AGREEMENT #12148
CONSULTING FOR THE LAKE COUNTY RADIO SYSTEM
CONTRACT ADDENDUM #1

This contract modification entered into by and between Lake County, (hereafter referred to as the "County") and RCC Consultants (hereinafter "Contractor or Consultant"), 100 Woodbridge Center Drive Suite 201 Woodbridge, NJ 07095

SECTION 1. AGREEMENT DOCUMENTS
The Agreement Documents that constitute the entire agreement between Lake County and the Contractor are in order of precedence:

A. This Agreement and all exhibits thereto; and,
B. The Contractor's Proposal dated July 23, 2012
C. Lake County Radio Consultant Statement of Work Exhibit A
D. This Addendum # 1 to agreement # 12148
E. Radio System specification proposal dated March 14, 2013 Exhibit B

SECTION 2. STATEMENT OF WORK
Please refer to Exhibit B for a detailed Statement of Work

SECTION 3. DURATION
The contract will commence upon execution, and remain in effect until completion and acceptance of all deliverables identified in Contractors Proposal Dated March 14, 2013.

SECTION 4. AGREEMENT PRICE
The County will pay the Contractor a fee a not to exceed amount of $35,053 for deliverables identified in the Contractor's proposal dated March 14, 2013. The Contractor will bill the County not more than once per month for the tasks described in the Scope of Services are defined below:

RFP Development: $14,926
RFP Evaluation Assistance: $14,974
Contract Negotiations Assistance: $ 5,153

Except for the provisions outlined above, the remainder of the contract shall remain in full force and effect.

RCC Consultants, Inc	**Lake County**
_____	_____
Print Name: _____	RuthAnne Hall
Print Title: _____	Purchasing Agent
Date _____	Date _____

EXHIBIT B

Radio System Specification Proposal

Presented to:

Lake County, Illinois

March 8, 2013 (March 14, 2013)

RCC Consultants, Inc.
100 Woodbridge Center Drive, Suite 201
Woodbridge, New Jersey 07095
Website: www.rcc.com

Proposal Contact: Dominick Arcuri
Sr. Vice-President
4900 Cox Rd. Suite 235
Glen Allen, VA 23060
Telephone: 804-353-0300
Email: darcuri@rcc.com

4900 Cox Rd. Suite 235
Glen Allen, VA 23060
Telephone: 804-353-0300

March 8, 2013

Mr. Garry Gorr
Communications Administrator
Lake County Radio Department
1303 N. Milwaukee Ave.
Libertyville, IL 60048

RE: Radio System Assessment Budgetary Estimate

Dear Garry,

RCC Consultants, Inc. is pleased to submit the enclosed proposal to provide consulting and engineering services in support of development of a County-Wide Radio Communications System for Lake County.

As the attached document demonstrates, RCC Consultants, Inc. specializes in the planning, design, procurement, implementation, and optimization of governmental and public safety communications and information systems. Each member of the RCC team is a seasoned veteran of the communications industry, bringing to the County years of experience in developing strategies for improving the efficiency and effectiveness of public safety communications and information systems.

RCC offers significant benefits to the County, including:

- **Public Safety Voice and Data Communications System Expertise** – RCC is regarded as one of the best public safety communications system consulting and engineering firms in the United States. Our project teams have supported the planning, design, procurement and implementation of more than 200 advanced interoperable 800/700 MHz trunked radio systems. RCC assisted the City of Independence, Missouri in implementing the Nation's first 700 MHz P25 radio system. We are currently assisting several public safety clients in Virginia, Maryland, Missouri, Texas, California, Ohio, Wisconsin, and other states with P25 public safety communications systems. Our engineers are fully familiar with P25 standards and regularly lecture at conferences and symposiums on the benefits of standards-based public safety radio systems.

- **Project Management Oriented Company** – RCC takes project management seriously and has implemented a companywide training program based on the Project Management Institute (PMI) project management guidelines. This standardized approach ensures that each project is professionally managed, which helps ensure that the project meets its objectives and stays on schedule and within budget. As you will see, many members of our project team are PMI-certified Project Management Professionals.

- **Independence** – RCC is not affiliated with, nor do we have any financial interest in, any communications equipment manufacturer, distributor, or supplier. We do not receive or accept remuneration of any type from any manufacturer, distributor, or

4900 Cox Rd. Suite 235
Glen Allen, VA 23060
Telephone: 804-353-0300

supplier for recommending any of their products. Our unbiased independent position provides our clients a capable partner in meeting their project requirements without the potential for conflicts of interest.

- **Cost Savings –** RCC's assistance in contract negotiations with the selected vendor typically improves the client's contract position in terms and conditions as well as pricing. RCC maintains a database of vendor-negotiated prices for Public Safety systems and is familiar with vendors' threshold when it comes to system pricing. A few examples of the savings we have provided our clients are:

Client	Vendor Proposal	Negotiated Savings	Percent Savings
Jefferson Parish, LA	$8.1M	$2.5M	31%
Genesee County, MI	$8.0M	$2.5M	31%
Raleigh / Wake County NC	$3.6M	$1.2M	33%
Allegan County, MI	$13.4M	$4.4M	33%

**These contract price savings were accomplished without compromising system functionality or contract terms and conditions.*

RCC has had the pleasure of working previously with Lake County during its current system implementation and also its recent 800 MHz rebanding project. We look forward to continuing to support the County with its critical infrastructure communications.

If there are questions regarding this budgetary estimate or if you would like to discuss an alternate scope of work or a specific proposal, please do not hesitate to contact me at (804) 422-8461 or by e-mail at darcuri@rcc.com.

Sincerely,

Dominick V. Arcuri

Dominick Arcuri, P.E., PMP, ENP
Sr. Vice-President,
Mid-Atlantic, Midwest, Southeast Regions

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SCOPE OF SERVICES AND DELIVERABLES

Introduction

Lake County, IL (County) has identified a need for a Radio Consultant Firm to assist in the development of a County-Wide Radio Communications System for use by all County and municipal governments including Public Safety and public service agencies.

RCC Consultants, Inc. (RCC) hereby offers a full range of consulting and engineering services to meet the needs of the County.

Proposed Scope of Services

Specification Development

RCC will develop a requirements-based procurement specification that will be suitable for distribution to interested vendors for development of their competitive proposals.

The specification will address the following major components:

- Functional Design Plan;
- Coverage Requirements;
- Radio Frequency and Regulatory Requirements (FCC & FAA);
- Technical specifications for equipment components;
- Installation standards;
- Acceptance test criteria for equipment, functionality and coverage effectiveness;
- Proposal evaluation criteria;
- Other necessary commercial sections; and
- Transition plan.

Additionally, the specification will be functional and performance-based and will define the functions that need to be supported, the services required, and the performance that must be achieved. In doing so, the specification shall:

- Focus on system and facility functional requirements and performance;
- Include the functional requirements of the radio users;
- Provide for system scalability and integration through standard interfaces;
- Ensure P25 compliance;
- Allow for flexible ownership models, to include as a minimum: leasing, owning, upgrading, etc.;
- Require a package-oriented approach for future growth;
- Define installation standards for radio sites and equipment;

- Detail system reliability, service, and support requirements;
- Include radio console (workstation) and interface requirements to external systems;
- Describe a radio design which meets the required call volumes and coverage requirement;
- Encourage maximum consolidation benefits and synergy whenever possible;
- Include legacy system compatibility whenever possible (maximize existing assets and services);
- Encourage maximum redundancy, fault-tolerance, and back-up/recovery capabilities;
- Address Homeland Security interoperability issues and guidelines;
- Provide for technical and operational training, including related training documentation and methodology;
- Provide guidelines for equipment and coverage acceptance test procedures;
- Provide support and ongoing maintenance requirements for both hardware and software;
- Validate that the proposing vendors have the adequate product, scope, and experience to meet the County's and other agencies' system demands; and
- Position the County and other agencies for a flexible, highly competitive RFP document and acquisition process.

