensure the new system would meet their needs and expectations. MCP team members supplied direct project support to the County for all facets of the implementation project.

**KEY RESULT:** Using MCP's research and project management processes, valuable information was gathered and used to prepare detailed, relevant, and thoughtful system requirements, statement of work, design and budget. The new design for the Motorola 800 MHz P25 phase 1 system significantly improved radio communications by enabling the County to remain on the statewide digital trunked radio (DTR) system, while creating a local system Pueblo County can still operate on if connectivity to the rest of the state is compromised, providing a very high degree of reliable/redundant communications. This allows the local 'core' to act as a stand-alone radio network and eliminates the dependency on the microwave links to the state 'core' in Denver.

Additional capacity was added in order to provide seamless interoperability and cross-discipline communications. The system can support the movement of large groups of people via evacuation routes and those gathered in single locations such as shelters, in case of a chemical incident. The new system also provides expanded coverage in key populated areas of the County. Users transitioned to the new system in early 2015 after successful coverage testing and validation. From the original \$12M budget the actual cost came in at \$10M including subscribers.



**CLIENT:** Lawrence County, Pennsylvania

**SERVICES PROVIDED:** Migration to a Countywide Unified P-25 Radio Communications System

**CLIENT CONTACT:** Brian Melcer, Director  
Lawrence County Dept. of Public Safety  
724-202-7101  
bmelcer@co.lawrence.pa.us

**PROJECT DATES:** February 2013 to Present



**CHALLENGE:** Lawrence County Public Safety recognized the need to improve the county-wide communications system in response to frequent user complaints regarding coverage and capabilities that the existing system provides. These problems were further exacerbated following the federally mandated narrowbanding upgrade which resulted in reduced coverage for county first responders.



**SOLUTION:** Mission Critical Partners, Inc. (MCP) was retained to assess the County's existing VHF conventional analog communications system and determine the best approach for improving communications within the county, which is culminating in a four-phase approach.

In early 2013, MCP conducted and presented the findings of a radio system needs assessment to Lawrence County that highlighted the limitations of the existing communications system. The assessment report recommended and County officials subsequently agreed that a VHF P25 trunking system is the optimal technology that will solve the limitations within the existing system, reduce the system costs compared to options in other frequency bands and provide the County a flexible standards-based architecture that will limit the need for future upgrades.

In early 2013, MCP conducted and presented the findings of a radio system needs assessment to Lawrence County that highlighted the limitations of the existing communications system. The assessment report recommended and County officials subsequently agreed that a VHF P25 trunking system is the optimal technology that will solve the limitations within the existing system, reduce the system costs compared to options in other frequency bands and provide the County a flexible standards-based architecture that will limit the need for future upgrades.

Mid-year 2013, MCP began implementation of Phase II towards the migration of a VHF P25 Trunking System for Lawrence County. Working with County representatives, MCP is providing consulting services related to design and procurement, change and construction management and final system acceptance.

**KEY RESULT:** The Lawrence County communications system is scheduled for completion in 2015. This radio system communication technology will provide ubiquitous countywide coverage, greatly improved reliability and ensure the County with a long-term system platform that will continue to meet the needs of first responders for years to come. The original budget was set for \$10M and is currently on track for slightly under budget at \$9.4M.



## RESPONSE TO TECHNICAL REQUIREMENTS – SCOPE OF WORK

### PHASE 1 – INFRASTRUCTURE AND NEEDS ASSESSMENT, FEASIBILITY, ANALYSIS, ALTERNATIVES ANALYSIS, CONCEPTUAL DESIGN, AND COST ANALYSIS

During this phase of the project, Mission Critical Partners' experts will fully familiarize themselves with existing architecture, equipment, sites, etc. of the various disparate radio systems in use within Orange County. We will assess the current infrastructure, identify and document user needs, then use this information as part of the Phase 2 analysis to ensure the new systems meet the needs of the users. Our emphasis with this approach is to capture the combination of both the operational and the technical requirements for the system. MCP fully understands the County's desire to be inclusive and comprehensive in engaging and capturing the needs of all potential users. It is our understanding that these participants will include but may not be limited to:

Current VIPER System users:

- Law Enforcement – Orange County Sheriffs Department, Chapel Hill Police, Carrboro Police, Hillsborough Police
- EMS – Orange County EMS, South Orange Rescue Squad
- Fire Departments – Municipal – Chapel Hill Fire, Carrboro Fire, Hillsborough Fire
- Volunteer/Mixed – Efland Fire, Eno Fire, New Hope Fire, Orange Grove Fire, Cedar Grove Fire, Caldwell Fire, White Cross Fire, Mebane Fire, North Chatham Fire

Additional users to be considered with a new system:

- Orange County Animal Control
- Orange County Solid Waste
- Orange County Transit
- Orange County Asset Management
- Town of Chapel Hill
- Town of Carrboro
- Town of Hillsborough departments
- Orange Water and Sewer Authority (OWASA)

Consideration will also be given to the County's efforts to implement a back-up dispatch plan with Alamance County and the requirements for interoperability and interaction with UNC Public Safety Dispatch.

For the operational baseline, our staff will conduct interviews with these departments and system users in order to listen to the user groups, identify and understand the ongoing needs of each user department. The results of these interviews will be used to create a performance baseline of existing needs and a compilation of the requirements for the future system that will serve all users. MCP proposes to conduct meetings to cover each of the primary user groups on the system and key interoperability partners. Where practical, MCP will leverage any standing meetings that the respective



disciplines already hold. MCP will assume responsibility for meeting scheduling and facilitation but will coordinate with the Orange County Review Team.