After development of the draft Technical Specification, RCC will deliver the draft and discuss with the County any comments and updates. RCC will then update the Technical Specification based on the comments received and provide the final Technical Specification to the County as a deliverable item. RCC assumes that the County's Finance and Administrative Services department shall prepare the final commercial and RFP documents for distribution to potential system providers or integrators.

Support of System Procurement Process – Optional

As part of the System Procurement Process, RCC, if requested, will assist the County with the evaluation of responses from vendors and provide technical support throughout the procurement process. RCC will provide services to augment the County's planning and execution of the radio system purchase. RCC's extensive experience in reviewing vendor proposals, identifying critical issues, concerns, and discrepancies; inquiring about alternative solutions based upon a particular vendor's equipment platform; and judging the validity of the proposed costs, will be very helpful through this critical process.

RCC anticipates performing the following tasks in support of the County during the procurement process.

1. Attend Pre-Proposal Meeting

   RCC will attend the pre-proposal conference and provide an overview of the project and specification.

2. Responses to Vendor Questions

RCC will act as technical advisor to the County and assist with preparation of technical addendums and responses to vendor questions throughout the RFP process.

3. Review Consultant Proposals

RCC, in conjunction with County personnel, shall review and evaluate proposals for compliance with the System Design portion of the RFP. RCC will provide technical advice in the proposal evaluation and vendor selection process. RCC will also assist the county with drafting questions to vendors.

4. Responses to Vendor Questions

RCC will evaluate vendor applicant technical responses to previously issued questions and prepare technical responses.

Assistance with Contract Negotiations - Optional

RCC will also participate in the vendor negotiations meetings if requested by the County and evaluate proposed changes to the contract documents. RCC will assist the County with development of an appropriate vendor Statement of Work (SOW), Acceptance Test Procedure (ATP) and system implementation contract to help protect the County and minimize project risk during implementation.

PRICING

The proposed costs for the tasks described in the Scope of Services are defined below:

RFP Development:	**$14,926**
RFP Evaluation Assistance:	**$14,974**
Contract Negotiations Assistance:	**$ 5,153**

Pricing Assumptions

- Professional fees are based on the estimated hours for the Scope of Services defined in this document. This may be adjusted by agreement of both parties if additional hours are needed and/or the scope of work is modified.
- RCC pricing includes a preferred customer discount for Lake County.
- Progress billings will be submitted monthly based on the work performed during that month. Payments are due within 30 days of invoice. Payments not paid within 30 days will be assessed a late fee of 1.5% per month.
- The fees and rates contained herein shall remain valid for 120 days from the date of this proposal.
- RCC's proposal assumes no retainage is being withheld. RCC's proposal may require adjustment based on the amount and duration of retainage withheld by the County.
- RCC's professional fees do not include structural analyses, soil boring (geo-technical) analyses, environmental impact studies, path analyses, or land survey fees.
- Electrical, mechanical, structural, civil, or other design engineering services not specifically indicated in this proposal have not been proposed. Services specifically requiring a registered Professional Engineering review, certification, or seal are not proposed unless otherwise explicitly stated in this proposal.

REFERENCES

Project:	**Needs Assessment, Procurement, Implementation and Project Management for New 700 MHz Radio System in Stafford County**
Client:	Stafford County, Virginia
Description:	RCC is currently providing Stafford County with technical and project management assistance during the implementation phase of the County's new 10-channel, 13-site, 700 MHz digital simulcast trunked public safety radio system.
RCC's Role:	RCC has provided the following services during this project: • Produced an in-depth needs assessment for the County. • Prepared a Request for Proposal based on the findings, with detailed specifications. • Solicited proposals from qualified vendors. • Assisted the County in equipment and vendor evaluations. • Provided assistance in contract negotiations. Since January 2008, RCC has provided project management and technical oversight for the implementation phase of the system. That phase is ongoing, and the County expects to cutover to the new radio system in late 2010.
Status:	Complete
Contact:	Ms. Carol Adams Communications Director 1225 Courthouse Road Stafford, VA 22555 (540) 658-4712

Project:	**Rebanding Consulting, Engineering, and Project Management Support for Fairfax County's Motorola 800 MHz System**
Client:	Fairfax County, Virginia
Description:	Fairfax County, Virginia maintains two countywide 800 MHz radio systems serving public safety and public service operations. The County commissioned RCC to assist in compliance with the FCC Docket No. 02-55 for the rebanding of the 800 MHz spectrum.
RCC's Role:	RCC is currently performing the following tasks for this project: • Developing a Rebanding Plan • Developing a projected cost estimate • Performing site inventories • Conducting space and capacity audits • Measuring fixed site infrastructures • Assisting the County in assessment of fleet inventory of approximately 8,500 radios In the near future, RCC will be working with the County to develop operational plans and transition requirements for County agencies as well as the local jurisdictions that dispatch their own fleet using the County 800 MHz systems. RCC will be cataloging fleet and equipment of adjacent jurisdictions in the metropolitan DC area that all have direct 800 MHz interoperations on the Fairfax County radio system. In conjunction with this effort, RCC is working with the County to develop acceptance testing and validation requirements once the rebanding process has been completed to ensure the integrity of the County's Radio System. RCC will assess the proposed new frequencies for use within the existing County radio infrastructure, to determine compatibility at shared and leased sites as well as to evaluate the impact of the re-banding process.
Status:	Ongoing
Contact:	David Barney Director of Information Technology 12000 Government Center Parkway Fairfax, VA 22035 (703) 324-3833

Project:	**Interoperability for Cincinnati UASI/SOSINK Region**
Client:	Hamilton County, OH
Description:	The Southwestern Ohio, Southern Indiana, Northern Kentucky (SOSINK) Communications subcommittee had been tasked with developing an interoperability plan for the Cincinnati UASI/SOSINK Region. The SOSINK Region is a 12 County area of Ohio, Kentucky and Indiana which includes the counties of Adams, Brown, Butler, Clermont, Clinton, Hamilton, Highland, and Warren, in the State of Ohio; and Boone, Campbell, and Kenton Counties in the Commonwealth of Kentucky; and Dearborn County in the State of Indiana. SOSINK is the logical extension of the Cincinnati UASI Region to encompass the three northern Kentucky Counties and Dearborn County, Indiana, because of the geographical proximity of these neighbors. In the event of a major incident or disaster, it is highly likely that mutual aid will be exchanged with Indiana and Kentucky agencies as well as the Ohio Counties originally included in the Cincinnati UASI region.
RCC's Role:	RCC performed the following tasks for Hamilton County and the SOSINK region: • Performed a region-wide needs analysis • Reviewed existing Tactical Interoperability Communications (TIC) plans • Identified interoperability deficiencies • Identified general interoperability solution, their interoperability level, advantages and disadvantages • Developed an interoperability plan for the SOSINK region based on existing systems • Developed a prioritized schedule for implementation of the proposed interoperability plan with consideration to specify solutions that provide the most impact first • Demonstrated how the proposed interoperability plan follows Federal and the State of Ohio's Interoperability Plans • Identified costs for the recommendations and provided documentation for the grant submission process
Status:	Complete (7/10)
Contact:	Mr. Greg Wenz Operations Director, Communications Center Hamilton County Communications 2377 Civic Center Drive Cincinnati, OH 45231 (513) 595-8445 Greg.wenz@hamilton-co.org

Project: Radio System Specification and Procurement and Implementation

Client:	City of Toledo and Lucas County
Description:	Lucas County, Ohio and the City of Toledo implemented a joint project to upgrade and expand the existing Toledo 800 MHz trunked radio system to provide complete county coverage and to serve all public safety entities within Lucas County.
RCC's Role:	RCC Consultants Inc. had previously been engaged by Lucas County to develop a strategic communication plan for The County in which RCC recommended that the County investigate building out the City of Toledo system for countywide use. This project leverages the findings of the previous engagement and incorporate available information from a parallel assessment of the City system to take the next steps toward a countywide system. Specifically, this proposal encompasses the following tasks: • Review and update County needs - incorporate Toledo needs assessment • Establish baseline system design & predicted coverage • Develop bid specification & evaluation criteria • Conduct pre-bid conference and answer bidders questions • Evaluate vendor responses and provide recommendation • Assist The County with contract negotiations and development of vendor SOW The County has recently entered into a contract with Motorola for a 12-site 800 MHz P25 Simulcast system. RCC was retained to assist with the implementation and system verification.
Status:	Complete
Contact:	Mr. Mike Koontz Lucas County Sheriff's Office 2144 Monroe Street Toledo, OH 43624 419-213-6550

Project:	**Design, Procurement and Implementation Assistance for a Regional Public-Safety 700/800 MHz Trunked Simulcast Radio System**
Client:	County of Hanover, Virginia
Description:	RCC is assisting the County of Hanover with four separate tasks in this project: • Task I – Assessment and recommendation of vendor 800 MHz radio system proposal. • Task II – FCC and regulatory coordination of radio sites. • Task III – Assistance with radio vendor negotiations for multi-site trunked simulcast system. • Task IV – Technical and administrative project management and vendor oversight throughout the radio system implementation.
RCC's Role:	RCC has provided the following services during this project: • Task I – The County retained RCC to perform a review of a vendor-proposed regional public safety 700/800 MHz trunked simulcast radio system design. During the evaluation, RCC recognized inefficiencies in the design and recommended major changes to significantly improve the coverage performance without significantly affecting the system's cost. • Task II – RCC worked with the County to coordinate radio frequencies and sites for the new radio system. We provided extensive assistance with local zoning special-use permit coordination, including multiple presentations to the County's Board of Supervisors, Planning Commission and Emergency Communications Center Management personnel. • Task III – RCC assisted the County with technical and contractual negotiations for the radio system. • Task IV – RCC worked closely with the County's project manager, its Radio Committee, and its vendor to provide technical and project management expertise, as well as vendor technical and civil site work implementation oversight and coordination. We continue to work closely with the County in the testing and implementation environment.
Status:	Complete
Contact:	Curt Shafer Director of Emergency Communications P.O. Box 470, 7522 County Complex Road Hanover Courthouse Hanover, VA 23069-0470 (804) 537-6142

Project:	**800 MHz APCO P25 Project Management**
Client:	Cleveland Public Power, Ohio
Description:	The City of Cleveland engaged RCC Consultants, Inc to provide professional consulting services relative to its long-term public safety radio communications and interoperability needs. The City sought an experienced Public Safety Radio engineer/project manager to manage the implementation of the new interoperable voice radio communications system.
RCC's Role:	• Serve as an external project manager and consultant as the City of Cleveland updates their current radio infrastructure to the latest P25 standards (this includes the build-out, testing and completion to full operation of the 800 MHz APCO P25 Digital Trunked Radio System). • Serve as an external project manager and consultant for implementing radio interoperability not only within the City's various Department and Divisions but also within the county, region and state. • Serve as an external project manager and consultant to provide a definitive specification of technical requirements during the build out and testing of the Radio System. • Serve as an external project manager and consultant to ensure that the contractual requirements for the system and service deliverables are satisfied before acceptance of the delivered Radio System. • Serve as an external project manager and consultant to oversee the Dispatch Center migration and equipment installation.
Status:	Ongoing
Contact:	Larry Jones II. Project Manager City of Cleveland Department of Public Safety Office of Information Technology 205 West St. Clair Avenue, Suite 500 Cleveland, Ohio 44113 (216) 664-2200

APPENDIX A: RESUMES

Dominick Arcuri, P.E., PMP, ENP

Senior Vice President, Mid-Atlantic and Midwest Regions

Technical Expertise

Conventional/Trunked Radio
Project 25
Cellular/PCS
In-Building Wireless
Broadband Wireless
Wireless Facilities

Education

MBA, Duke University, Fuqua School of Business
MSEE, Syracuse University
BS, Rensselaer Polytechnic Institute, Computer & System Engineering

Awards, Affiliations and Certifications

Professional Engineer, VA
Project Management Professional (PMP)
Emergency Number Professional (ENP)
Certified Wireless Network Administrator (CWNA)
Telecommunications Industry Association (TIA):
- *TDMA Committee Chairman, 2002*
- *RF Exposure Committee Chairman, 1997-99*
- *EDACS Task Group Co-Chairman, 1995-98*

Presentations and Publications

The Challenge of In-Building Coverage. Radio Resource, March 2002
Wireless Technology: A Major Area of Telecommunications Growth. Acuta Journal, Spring 2004

Mr. Arcuri leads the Public Safety Consulting staff in the Mid-Atlantic and Midwest regions. He is a registered professional engineer (P.E.) and has almost 30 years of experience in engineering, marketing and product management. His technical expertise includes digital private radio systems, in-building wireless and communications facilities, wireless LANs and broadband wireless systems. Mr. Arcuri has actively participated in the Telecommunications Industry Association (TIA), chairing the committee responsible for TDMA public safety/P25 radio systems.

Selected Professional Experience

- **State of Ohio** – Performed interoperability analysis and developed improvement recommendations and statewide interoperability plan for 700/800 MHz trunked system.
- **Michigan, North Carolina and Ohio** – Negotiated agreements with Sprint Nextel on behalf of clients and directed 800 MHz rebanding efforts for statewide systems.
- **Spot On Networks** – Established service offerings, technical direction and preferred equipment for Wireless Internet Service Provider (WISP) start-up.
- **Brown County, Wisconsin** – Performed interoperability study and developed countywide communications strategy.
- **Minnesota Department of Public Safety** – Assisted in the system assessment and evaluation of business alternatives for the roll-out and maintenance of the State of Minnesota ARMER system.
- **Richmond Convention Center** – Designed, implemented and verified fiber-based in-building enhancement for Public Safety radio system.
- **Los Angeles County, California** – Developed county-wide radio system design to provide 95% coverage.

Additional Experience

- **Ericsson, Inc.** – As Vice President Engineering, directed engineering team of 80 and managed $22MM budget. Improved engineering efficiency by 50%, established future technology direction and guided the engineering team through successful acquisition and integration.
- **GE Aerospace** – As Engineering Project Manager, managed transition to production of the F-14 InfraRed Search & Track (IRST) System, accomplishing test and acceptance of 16 systems in 12 months, and reducing production test cycle times by 40% by coordinating design and manufacturing process changes and simplifying test procedures.