At MCP, our system planning philosophy is to learn the problems, needs and requirements of the user first, and then identify and recommend the best available technology and design to solve those problems and meet those needs. We understand that many users of a common system may have greatly distinct needs, and that operational requirements for voice and data vary greatly by discipline.

For the technical baseline, MCP will conduct a thorough review of the radio resources. This includes surveys of all dispatch sites, radio sites, and control equipment. Interviews will be conducted with the appropriate technical staff, including County personnel and applicable maintenance providers. Subscriber radio make, model, and quantities will be documented.

As a supplement to the on-site interviews and to provide the broadest opportunities for users to provide inputs on their needs and interests relative to the radio communications system upgrade, MCP will develop and host a web based user input tool. The questions and areas of input in this tool will parallel the questions and discussion topics addressed in the in-person interviews. MCP's database development experts will assist with creating the web based survey entry tools, and compiling the information received for analysis.

Use of an online web-based user input tool has several significant advantages:

- Faster more efficient data entry directly into the database
- Re-keying errors and costs are eliminated since the information is only entered once, as it is gathered
- Status of the information gathered for the needs assessment is constantly visible throughout the process, making it easy to track progress and identify information that requires follow-up or completion
- Drop down selection boxes and pre-defined selections can be used to insure data entries are consistent even when they are being made by multiple field personnel
- Multiple users can be online simultaneously collecting information at different locations or on the different systems

Access to the survey will be by invitation only, based on contacts provided by the County. Each contact or recipient will be provided a unique log-in ID in order to assure one input per person, and to provide security for the survey web site.

The web-based user input tool will be operational for approximately 30 days, during the same timeframe the in-person focus group interviews and information gathering is taking place.

Once we achieve a thorough understanding of the operational and functional needs of your users, and perform a technical assessment of existing resources and systems which may be reused in a new system(s), MCP will develop an analysis and recommendations that will include end of life estimates for the current system, potential timelines and impacts for implementation, identify recommended enhances to the existing system based on the County's requirements, and identify alternatives.



MCP will present the findings with details as to the operational and technical upgrades which will enable the new system to meet the needs of the user community. MCP will incorporate the County's feedback and comments into a final written report, documenting in detail the process, findings, and recommendations for the new or upgraded radio system and supporting subsystems.

The following identifies the specific tasks and logical progression MCP will perform, leading to successful completion of the Needs Assessment and alternatives recommendations, addressing each of the Phase 1 elements identified by the County.

### **1. Project Kick-off Meeting**

MCP will conduct a project kick-off meeting with County's Project Manager and representatives. Our Project Manager and staff will meet with the County's project team and key stakeholders to establish mutual acquaintance, clarify roles, and reach a mutual understanding of the future vision and plans for the communications system. Prior to the meeting, MCP staff will thoroughly review any available documentation or material from previous relevant work on the project. MCP's Project Manager will facilitate the meeting and will:

- Review project and task milestones, schedules and deliverables
- Review project budget
- Schedule interviews with user and stakeholder representatives
- Schedule progress review meetings
- Collect existing material (such as reports, as-built info, FCC documents and licenses, usage reports, surveys, etc.) and discuss any other available information on each of the current systems/subsystems

A step-by-step review of the content and outline of the assessment report and other deliverables for this phase of the project will be conducted during the project kick-off meeting. Any updates or changes from the initial outline will be documented for mutual agreement, and to assure that all expectations of County are addressed in the report.

### **2. Review Existing Documentation**

MCP staff will review all available documentation for the current system, including, but not limited to surveys, letters, contracts, as-built documentation, FCC licenses, structural studies, etc. Additionally, we will interview existing technical staff and/or maintenance provider. This review will further allow our staff to become completely familiar with the existing system to establish an appropriate baseline.

### **3. Stakeholder Interviews**

Following the kick-off meeting, MCP will conduct interviews with representatives in focus groups who best represent each system user and can best articulate their communications needs and requirements of these user groups. Additional meetings may be required for a broader range of feedback to gain a full understanding of current issues, problem areas and unmet needs from the existing systems. Prior to the stakeholder interviews, interviews will be conducted with County technical staff and system managers to gain familiarity with current system operation and gain greater clarity as to concerns noted by system users.



MCP anticipates that discussions will be held with representatives from County public safety agencies such as County Law Enforcement, Fire, EMS, Emergency Operations, public service departments, any other external agencies who utilize the system, and mutual aid agencies who must have communications interoperability.

The discussions are designed to capture an understanding of the following:

- System concerns: technological or operational limits perceived by users in the function of the system or other factors which affect agency communications
- Locations where individuals perceive radio reception as limited or unavailable
- New system operation, features and equipment requirements/desires, such as:
  - System Coverage, including in-building and critical venue coverage (Schools, Hospitals, Fire Departments, etc.)
  - System Capacity and talk paths needed by each user
  - Field unit (mobile, portable and pagers) quality level, features and accessories
  - Encryption and data security
  - Mobile Data usage or need (text, images, video)
  - System management requirements and capabilities
  - Security of communications
  - Interoperability requirements and issues between County agencies and with other local or surrounding county jurisdictions, state, federal, and adjacent state systems

Conducting stakeholder interviews will help assess the current operating environment, identify operational challenges, system deficiencies, and capture pertinent data to be used in developing user requirements. The MCP team will meet with representative stakeholders individually and in groups over the course of a single visit which may occur over contiguous days, if required. These meetings take place at stakeholder locations within the County and involve comprehensive discussions to identify gaps and capture criteria for success from each person.

All findings and initial conclusions are documented and provided to the County for verification and revision to ensure we establish an accurate baseline. This list of requirements desired, required or preferred is representative of the typical data to be collected. MCP expects to finalize the data collection elements during project initiation.

#### **4. Site Surveys**

Communications sites are a critical component of any radio or wireless communications system. The location of sites has the greatest impact to the level of coverage a system provides. The construction and installation standards determine how resistant the site is to man-made and environmental conditions such as copper theft or lightning strikes. Backup power systems ensure the site continues to operate following a power outage.

Given the impact that radio frequency (RF) sites can have on your system's coverage and reliability, MCP will perform an evaluation of the County's existing communications sites and supporting facilities (e.g. tower, shelter & equipment rooms, power, etc.). Conducting these site assessments will allow MCP to survey existing radio equipment to gain a better understanding of the current configuration of



systems. Further, the assessments allow MCP to determine and document any inadequacies within the current radio sites, so that those deficiencies may be corrected in the future. MCP has multiple individuals in the company who are Motorola R56 certified and will utilize them to conduct the site surveys.

MCP will collect data about existing sites to document their current configuration and identify modifications which may be necessary to accommodate any recommendations for new site equipment. Areas of evaluation include:

- Cable and wiring management systems
- Power service and capacity
- Complement of power outlets and circuit breakers to accommodate potential site reconfiguration and additional equipment
- HVAC configuration and capacity
- Interior grounding systems
- Lightning and surge protection systems
- Security and fire detection systems
- Antenna systems
- Available space on the tower to support additional antennas
- Equipment installation and space
- Racks remaining in facility and available space
- Evaluate serviceability
- Grounding system documentation is reviewed and all shelters, equipment cabinets, fences and grounding systems are assessed to document they are properly connected to the ground, according to current industry standards

During the site visits and the coverage requirements analysis, MCP will look for co-location opportunities with other tower owners (public and private) when addressing coverage issues or in the event existing Chatham County tower sites must be relocated.

## **5. Coverage Requirements Analysis**

MCP will conduct user assessments for determining real world experience with the coverage currently provided. This will be accomplished by conducting focus group interview sessions, as well as developing a survey on our internal on-line survey tool which can be electronically distributed to appropriate operational and command personnel. The assessment will include both in-building and on-street coverage levels experienced by the users, as well as other operational elements of the system.

Radio propagation analysis and modeling is accomplished using EDX Signal Pro to develop coverage predictions for the existing system, and model conceptual scenarios for potential system design changes or upgraded configurations. MCP will gather radio site information from your technical staff and FCC licenses in order to accurately replicate coverage levels experienced by field users as determined above. Our team will also review any historical prediction documents that may be available.

Information garnered from the user interviews together with the coverage modeling will serve to establish a coverage baseline, which is necessary to fully understand the limits of the existing system.



Areas where coverage gaps are identified and confirmed by system representatives will be classified as required coverage areas. Further coverage modeling will be performed in order to develop conceptual system designs to ensure any recommended changes in the system configuration exceed the coverage provided by the existing system and provide improved coverage in those areas identified by first responders. Coverage maps will be provided in both talk-out and talkback for mobile, portable at street level, and portable in building.

**Coverage Workshop:**

***MCP can also provide a dynamic display of coverage through a coverage workshop with the County team in which we can illustrate changes to coverage with the use of our tool in real time. This allows the County to see the impacts on site location changes prior to static maps being generated for alternatives.***

**6. Spectrum Analysis**

Radio spectrum is a critical component of any wireless system. Radio spectrum is a limited resource, often influencing decisions regarding radio technologies because of the availability of suitable channels. Prior to any decisions being made regarding specific radio system technology or system architecture, a thorough review of radio spectrum must be completed to ensure there are sufficient channels to support any recommendations for system upgrade or enhancement.

MCP will review current FCC licenses and spectrum used by the County. Based on the currently planned system design, MCP will evaluate spectrum licensed to the County and determine if any additional channels or license modifications are necessary. If additional channels are necessary, MCP will recommend a strategy for obtaining additional channels.

**7. Connectivity and Backhaul Analysis**

MCP will conduct a physical assessment of the systems used to connect the RF sites, dispatch locations and other facilities to help determine the health of the connectivity portion of the backhaul network.

The backhaul network will be evaluated to determine the capability of the system to simultaneously accommodate the current circuit switched system backhaul, and the new internet protocol (IP)-based P25 system backhaul. Options to accommodate both technologies during system transition and cutover, as well as the final backhaul configuration will be evaluated, and recommendations presented.

If, through the course of the analysis, it is determined that the current backhaul network does not meet user requirements for redundancy and reliability, MCP will explore various options for improving backhaul connectivity.

**8. Assessment Report**

Based on all of the technical and operational requirements identified, MCP will identify those requirements that are critical for inclusion in the system design. MCP will then review available technical solutions that can satisfy mandatory requirements.



During the assessment it is likely features will be identified that would be nice to have, but not critical for system operation. Likewise, some features may be identified that are proprietary and could potentially limit competition.