David N. Gelyana, P.E., PMP
Managing Consultant

Technical Expertise
VHF, UHF, 800 Conventional and Trunked Systems
E 9-1-1
Fiber Optics
PBX Systems
Mobile Data Systems
Microwave

Education
MSEE, Virginia Tech
BSEE, Virginia Tech

Awards, Affiliations and Certifications
Association of Public-Safety Communications Officials - International (APCO)
National Emergency Number Association (NENA)
IEEE
Tau Beta Pi

Presentations and Publications
Important Considerations for Public Safety Trunking, Co-authored with Dr. Gregory M. Stone, Mobile Radio Technology, June 1987
Public Safety Communications and Trunking, Co-authored with Dr. Gregory M. Stone, Mobile Radio Technology, July 1988
Selecting the Proper Spectrum, Co-authored with Mr. B. Ebstein, APCO North Central Regional Conference, April 1989

Mr. Gelyana is responsible for communication system planning, design, evaluation and implementation for private, industrial, public utilities and public safety radio and telephone communication services. His expertise includes conventional and trunked two way radio, Enhanced 9-1-1, mobile data, telephone PBX, analog and digital microwave, fiber optic, and telemetry systems. Mr. Gelyana joined RCC in 1993 and has more than 30 years of experience.

Selected Professional Experience
- **Greater Cleveland Regional Transit Authority, OH** – Performed radio communications and consolidated dispatch design and implementation for bus and rail communications system. The state-of-the-art 900 MHz system includes real-time differential GPS and AVL, schedule adherence, overt and covert emergency alarms, automatic passenger counters system, passenger annunciation and on-street signs.
- **Lake County, IL** – Provided comprehensive plan, system RFP and implementation management for an 800 MHz trunked, digital and analog five-site simulcast radio system.
- **Milwaukee County, WI, Division of County Health Related Programs, Section of Emergency Medical Services** – Assisted in evaluation, design and replacement of paramedic communication equipment. Through research and innovative design, successfully replicated the functionality of the EMS system (real-time EKG data and voice communications).

Additional Experience
- **SFA, Inc.** – As Senior Engineer, assisted on communications system planning, design and implementation. Also consulted for telephone PBX, microwave, two way radio and telemetry systems.
- **American Electric Power Service Corporation** – As Assistant Electrical Engineer, was responsible for design and implementation of microwave systems, telephone PBX systems and fiber optic links. Other responsibilities included microwave feasibility and path studies, system design, bid specifications and evaluation, system installation and testing.
- **Virginia Transformer Corporation** – As Senior Electrical Engineer, led the design of high power, single and three phase, liquid and dry type custom power transformers. Also responsible for design of AC and DC iron core reactors and air core reactors used in current limiting and smoothing applications.

RCC EXPERIENCE – QUALIFICATIONS

Who We Are

RCC Consultants, Inc. ("RCC") is a global telecommunications consulting, engineering and integration firm. A leader in the industry since 1983, RCC specializes in the design and implementation of radio communications systems, microwave and fiber optic systems, broadband, intelligent transportation systems and public safety emergency telephone systems, as well as the design of communications centers, tower sites and monitoring facilities.

The RCC Difference

RCC has a unique and deep understanding of all facets involved in the design, development and operation of telecommunications systems. This comprehensive expertise built over decades of success enables us to offer fully informed and more effective solutions to our clients. We differentiate ourselves through four aspects of our business:

Experience For more than 28 years, RCC has been at the forefront of wireless communications and information systems technology. We pioneered the development of comprehensive multiple layer, radio frequency engineering software tools, used by organizations around the world.

Team Our full-time staff of more than 130 consultants, engineers and support staff are some of the most respected and sought-after specialists in their fields. Experienced in the design and operation of all major manufacturers' platforms, our team will have a local presence and will utilize the resources of the company to perform the project tasks.

Approach We believe in forming strong partnerships with our clients, and our record of repeat business is testimony to our focus on complete client satisfaction. We approach every project with time-proven engineering and project management strategies that help our clients implement the right long-term solutions for their needs.

Independence We provide unbiased recommendations to our clients, ensuring they receive thoughtful, independent solutions. We will never accept any form of payment from manufacturers, distributors or suppliers for recommending their products.

Our People

RCC has gained the reputation of being a respected leader in all of the markets we serve because of the depth and breadth of our knowledge and experience. We have a diverse team of more than 130 professionals with a rich variety of experience and qualifications – all who are carefully matched to projects based on our clients' specific objectives.

We are especially proud of the tenure of our team – more than 90% of our staff has been with RCC for five or more years. This longevity ensures we retain a deep wealth of knowledge, as well as consistent staffing, on our projects.

90%

More than 90% of RCC's staff has been with the company for five or more years.

Our Participation in Industry, Standards and Regulatory Groups

RCC's consultants and engineers are frequent contributors to nationally recognized industry and standards-setting organizations, such as the Telecommunications Industry Association (TIA), Institute of Electrical and Electronic Engineers (IEEE), Integrated Justice Information Systems (IJIS) and American National Standards Institute (ANSI).

An original signatory to the Terrestrial Trunked Radio Memorandum of Understanding (TETRA MoU) in 1994, RCC staff has served in leadership roles within the organization since its inception. We chair or serve on technical committees of the IEEE and our experts have helped forge standards that have been adopted by the IEEE. Taking an active leadership role in the industries we serve helps us to provide our clients with clear insight into new and emerging technologies.

Our Vision, Mission and Values

Vision RCC's vision is to be the most respected and technically competent provider of client-centered consulting, engineering, integration and outsourcing services in the fields of voice and data communications.

Mission RCC's mission is to provide solutions that allow our clients to meet their objectives through the application of communications and information technologies.

Values We believe we can best fulfill our vision and accomplish our mission by living these nine values every day:

- *Client Centered* – We are committed to achieving the best outcomes by gaining a thorough understanding of client operations, by providing responsive service and through effective communications between RCC and our clients.
- *Doing It Right the First Time* – We will deliver superior products and services in everything we do for our clients.
- *Honesty and Fairness* – We will act openly, ethically, equitably and consistently in all we do.

- *Unbiased and Objective* – We will provide our services without potential or perceived conflicts of interest and maintain a completely independent position in every engagement.
- *Teamwork* – We will come together as a diverse workforce to achieve our vision and to help our clients find the solutions that meet their needs.
- *Excellence* – We will perform our jobs effectively and by being informed and excited about our clients and our services.
- *Lifelong Learning* – We will consistently seek knowledge and use that knowledge to benefit our clients.
- *Profitability* – We are committed to earning financial returns that will enable sustainable growth and enhance stakeholder value.
- *Quality of Life* – We are committed to improving the lives of our families and the well-being of our community.

Our Company History

RCC has a rich history as a communications pioneer. RCC was originally incorporated as RAM Communications Consultants, Inc. in 1983. During 1986 and 1987, RAM Communications Consultants developed the concept of a shared access wireless data network. This concept evolved into RAM Mobile Data, one of the first national wireless data networks in the United States. RAM Communications Consultants handled all of the procurement, technical negotiations, design, implementation, conformance testing and optimization of this national network of more than 2,000 sites.