The report will include the identified key topics:

- Summary of the technical analysis of the current systems hardware, software and supporting infrastructure
- Equipment inventory and condition
- Lifecycle and support issues
- Site and facility conditions and issues
- Subscriber equipment inventory and status
- Gap analysis identifying the currently unmet communications needs of the user community (voice, alerting, paging, SCADA and data)
- Summary of findings on available frequency spectrum
- Recommendations for prioritization to address the issues and gaps identified through these assessments
- Recommendations and alternatives for system/equipment upgrade or replacement needed to address the areas of concern
- Conceptual design and propagation studies at public safety standards identified by stakeholders and modifications necessary for a new system
- Encryption options and capabilities
- Interoperability with State of North Carolina and University of North Carolina entities, fire and EMS entities in adjoining territories that provide mutual aid and primary coverage
- For each identified recommendation or alternative, address:
  - Pros and cons of the solution
  - Areas impacted
  - Ease of migration
  - Frequency plan requirements
  - Budgetary cost estimates for implementation
- Next steps for implementation including:
  - Implementation and transition strategies
  - Budget and schedule
  - Procurement Options: County procures all infrastructure and subscribers; County procures infrastructure and users procure subscribers; County procures base infrastructure and subscribers and end users procure enhancements and upgrades

Once the analysis is performed against available technologies, MCP will identify those system options that best satisfy user requirements. Recommendations will be provided as to the specific technology and feature sets that MCP believes the County should implement.

These recommendations, along with supporting documentation for all of the data gathered in this phase, will be incorporated in a needs assessment report.



Phase 1 will be completed with MCP incorporating all collected and evaluated data into a comprehensive draft report. MCP will meet on-site with the Orange County Review Committee and designated stakeholders to review the report findings in order to narrow the options down to one accepted alternative that may include one system or a hybrid design as referenced in the RFP. MCP will document the feedback and inputs provided by the County and stakeholders for incorporation in a final written report. MCP will perform a detailed cost analysis of the selected alternative.

#### Project Meetings Anticipated for Phase I:

- Kick/off Mtg. and Stakeholder interviews/site inspections- On-Site one week
- Follow up data collection and supplementary interviews as needed-On Site
- Weekly project conference calls with County team
- On-Site alternatives presentation and direction meeting(s)

## **PHASE 2 – RFP PROCUREMENT SUPPORT SERVICES**

During this phase of the project, MCP will focus on the specific system design option identified in the assessment phase that the County wishes to pursue. MCP will prepare propagation studies, technical exhibits, and additional supporting information that will directly support the system implementation or will be incorporated into the system specifications. The tasks identified will be performed concurrently with the assessment to ensure completion in a timely manner to meet schedule requirements.

Based on this documented understanding of needs and priorities, MCP will develop a preliminary conceptual design approach for system upgrades or replacements that would address these needs. The potential design or alternate approaches that may be presented for improving radio communications will include analysis of the findings, and specific recommendations for the major systems/subsystems to be included in the overall countywide radio communications network.

Mission Critical Partners will provide detailed information supporting the recommendations and preliminary design in order to facilitate informed decisions by County on the best approach to conduct a phased upgrade of the system. MCP will provide the following information for the recommendations or any alternatives presented:

- Technology and summary of features and functions supported
- Coverage and capacity levels offered by each option
- Frequency band and the availability of frequencies in that band
- The estimated number and radio sites including potential new locations to improve coverage
- Coverage predictions for each option
- Backhaul connectivity requirements
- Paging requirements
- Ability of the approach to address the identified user requirements
- Impact of any recommended new design or upgrades on existing sites/facilities, subscriber units, and operations
- Projected cost for each including long-term maintenance and sustainment costs



The following tasks detail the step-by-step approach Mission Critical Partners has proposed to address the critical elements within the design phase.

### **1. Conduct Project Management and Direction Meeting**

Once the County decides to move forward with system procurement, MCP will host a meeting to align the overall team. This meeting will act similar to the project kick-off meeting but focus more on aligning the team with the direction forward and next steps. A thorough review will be done on the technology and frequency plan moving forward including any licensing that may have to take place. MCP will provide information to the County on experience between sole-source and RFP procurements. Regardless of procurement direction, detailed technical specifications should be used to capture the requirements of the new system.

Additional outcomes of the meeting will include any adjustments to the project moving forward and a definitive procurement schedule and plan to accomplish the tasks in this phase.

### **2. Functional System Design**

In order to properly evaluate the desired system option and incorporate the requirements into the specifications, MCP will prepare all supporting technical exhibits. The following list summarizes the exhibits that will be provided:

- Most appropriate current technologies
- Radio coverage requirements
- Requirements to achieve regional interoperability goals
- Radio channel/spectrum requirements
- Requirements for radio sites and equipment
- Equipment installation requirements
- Requirements for direct radio communications with the appropriate multi-user agencies (e.g. Police, Fire, Emergency, Administration, Schools)
- Required system performance, reliability and availability; and coverage
- Transition plan

This information will be utilized to assist the County regarding critical design considerations that must be considered, including site selection, shelter upgrades, and whether tower enhancements may be required. Further, some of these documents will be included within the specifications package in order to provide vendors a sufficient amount of information to respond with an informed proposal that does not require additional costs down the road for unanticipated site conditions.

### **3. Prepare Technical Specifications and Procurement Documents**

Working from the approved functional design, and the understanding of County's user requirements for functionality, performance and reliability, MCP will develop a detailed specifications document for the new public safety radio communications system. The specification developed will be functional and performance-based rather than a dictated specific system design approach. Thus, the document defines the functions that need to be supported, the services required, and the performance that must be achieved.



This approach enables vendors to propose commercially viable solutions with less cost and risk, as long as the specified requirements are met. The functional and performance requirements documented in the specifications will be sufficiently detailed to emphasize that clearly and thoroughly presented requirements are to be met.

MCP proposes developing specifications documents for the procurement of each of the identified major system components. We encourage the procurement process to be developed in a manner that supports the flexibility to purchase, manage and install individual systems and components that complement one another. Specifically, MCP anticipates developing a single RFP document that includes individual specifications and requirement packages for procurement of:

- Radio Infrastructure
- Console System
- Paging System
- Subscriber Radios
- Backhaul Connectivity
- Site and Civil Work (as required)

It is anticipated that vendors can propose on any and/or all of the respective major systems. The County, with support by MCP, can then review and determine the best value solutions offered by the various responses to each system. MCP has recognized opportunities for increased competition and significant cost savings through this process. For various combinations of vendors, MCP will document any potential loss of functionality to ensure that the County has ample information necessary to support a decision based on the value offered by each proposer. We note that this approach is designed to provide the County the greatest number of options possible. This does not preclude the County from awarding the contract to a single vendor for all components if that approach is desired by the County.

To any extent applicable, the functional design and specifications which are developed from the design phase includes standards based requirements. MCP draws from many types of established industry standards.

As part of the procurement documents, MCP will develop a milestone payment schedule, proposal submittal requirements, and evaluation criteria. MCP anticipates the RFP and specifications would include the following example areas:

- Introductory information for the proposer about the procurement process
- Overview of Proposal Scoring and Evaluation Process
- Contract and Administrative Specifics
- Technical/Performance Specifications
- Other Requirements
  - Project Management
  - Staging, Implementation and Acceptance Testing
  - Training programs and courses
  - Warranty and service/support capability requirements
  - Lifecycle – Total cost of ownership requirements



- Cost Proposals
  - Itemized Equipment Costs
  - Labor Costs and Rates
  - Training
  - Software Warranty Costs
  - Hardware Warranty Costs
  - Maintenance
  - 15-Year cost of ownership

MCP will work with the County’s purchasing and legal departments to incorporate County contractual terms and other boilerplate requirements to assure conformance of each RFP with applicable county and state procurement requirements.

A draft RFP will be provided for the County to review and validate. MCP will meet with the County to discuss and answer questions. Any changes will then be incorporated into a final RFP ready for release.

#### **4. RFP Support**

Once each final RFP is approved by the County for release, MCP will provide support and consultation during the procurement. During the procurement period, the MCP team will be responsible for the following aspects of the solicitation:

- Pre-proposal conferences – MCP will schedule and facilitate a pre-proposal conference for prospective vendors on the procurement. This conference includes an overview presentation of the desired solutions, and gives vendors an opportunity to tour sites and ask additional questions, if necessary
- Vendor tracking – MCP will maintain a list of all vendors requesting the procurement document to ensure that questions and addendums are issued uniformly and fairly
- Vendor questions – MCP will evaluate and respond to written questions from prospective vendors, after review of responses with the County
- Addendums – If it becomes necessary to issue any addenda, MCP will develop the written documents and distribute them to vendors of record
- Attend bid openings – MCP will attend the bid openings, supporting County staff in documenting the receipt of each vendor submittal in compliance with the required due date, time and submission completeness

#### **5. Evaluation Support**

Following the receipt of vendor proposals and closing of the procurement period, MCP and the County team will work collaboratively to objectively score each proposal according to the process described in the RFP. MCP will work diligently with procurement and legal personnel to guarantee that all applicable procurement rules, regulations, and laws are observed.

MCP anticipates post-bid meetings or presentations will be held with vendors identified from the initial scoring as offering the most advantageous or competitive designs to the County. MCP will facilitate these meetings, providing questions, if needed, for clarification of vendor offerings and evaluation of



any vendor responses or supplemental information. Based on the results of these meetings or interviews, the scoring matrix will be updated, if warranted, by responses or supplemental information provided. Should the County want short-list interviews, MCP will provide technical assistance during vendor interviews and address any concerns from committee members.

MCP will issue a written summary of the final scoring of proposals as well as a recommendation for consideration by the County.

#### **6. Assist with Negotiating a Contract with the Successful Vendor**

Depending on the results of the first round of vendor evaluations, MCP will work with vendors to revise designs for use during negotiations leading to a final contract with the selected vendor(s). The revised design evaluations can include:

- Detailed design meetings
- Additional negotiations and planning meeting with all or selected vendors
- Participation in vendor negotiation meetings
- Documentation of vendor communications, outcomes and negotiations to changes of original designs, costs, etc.

Once the vendor(s) are selected for award notification, MCP will assist the County in final negotiations and execution of contracts. MCP has many years of collective experience negotiating public safety radio systems. This experience has led to an exhaustive database of similar procurements and their resulting costs, as well as costs for individual components of the networks. By using this database of nationwide pricing, MCP can support negotiations with vendors to not only achieve a system design which fulfills your performance requirements, but does so with the assurance of the most competitive pricing. Unlike some firms that limit the negotiation support to just a few hours, MCP commits to supporting the County until a contract is reached.

#### **Project Meetings Anticipated for Phase II:**

- Project Design Meeting-On Site
- Review of Specification Document-On Site
- Weekly project conference calls with County team
- Vendor pre-proposal conference for RFP-On Site
- Contract Negotiation-On-site

### **PHASE 3 (OPTIONAL) – PROJECT MANAGEMENT AND IMPLEMENTATION SUPPORT SERVICES**

During this phase of the project, MCP will provide superior project and implementation management to assist the County to ensure that the vendor manages tasks, timeline, and budget. We will interactively work with the County to develop an acceptance test plan and assist the County in completing these tests to certify compliance with system design, contract, and project objectives.



Following the procurement of the system and services that will comprise the County's new public safety radio communications system, MCP will apply our expertise to oversee and coordinate the successful integration of those components into a seamless radio network. This effort will include overall project management, implementation management, and vendor oversight related tasks to ensure the timely and effective implementation of the system.