In 1991, BellSouth Enterprises acquired an interest in RAM through the formation of RAM/BSE Communications, L.P. In 1996, RAM/BSE spun-off what is now RCC Consultants, Inc. as a separate entity. TeleCom Towers, Inc. (TTI), a venture capital firm, acquired RCC. In 1999, RCC was purchased by private equity investors, the principals of TTI, and RCC management and employees through RCC Holdings, Inc. Incorporated in the State of Delaware, RCC maintains our corporate headquarters in Woodbridge, New Jersey. Our corporate contact information is:

RCC Consultants, Inc.	Telephone: (732) 404-2400 or (800) 247-4796
100 Woodbridge Center Drive	Fax: (732) 404-2556
Suite 201	Website: www.rcc.com
Woodbridge, New Jersey 07095	Email: info@rcc.com

Regional Offices

RCC maintains five regional offices across the United States, in Harrisburg, Pennsylvania; Houston, Texas; Richmond, Virginia; San Bernardino, California and Tallahassee, Florida.

Local Offices

RCC maintains a strong virtual workforce, providing flexibility to serve our clients and their local needs. We have employees conveniently located near our clients in major metropolitan areas, including Boston, Chicago, Dallas, Los Angeles, Miami, Phoenix and Washington, D.C.

Our Company Leadership

RCC has a full-time staff of more than 130 people, with a rich variety of experience and qualifications. Our leadership team is focused on operating RCC so it is optimally structured to deliver value to our clients, while providing significant opportunities for our employees. RCC is led by:

Michael W. Hunter – President and Chief Executive Officer

Mr. Hunter, a founding employee of the firm in 1983, has served in his present position since 1987. He has worked in communications systems consulting, engineering and operations for more than 35 years, and his extensive implementation experience includes nationwide wireless data systems in the U.S., U.K., Australia and the Netherlands. He has held several leadership positions in the Association of Public-Safety Communications Officials – International (APCO), including Virginia Chapter President and National Emergency Medical Services Committee Chairman. He is a member of the Institute of Electrical and Electronic Engineers (IEEE) Vehicular Technology Society, the National Emergency Number Association (NENA), the National Fire Protection Association and American Mensa. He earned a Bachelor of Science degree from Virginia Commonwealth University and an MBA from New York University.

Richard F. Morelli – Executive Vice President and Chief Financial Officer

Mr. Morelli is responsible for all of RCC's financial and administrative functions. His background in economic and financial management spans more than 30 years. Before joining RCC, he provided financial and marketing support for Western Union's $225MM product line, as well as developed and managed programs for Western Union's cellular industry. Mr. Morelli is a graduate of Hofstra University, where he earned a Bachelor of Science degree in Industrial Engineering, and Farleigh Dickinson University, where he earned an MBA degree, cum laude.

Nagah Ramadan – Executive Vice President, Chief Corporate Strategist, Chief Quality Officer

Mr. Ramadan has more than 35 years of engineering and management experience, with emphasis on large-scale communications systems, engineering design and construction, and system integration management. Prior to joining RCC, he was Capital Programs Director and Commissioner with the Cleveland Department of Public Utilities. He also served as a Chief Engineer with the Suez Canal Authority. Mr. Ramadan received a BSEE from the University of Alexandria (Egypt), an MBA from Cleveland State University and has completed class work for a Doctorate of Executive Management from Case Western Reserve University. He is a Certified Professional in Project Management (CPMP) and a Registered Professional Engineer (P.E.).

Carl Robert Aron – Executive Vice President

Mr. Aron has extensive experience in the licensure, operation and finance of telecommunications investments, and manages the international, information technology and telecommunications consulting areas for RCC. He practiced corporate law and litigation at New York law firm Rubin Baum from 1967 to 1990 (as partner from 1972). He served as CEO of RAM Broadcasting Corp., RCC's predecessor, and was a founder of RCC. He has also held leadership positions with A.T. Kearney and Itron, Inc. Mr. Aron earned the A.B. at Columbia College, graduating Phi Beta Kappa, and earned the LL. B. from Harvard Law School, cum laude.

Financial Strength

Through our strong risk management discipline and sound financial strength, RCC has thrived for more than 29 years. We are deeply committed to safeguarding our financial stability. Copies of our audited financial statements for the previous three years are available upon request.

Integrity

RCC is dedicated to performance with integrity in every interaction. This commitment is the cornerstone of our past, present and future success. Our Corporate Compliance Program was established to convey our long-standing commitment to compliance with the law and our high standards of ethical business and personal conduct.

Employees participate in the Program three ways: first, by exercising good judgment and personal integrity; second, by reading, understanding and complying with our Code of Conduct and Corporate Integrity policies and procedures; and third, by reporting any potential violations of laws or policies.

Business and Personal Ethics

RCC employees are expected to observe high standards of business and personal ethics. This requires the practice of honesty and integrity in every aspect of our dealings with our clients, partner companies, vendors, the public, our employees and governmental and regulatory authorities.

Absence of Conflict of Interest

RCC is not affiliated with, nor do we have any financial interest in, any communications equipment manufacturer, distributor or supplier. RCC does not receive or accept remuneration of any type from any manufacturer, distributor or supplier for recommending any of their products. Employees – and the company – must be free from any actual or potential conflict of interest in interactions with our clients, the public, our partners and our vendors.

Compliance with Laws and Regulations

RCC and our employees comply with all applicable laws and regulations. We take this responsibility seriously and expect that our actions will reflect our commitment to honest, ethical and professional interactions with our stakeholders.

RCC has been in continuous operations since 1983 and has never filed or had filed against it any bankruptcy or insolvency proceeding, whether voluntary or involuntary, or undergone the appointment of a receiver, trustee, or assignees for the benefit of creditors.

There are no pending Securities Exchange Commission investigations involving RCC and there are no open or pending litigation initiated by RCC in a customer matter.

Political Contributions

Federal and state laws place complex restrictions on the making of corporate political contributions. Because RCC complies strictly with all applicable laws and regulations relating to corporate political contributions, no employee may involve RCC in any way in political campaigns. No political contributions for any candidate shall be made for or on behalf of RCC

by any employee unless it has been approved by Company management under established corporate procedures. RCC resources may not be used to support any candidates or political committees.

Equal Employment Opportunity/Affirmative Action Statement

RCC is an equal opportunity employer and does not discriminate on the basis of race, color, gender, religion, age, sexual orientation, national or ethnic origin, disability, marital status, veteran status or any other occupationally irrelevant criteria. We promote affirmative action for minorities, women, disabled persons and veterans in all our employment practices.

What We Do

For more than 1,500 clients around the world, RCC has provided solutions through wireless and wired voice/data communications and information technologies. Our consultants and engineers are experts in strategic planning and direction, business analysis, system design, procurement, implementation, systems integration, monitoring and maintenance.

Our Technical Expertise

Radio Communications Systems

- All frequency bands HF, VHF, UHF, 700 MHz, 800 MHz, 900 MHz and microwave
- Digital and Analog Systems
- Conventional and Trunked Systems
- Simulcast Systems
- Cellular and Other Roaming Technologies
- Coverage Prediction Modeling
- Interference Control and Analysis
- Coverage Measurement and Verification

Microwave and Fiber Optic Transmission Systems

- Point to Point and Point to Multipoint
- Digital – Ethernet Microwave Radio Design
- Analog/Digital Interface and Conversion
- Alarm and Monitoring Systems
- Microwave Propagation Modeling
- System Optimization
- Power Supplies

Communications/Dispatch Center Planning, Facilities Design and Cost Estimating

- Consolidation/Co-location Studies
- Floor Plan Layout
- Space Planning
- Ergonomic Recommendations
- Environmental Controls
- Dispatch Console Furniture Design
- Console System Radio and Data Interfaces
- Dispatch Center Staffing and Management Operations Studies

Public Safety Emergency Telephone Systems

- E9-1-1 Emergency Telephone Number Systems
- Wireless 9-1-1 Deployment
- Wireless Location Accuracy Testing
- Automatic Call Distributor Systems

Intelligent Transportation Systems

- Traffic Management Systems
- Highway Advisory Radio Systems
- Mass Transit Communications Systems

Telephony Services

- Voice over IP (VoIP) Network Specification/ Deployment
- ACD Administration
- Performance and Capacity Management
- Call Accounting Services

Information Technology And Data Systems

- Computer Aided Dispatch (CAD)
- Records Management Systems (RMS)
- Mobile Computing (MDC)
- Automatic Vehicle Location (AVL)
- Geographic Information Systems (GIS)
- Field Based Reporting (FBR)
- Wireless Data Systems – Public and Private

Data Networks

- Local and Wide Area Networks
- Broadband Wireless (WiMax, WiFi, LTE)
- Voice, Data, Video Structured Cabling Systems
- Supervisory Control and Data Acquisition

Fiber Optic Networks

- Campus Networks
- Metropolitan Networks

Communications Site Planning

- Tower Specifications
- Site Development, Planning, Zoning, Acquisition
- Lightning Protection, Grounding, Bonding
- Equipment Shelter and Room Design
- Security and Alarm Systems
- Backup Power and Fuel Systems
- Automatic Fire Suppression Systems
- Surveillance Cameras

Network Services

- Business Case and Strategic Planning
- Network Planning, Engineering and Construction
- Network Optimization and Management

Market Research

- Technology
- Market Segment Research

Our Client Industries

RCC works with clients around the world in a wide range of industries, including:

- Public Safety Agencies
- National/State/Local Governments
- Transit Authorities and Agencies
- Utilities – Electric, Gas, Water
- Airports and Ports
- Transportation Agencies
- Colleges, Universities and Public School Systems
- Manufacturers
- Retailers
- Oil/Gas Production and Transportation
- Wireless Network Operators
- Real Estate Owners and Managers
- Healthcare Facilities
- Educational Councils
- Special Authorities

Our Products

To help our clients design, operate, monitor and maintain their wireless networks, RCC has developed a suite of comprehensive radio frequency software tools called ComSite®. The suite consists of five products that can be used in combination or independently:

COMSITE DESIGN

Wireless Network Planning & Design
This high-speed software tool set supports wireless system analysis and planning, design and optimization of wireless networks in one scalable PC platform small enough for field technicians to use.

COMSITE PRO

Wireless Site Engineering
This powerful site interference analysis tool is the only tool on the market specifically designed to help identify, analyze, locate and resolve radio frequency interference (RFI).

COMSITE MANAGER

Wireless Site Management
This site management application will save you hours of work, whether you are responsible for a single wireless communications site or a nationwide communications network containing thousands of sites.

COMSITE MPE

Wireless Site Compliance
This powerful tool evaluates non-ionizing radio frequency (RF) emissions and predicts the Maximum Permissible Exposure (MPE) potential to humans at or near wireless communications sites.

COMSITE 9-1-1e

Wireless Location Accuracy
This easy-to-use tool helps you determine the location data accuracy of wireless E9-1-1 calls delivered to your Public Safety Answering Point (PSAP), based on standard and repeatable statistical methods.

For more information on the ComSite suite of products, visit the RCC website at www.rcc.com.

How We Do It

At the foundation of our relationship with every client is a strategic, disciplined approach to providing long-term solutions. During the past 28 years, we have developed comprehensive engineering and project management practices to create our time-tested approach that ensures success for our clients.

Our Project Approach

According to Standish Group's *Chaos 2007 REX: A Standish Research Exchange*, a staggering 39% of projects with budgets exceeding $10 million failed. Failure is defined as either total abandonment or failure to meet one or more of the key project objectives within the budget and time allocated. Proper project management and planning are vital to ensuring a project's success.

RCC has managed more than 4,000 communications and information systems projects for organizations big and small. To ensure the success of each project, we utilize a companywide project approach based on the Project Management Institute (PMI)'s global best practices.

"If You Fail to Plan, You Plan to Fail"

RCC's five-step approach to any project starts with project initiation and planning. Through our decades of experience, we have found that proper planning can reduce risk, ensure alignment of objectives, capitalize on efficiencies and ultimately lead to project success.

Once planning is complete, the project moves into the execution phase. This is often where the bulk of the workplan is executed, and depending on the project, tasks can range from developing specifications to designing radio systems to installing tower sites.

A key step in our project management approach is monitoring and control. This is an iterative process, and only after successful acceptance testing can a project be considered closed out.

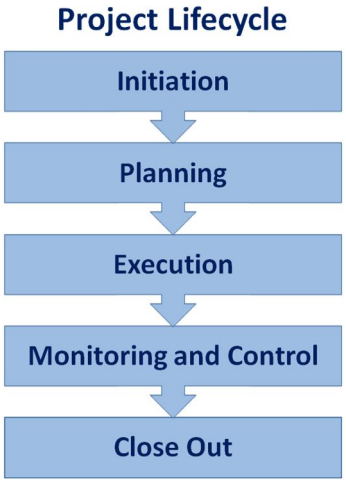


Figure 1. RCC's Project Management Approach
RCC utilizes a companywide, shared model, based on PMI's global best practices, to ensure the success of each and every project.

Throughout an RCC project's lifecycle, there is extensive communication among the project team and with our client. By communicating regularly, all stakeholders are kept informed, promoting collaboration and reducing re-work.

A Companywide, Shared Model

All of our project managers, and many of our engineers, have participated in more than 50 hours of project management training. The training teaches the best practices from PMI, as well as the specific, practical application of those practices for telecommunications engineering projects.

Through our application of a consistent project management methodology, which we employ for all engagements, we ensure consistent and efficient delivery for our clients.

Quality Assurance Commitment

RCC is built on a solid foundation of quality products and services that meet our client needs and add value to every project. We are committed to maintaining strict quality requirements based on International Organization for Standardization (ISO) and Total Quality Management standards. Our project managers, consultants and engineers are all trained in adherence to these standards, and for larger projects, we assign an Executive Sponsor who is accountable for the quality assurance and success of a project.