MCP provides support throughout the implementation of the system by acting as the County's Project Manager in dealing with the vendor, stakeholders, and other entities that may be involved in the installation of the system. Some of the specific tasks and areas of support MCP will provide during this Phase are described as follows:

### **1. General Project Management and Implementation**

MCP will act as the County's Project Manager and representative in overseeing the implementation, testing and acceptance of the communications system as it is installed in the field. Based on an estimated 24-month implementation schedule, general responsibilities and oversight activities include:

- Project management, schedule monitoring and updating, provide and maintain risk matrix, facilitate regular status reviews and reporting
- Facilitate project update meetings for system users at least quarterly throughout the duration of the project, facilitate weekly project meetings and provide monthly status reports
- Lead project meetings, provide meeting agendas and minutes, track all action items for all parties
- Maintain overall project schedule
- Develop and provide monthly updates to project website
- Ensuring vendor accountability to meet the performance standards and specifications of the system design
- Manufacturer's System Staging and Factory Acceptance Testing, oversight and validation
- Schedule coordination, installation and integration oversight between vendor and the County
- Implementation management and inspection for adherence to industry standards
- Review vendor documentation, including milestone revenue recognition requests, invoicing, and change orders
- Evaluation of demarcation points for any discrepancies between vendor and system elements
- Technical oversight and method validation during system operational testing
- Final punch list development and open item resolution
- Recommend acceptance

### **2. Installation Kick-off Meeting and Contract Design Review**

MCP will facilitate a kick-off meeting with the vendor, County personnel and other individuals associated with the project and implementation. Our team will review the installation schedule as contracted by the vendor and establish a communications plan with the vendor and any subcontractors. The vendor's final system design and equipment lists will be reviewed to confirm that the contract and final site configurations are consistent with the contract and FCC licensing for each location.



MCP will support the County during the Contract Design Review (CDR). During this review, the vendor typically provides and finalizes the details of their system design and subcomponents, project schedules, responsibilities of each party, possible design changes, options available for consideration, and any cost reductions or impacts. At these reviews, the final design, capabilities, features and options to be delivered are agreed upon and finalized. Factory orders are developed at this point.

### **3. Site Visits and Documentation**

MCP personnel will visit each selected site in the final system design to confirm site conditions and document equipment and mounting locations. Sites requiring modifications, or issues that require resolution, will be documented to the County's representative for follow-up and resolution.

### **4. FCC Regulatory Efforts**

Following the design phase, there will be a clear direction on frequencies that require licensing and sites that have impact to FAA or FCC requirements. During this portion of the project, Mission Critical Partners will perform all tasks associated with completing the County's frequency plan and securing channels to support the new system.

Building upon the frequency analysis completed during the assessment phase, MCP will finalize the most appropriate spectrum for use within the new system. For the proposed frequency band, MCP will prepare all required licensing exhibits. In addition, MCP will complete all required FCC 601 forms and provide supporting application content, including system descriptions, loading calculations, and justification for the channels.

Based on the proposed site selections, MCP will review available space on the towers for the proposed antennas and make any adjustments to the FAA or FCC requirements necessary based on changes to the existing towers. In addition, if new towers are necessary during the project, MCP will conduct a review of FAA restrictions on towers on any of the preferred locations to mitigate any height limitations that may exist.

All applications submitted will be tracked through their entirety to ensure the registration process is complete.

### **5. System Staging and Factory Acceptance Testing**

Following CDR, the factory orders are placed; the equipment is manufactured and assembled at the vendor's factory in its final operational configuration exactly as it will be installed in the field. The vendor will provide a Factory Acceptance Test Plan to MCP and the County, which MCP and the County team will validate and accept prior to any factory testing being done.

### **6. Fleetmapping and Template Creation & Testing**

Utilizing the information gathered during the first phase of the project, MCP will assist the County radio system management team and selected vendor in revising the system fleet map to accommodate the expressed needs for talk groups and the operational characteristics of those talk groups, creating a functional and easily expandable fleetmap. If a regional P25 Unit Identification (ID) plan is in place,



MCP will coordinate with the regional planners to implement that ID scheme in the new system, maintaining compliance with the regional plans.

MCP will work with the County and their selected vendor to develop portable and mobile radio templates and code plugs, which provide the level of functionality expressed as necessary by the user group interviews. MCP will participate in the final testing and approval of master code plugs.

#### **7. Final Subscriber Selection and Configuration**

MCP will work with the selected subscriber radio vendor and the user agencies who must replace radios to introduce the current portable and mobile radios available, features, options, accessories, and cost through the scheduling of several “vendor showcase” presentations and open house events. Following these presentations, MCP subscriber consultants will be available to help the user agencies configure the radios, options and accessories to best meet their individual mission.

#### **8. Functional Acceptance Testing**

Functional acceptance testing is the process of conducting a series of tests to ensure proper radio system functional performance. These tests verify that the network is configured, communicating, and operating correctly. MCP will review the functional acceptance test plan as provided by the vendor and verify that the test procedure is comprehensive and adequately verifies proper system performance. We will oversee the completion of the testing to verify all tests are performed correctly and documented accurately. These tests replicate the testing performed in the factory, and add the end-to-end testing of the system connectivity and connectivity network under field and operational conditions.

#### **9. System Acceptance Punch List**

Upon the completion of the system installation, MCP will complete a comprehensive checklist to ensure that the vendor has met all contractual obligations and installed equipment consistent with the RFP specifications and industry standards. MCP will utilize a comprehensive industry standard checklist and visit/assess each radio site to confirm proper installation and grounding practices. Upon the successful completion of functional testing, coverage testing, and the system acceptance punch list, MCP will make a recommendation to the County to either accept the system or require additional changes and deficiencies corrected before the system will be accepted.

#### **10. Training Delivery Coordination and Review**

A change in technology, user equipment and management systems will require extensive retraining of portable and mobile radio users, dispatchers, system managers, and radio shop technicians, to provide the skills and knowledge to properly operate, manage and maintain the system. MCP will include rigorous and needed training courses to be provided by the vendor as a part of the specifications. These courses will be delivered by vendor trainers at the times applicable and appropriate during the system implementation process. MCP will validate the courses as appropriate for the students, contain the needed information and content and will oversee the delivery of these courses.

#### **11. Cutover Planning and Cutover**

Upon the successful completion of testing, cutover must be performed to transition users from the existing system to the new system. MCP will review the cutover plan defined by the system vendor, and ensure that the cutover plan will not introduce significant risks to the Central Communication Center’s



communications during the transition. We will provide oversight of the radio system vendor during the cutover to ensure a smooth and effective transition between systems. In a system of this complexity, there are multiple considerations which include:

- Transition by agency, least critical first
- Evaluation of system health and stability following each agency transition
- Migration of spectrum to provide capacity on both systems
- Site space, site systems, and antenna system transition and capacity

## **12. Documentation Review and Acceptance**

MCP and the County project team will receive and review all the documentation for the system, including all contracts, agreements, change orders and related project documentation, maintenance manuals, operations manuals, site drawings, as-built drawings, equipment inventory, and warranty documentations.

## **13. Project Closeout**

Upon the successful cutover and monitoring, administrative tasks are required to officially end the project. These tasks include the settling of any remaining payment variances between the County and the vendor, cutover from the vendor implementation team to the vendor support (maintenance team), and the start of system warranty. MCP will provide assistance to the County to ensure any outstanding costs are validated, and all remaining contractual obligations of the vendors have been met.

## **14. Monitoring**

Upon the successful cutover, MCP can provide oversight of the monitoring period to be determined to ensure any performance issues are documented and resolved. System and network monitoring can help ensure that the highest level of performance and the most value will come from the investments that you have made. Active monitoring and performance insurance activities also mitigate future risk. During intervals and at the end of this period, a written document will be provided depicting all performance issues and resolutions. Our goal is to mitigate risk and to keep the performance issues to a minimum.

MCP will still be acting as the project manager documenting and supporting the resolution for this period. Additional tasks MCP can perform in this period include:

- Technology management
- Multiple vendor management for tower site suppliers, microwave suppliers, radio system suppliers, etc.
- Manage new applications, software revisions
- Remote diagnostics and subject matter expertise on issue resolution
- Tower site management
- System uptime reliability monitoring
- Track subscriber utilization and assets
- Licensing management/frequency planning
- Custom usage reporting for capacity, roaming, and interoperability use
- Subscriber/Device Management and Inventory
- On-going system and user training



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## COST PROPOSAL

The Cost Proposal is submitted under separate cover.



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## REQUIRED FORMS

See the following pages for required forms, Attachments A, B, C and D.

*Remainder of page intentionally left blank.*



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**ATTACHMENT A: SIGNATURE AFFIDAVIT**





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**ATTACHMENT B: VENDOR DATA SHEET**

**Attachment B**

**VENDOR DATA SHEET**

**1. Proposing Company Name** Mission Critical Partners, Inc.

Telephone 888-862-7911 Toll Free Telephone 888-862-7911 Fax 814-217-6807

Address: 690 Gray's Woods Blvd.

City: Port Matilda State: PA Zip + Four: 16870-7142

**2. Contact Person in the event there are questions about your proposal**

Name: Philip L. Penny, ENP Title: Business Development Specialist

Telephone: 919-210-5255 Toll Free Telephone: 888-862-7911

Address: 4801 Glenwood Avenue, Suite 200

City: Raleigh State: NC Zip + Four: 27612-3856

**3. Mailing address where County purchase orders/contracts are to be mailed and person the Department can contact concerning orders and billing.**

Name: Christine Dolan Title: Accounting Manager

Telephone: 888-862-7911 Toll Free Telephone: 888-862-7911

Address: 690 Grays Woods Blvd.

City: Port Matilda State: PA Zip + Four: 16870-7142



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## ATTACHMENT C: REFERENCES

## Attachment C

### REFERENCES

Provide company name, address, contact person, telephone number, and appropriate information on the product(s) and/or service(s) used for three (3) or more installations/services with requirements similar to those included in this solicitation document. If vendor is proposing any arrangement involving a third party, the named references should also be involved in a similar arrangement.

Company Name: Wake County, NC  
Company Address: P.O. Box 550, Raleigh, NC 27602  
Telephone/email: Telephone: 919-664-5575 / Email: john.higgins@wakegov.com  
Contact Person: John Higgins, CGCIO, Deputy Chief Information Officer, Wake Co. IS Dept.  
Services provided by proposer/vendor: Radio Communications Needs Assessment, Procurement and Implementation

Company Name: Pasquotank County, NC  
Company Address: 200 E. Colonial Avenue, Elizabeth City, NC 27909  
Telephone/email: Telephone: 252-338-3772 / Email: barefootr@co.pasquoqtank.nc.us  
Contact Person: Ronnie D. Barefoot, Technical Operations Manager, Pasquotank Co. Sheriff's Office  
Services provided by proposer/vendor: Radio Communications Needs Assessment