To ensure every project meets our high quality standards, we have developed an internal quality management process based on recognized quality management objectives:

RCC's Quality Management Model

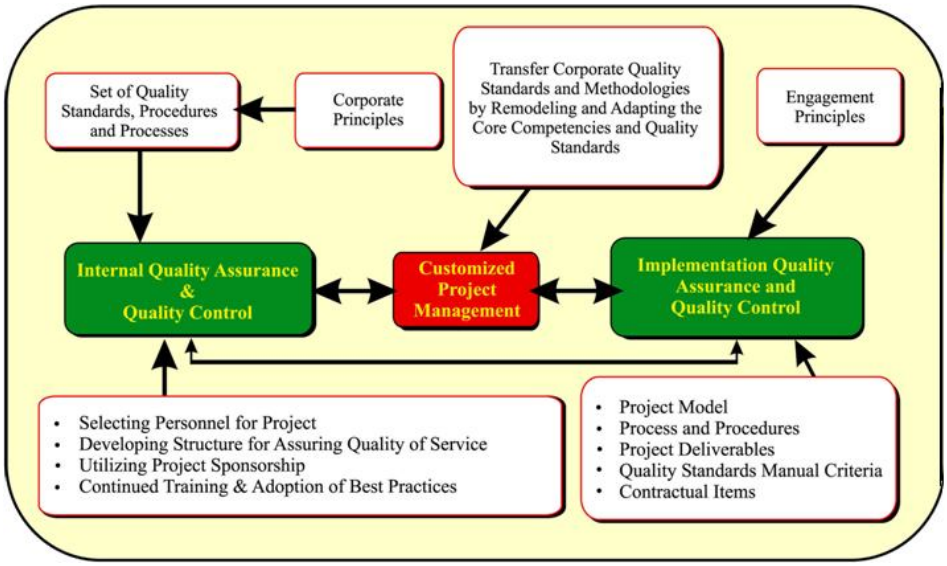


Figure 2. RCC's Quality Management Model

RCC's Quality Management Model supports the unique requirements of each project. Quality management ensures client satisfaction and has equal priority with deliverable execution, schedule management and cost control.

RCC's model includes six quality management concepts that support the unique requirements of each project:

- Quality Policy
- Quality Objectives
- Quality Assurance
- Quality Control
- Quality Audit
- Quality Program Plan

We begin each project by taking the time to fully understand the needs of our clients. We then tailor our quality management oversight to meet those needs. Our project manager has the ultimate responsibility for quality management during the project.

Quality management has equal priority with deliverable execution, schedule management and cost control. Quality management within RCC is an ever-improving system for integrating the

processes and procedures necessary to provide cost-effective services that are fully acceptable to our clients.

RCC's Public Safety and Government Practice

RCC has specialized in communications consulting for public safety and government clients since 1983. A trusted industry advisor, we help domestic and international governments, law enforcement, Fire departments, EMS, dispatch centers and other public safety agencies get the most out of their mission-critical communications systems.

We know that public safety agencies and governments have unique needs. We also know the complexities they face with their communications systems, not only in technology, but also in business planning. That's why we devote an entire practice to supporting the needs of public sector agencies – RCC's Public Safety and Government practice.

29

RCC has been a trusted advisor to public safety agencies and governments for more than 29 years.

Specialized Services for the Public Sector

RCC's Public Safety and Government practice helps our clients determine their needs and develop a solution, whether they are upgrading, improving or building new systems. With the right strategic planning, our clients' information and communications systems can deliver the increased efficiency and productivity they need, within their budget. We assist our clients with:

- **Developing strategic plans**, including definition of goals and objectives, and conducting needs assessments, technology evaluations, risk analyses and staffing reviews.
- **Designing systems and facilities using new and emerging technologies** for data, voice and video networks, emergency communications and operations centers.
- **Investigating and developing funding methodologies and financial analyses** to help justify recommended solutions.
- **Identifying and obtaining grants** in support of technology initiatives.
- **Assisting with the regulatory approvals** needed for licensure of wireless systems, antenna sites and other facilities.
- **Conducting radio frequency research** and enabling acquisition.
- **Preparing detailed specifications and procurement documents** for new or upgraded technology.
- **Assisting in negotiating contracts and service level agreements** with vendors.
- **Implementation support and installation oversight** to ensure work is completed according to the specifications, on time and within the established budget.

Technology Expertise for the Public Sector

Our consultants and engineers are experts in planning, designing, procuring and implementing communication systems. To provide the best support to our public sector clients, we have focused our Public Safety and Government practice on providing customized services in six

areas: Wireless Communications, Information Systems, Mobile Data, Communications Centers, Emergency Number Systems, and Business Planning and Management.

Wireless Communications

Governments and public safety agencies are facing rapidly changing economic conditions and high consumer expectations for easy access and quick response. Wireless communications and interoperability among agencies and jurisdictions are critical to meeting those needs. RCC has helped hundreds of client improve their interoperability and get the most out of their wireless communications systems. We assist public safety agencies and governments with:

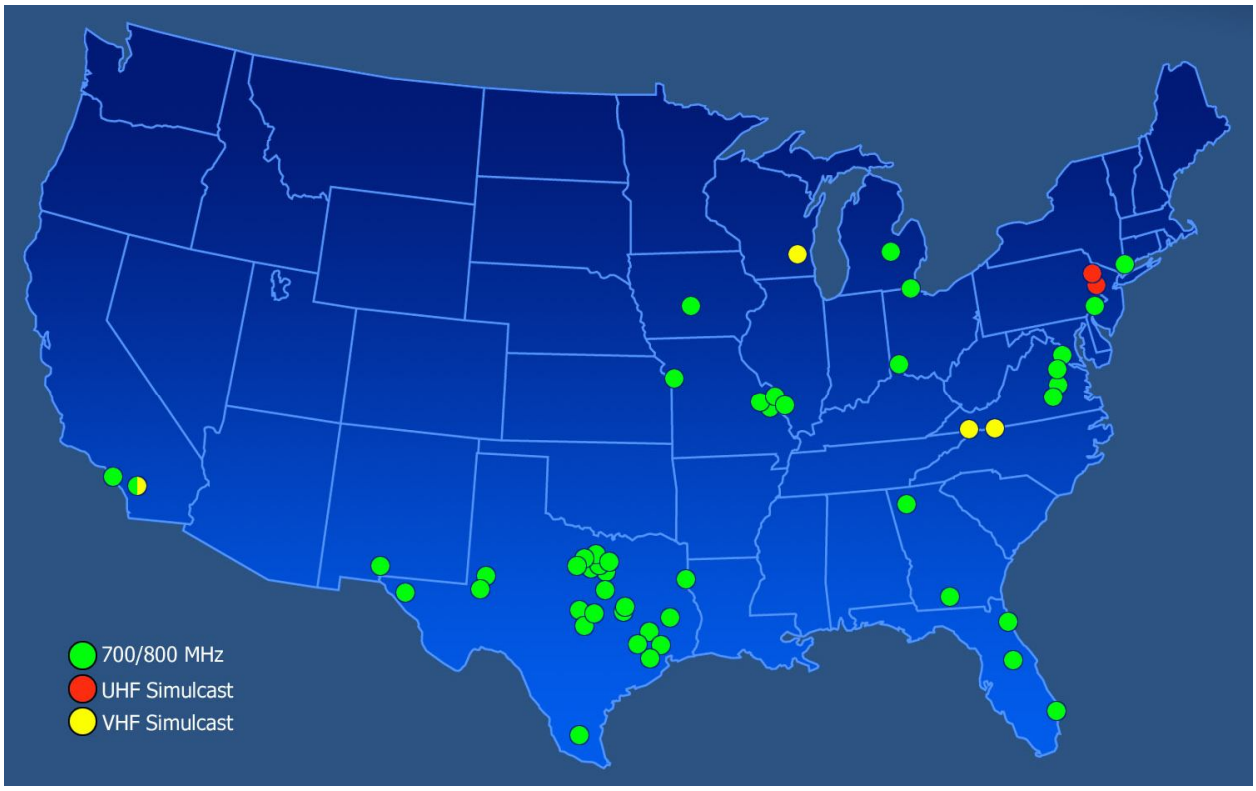
- Interoperability Assessment, Planning, Design and Implementation
- RF System Design and Performance Engineering
- Coverage Analysis and Enhancement
- Spectrum Planning and Licensing (VHF,UHF, 700 MHz, 800 MHz, 4.9 GHz)
- Conventional and Trunked Radio
- Public Safety Broadband
- Microwave Networks
- Paging Systems
- 800 MHz Rebanding
- Interference Resolution
- Wireless Data/Voice/Video Networks
- Wireless LANs (802.11x)
- System Integration, Maintenance and Optimization
- Cellular, PCS & LMDS System Design

Specialized Radio Services

RCC has designed and helped procure hundreds of conventional and trunked radio systems for our clients. Over the last several years, RCC has assisted clients across the country implement dozens of P25 compliant systems and is currently working with many other jurisdictions to help them upgrade their existing system to P25 compliance. RCC personnel were involved in the committees that defined the standard and stay involved today to ensure they are up to date on the latest standard developments and improvements. A graphic of some of the P25 radio systems RCC has been or is currently involved in is shown below.