Company Name: Lawrence County, PA  
Company Address: 110 E. Lincoln Avenue, New Castle, PA 16101  
Telephone/email: Telephone: 724-202-7101 / Email: bmelcer@co.lawrence.pa.us  
Contact Person: Brian Melcer, Director, Lawrence Co. PA Dept. of Public Safety  
Services provided by proposer/vendor: Migration to a Countywide Unified P-25 Radio Communications System

Company Name: Armstrong County, PA  
Company Address: 131 Armsdale Road, Kittanning, PA 16201  
Telephone/email: Telephone: 724-548-3225 / Email: rjbrozenick@co.armstrong.pa.us  
Contact Person: Randy Brozenick, Director, Department of Public Safety  
Services provided by proposer/vendor: Executive Consulting and Master Planning Interoperable Regional Radio Systems Emergency Operations Center Oversight Migration Plan

Company Name: Centre County, PA  
Company Address: 420 Holmes Street, Willowbank Office Building, Bellefonte, PA 16823-1488  
Telephone/email: Telephone: 814-355-6800 / Email: dineff@centrecountypa.gov  
Contact Person: Dale Neff, Director Centre County 9-1-1/Emergency Communications  
Services provided by proposer/vendor: Radio System Upgrade



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## ATTACHMENT D: COST SUMMARY SHEET

Cost Summary Sheet submitted under separate cover.



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## Appendix A: Addendum Acknowledgments



**ORANGE COUNTY**  
**NORTH CAROLINA**

Orange County  
Financial Services Department  
**ADDENDUM #1**  
**February 8, 2016**

RFQ 5217
Countywide Radio Communications Interoperability And Systems Engineering Services

To all Vendors:

Modifications to bid documents for the above-named Request for Proposal are made as follows and shall be included in the proposed amount.

Questions received with County's responses are on page 2 of this document

All other terms and conditions shall remain the same

By: David E. Cannell, Purchasing Agent; [dcannell@co.orange.nc.us](mailto:dcannell@co.orange.nc.us) / (919) 245-2651

**Acknowledgement of receipt of this addendum shall be included with your submittal**

Company Name: Mission Critical Partners, Inc.

By: John L. Spearly, Director of Administration

Date Received: February 8, 2016

P.O. Box 8181 200 South Cameron Street Hillsborough, North Carolina 27278  
Telephones: Area Code 919-245-2651 Fax: 919-636-4913



**ORANGE COUNTY**  
NORTH CAROLINA

Orange County  
Financial Services Department  
**ADDENDUM #2**  
**February 12, 2016**

RFQ 5217
Countywide Radio Communications Interoperability And Systems Engineering Services

To all Vendors:

Modifications to bid documents for the above-named Request for Proposal are made as follows and shall be included in the proposed amount.

The due date has been extended to March 1, 2016 at 5:00 pm. We anticipate issuing at least one additional addendum to address questions received

All other terms and conditions shall remain the same

By: David E. Cannell, Purchasing Agent; [dcannell@co.orange.nc.us](mailto:dcannell@co.orange.nc.us) / (919) 245-2651

**Acknowledgement of receipt of this addendum shall be included with your submittal**

Company Name: Mission Critical Partners, Inc.  
By: John L. Spearly, Director of Administration  
Date Received: February 12, 2016

P.O. Box 8181 200 South Cameron Street Hillsborough, North Carolina 27278  
Telephones: Area Code 919-245-2651 Fax: 919-636-4913



**ORANGE COUNTY**  
NORTH CAROLINA

Orange County  
Financial Services Department  
**ADDENDUM #3**  
**February 23, 2016**

RFQ 5217
Countywide Radio Communications Interoperability And Systems Engineering Services

To all Vendors:

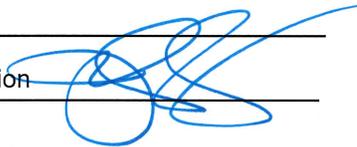
Modifications to bid documents for the above-named Request for Proposal are made as follows and shall be included in the proposed amount.

Questions received with County's responses are on pages 2-4 of this document

All other terms and conditions shall remain the same

By: David E. Cannell, Purchasing Agent; [dcannell@co.orange.nc.us](mailto:dcannell@co.orange.nc.us) / (919) 245-2651

**Acknowledgement of receipt of this addendum shall be included with your submittal**

Company Name: Mission Critical Partners, Inc.  
By: John L. Spearly, Director of Administration   
Date Received: February 23, 2016

P.O. Box 8181 200 South Cameron Street Hillsborough, North Carolina 27278  
Telephones: Area Code 919-245-2651 Fax: 919-636-4913



**ORANGE COUNTY**  
**NORTH CAROLINA**

Orange County  
Financial Services Department  
**ADDENDUM #4**  
**February 24, 2016**

RFQ 5217
Countywide Radio Communications Interoperability And Systems Engineering Services

To all Vendors:

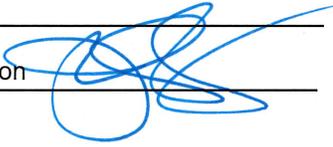
Modifications to bid documents for the above-named Request for Proposal are made as follows and shall be included in the proposed amount.

Questions received with County's responses are on page 2 of this document

All other terms and conditions shall remain the same

By: David E. Cannell, Purchasing Agent; [dcannell@co.orange.nc.us](mailto:dcannell@co.orange.nc.us) / (919) 245-2651

**Acknowledgement of receipt of this addendum shall be included with your submittal**

Company Name: Mission Critical Partners, Inc.  
By: John L. Spearly, Director of Administration   
Date Received: February 24, 2016

P.O. Box 8181 200 South Cameron Street Hillsborough, North Carolina 27278  
Telephones: Area Code 919-245-2651 Fax: 919-636-4913