Scope

RCC designed the microwave backhaul network supporting Pennsylvania's statewide land mobile radio network. It is believed to be the largest private microwave radio network in the U.S.



To enhance radio systems for public safety agencies and governments, we provide the following specialized services:

Microwave Radio Engineering

Our experts conduct microwave path engineering and system design, including point-to-point propagation, multipath fading, diffraction and reflections along path, antenna system configuration and optimization, Fresnel and earth curvature clearance, line of site verifications, and system testing, optimization and implementation.

Radio Traffic Monitoring

The radio frequency spectrum is a limited natural resource that requires proper engineering to maximize capacity and minimize interference. Before designing or enhancing a client's system, RCC monitors radio traffic to assess channel loading to ensure we understand our client's current operating environment so we recommend the most efficient and effective solution. Using a radio receiver capable of scanning up to 20 radio channels a second, we assess the amount of radio traffic generated throughout the day. The analysis becomes a core input into the system design, and provides verifiable evidence of the need for frequencies during the licensing process.

Radio Propagation and Coverage Analysis

RCC's propagation and coverage analysis helps determine the optimum site layout and distribution, as well as radio system coverage and expected system reliability. Our consultants have developed and tested an industry-leading toolset, ComSiteDesign, to aid in radio propagation and coverage analysis. The portable toolset delivers comprehensive multi-site coverage analysis, interference analysis, multiple point-to-point and point-to-multipoint analyses.

Radio Frequency Interference Analysis

To assist with base station site engineering and frequency compatibility, RCC created another powerful software tool, ComSitePro. This tool includes a database of more than 3,000 antennas, filters, transmitters and receivers to allow engineers to determine the minimum required isolation and protection from unwanted signal.

Spectrum and Regulatory Services

Proper planning for frequencies, including how many are needed, how they will be used and how to acquire them, is essential when a radio communications system. RCC's regulatory experts assist public safety clients with frequency planning, searches and licensing applications for VHF, UHF, 700 MHz, 800 MHz and 4.9 GHz frequencies.

Our experts provide support and advice to help our clients identify, manage and control any existing or future regulatory risks. All of our work is performed in accordance with the Federal Communications Commission (FCC) or European Telecommunications Standards Institute (ETSI).

$1MM

RCC's regulatory specialists saved more than $1 million in licensing fees for four New Jersey towns building a shared emergency communications system.

Antenna Site Planning and Engineering

RCC provides a full range of antenna site design and construction management services to support radio communications systems, including:

Site Plans and Specifications

- Planning board/permit approval process
- Tower specifications
- Antenna specifications
- Equipment shelter specifications

Power and Monitoring Systems

- Emergency generator and fuel supply systems
- Uninterruptible power supply systems
- Rectifier and battery DC power system
- Grounding and surge suppression
- Security access control, CCTV systems
- Fire detection and suppression systems
- Tower light monitoring systems

Procurement Assistance

- Construction cost estimates
- Final bid documents, including sealed construction drawings
- Option analysis (value engineering)
- Bid review, negotiation and construction contracts

Project Management

- Project scheduling
- Subcontractor coordination
- Review of equipment shop drawings
- Change order and cost management
- Start-up and system commissioning
- As-built drawings and documentation

Information Systems

Urgent demands from customers, combined with internal goals and objectives, require that public safety agencies and governments not only make smarter network and systems deployment decisions, but also make them faster. RCC can help agencies enhance and improve their voice

and data infrastructure, and update and optimize mission-critical systems. RCC provides expert consulting services in:

- VoIP Systems and Networks
- TCP/IP network design
- LAN/WAN
- Records Management Systems (RMS)
- Utility Management systems
- Criminal Justice and Jail Management Systems
- Geographic Information Systems (GIS)
- Voice and Data Recording Systems
- Fleet Management
- Document Management/Imaging
- Computer Aided Dispatch (CAD)
- Mobile Data Computing
- Automated Field Reporting
- Automatic Vehicle Location
- Enterprise Resource Planning
- Field Force Management and Reporting

Mobile Data

RCC has been at the forefront of the mobile computing industry since the early 1980s. Our engineers designed, built and optimized the first nationwide public mobile data network in the United States, which now includes more than 2,000 base station sites.

We have continued to build on that expertise, assisting hundreds of public safety agencies plan, design, procure and implement mobile computing systems on both public and private platforms. Our engineers are experienced in the latest technologies and policies, and are frequently invited to participate on panels and regulatory committees regarding mobile data standards.

Our expertise to help our clients with their critical mobile communications includes:

- Commercial Networks

2,000

RCC pioneered the first nationwide public mobile data network in the United States, which now has more than 2,000 base stations.

- 2G, 2.5G, 2.75G and 3G Technologies (TDMA, CDMA, GSM, GPRS, EDGE, WCDMA, CDPD, iDEN, UMTS)
- Wireless Application Protocol (WAP)
- Wireless LANs (802.11x)
- Multimedia Messaging Service (MMS)
- SMS Text Messaging
- IP Media Subsystem (IMS)
- Push-to-Talk over Cellular (PoC)
- VoIP and Location Based Services
- Base-stations and Backhaul Networks
- Broadcasting and Multicasting to Handheld Devices
- Audio Visual Coding Technologies (Sound/Video/Multimedia Data Compression)
- Field Force Management and Reporting
- Tactical Map Display Systems
- Message Switching
- User Equipment Selection and Configuration
- Interference Resolution
- Automatic Vehicle Location

Emergency Number Systems

More than 25 countries around the world operate universal emergency number systems, providing citizens with rapid access to emergency services. Since Britain introduced the first system, "999," in 1937, there have been many sophisticated advances, including automated caller number identification and caller location information.

RCC helps public safety agencies and governments take advantage of these opportunities, and plan for future advances. Our team of Emergency Number Professionals and experienced engineers has consulted on systems for a wide range of clients – from the country's largest cities, including New York and Los Angeles, to smaller, rural counties.

We have extensive experience with major manufacturers of customer premise equipment, automatic call distributors, statewide switch networks and related technologies. Our engineers offer the expertise to:

- Identify emergency services boundaries and configuration
- Identify telephone service requirements and features
- Plan the proper telephone line capacity and number of lines

- Specify and procure call answering and transfer equipment
- Plan personnel, equipment and operational needs
- Verify wireless emergency number location information

Our broad array of consulting and engineering services can be customized to fit individual needs, and includes specific expertise in the following areas:

Traffic Engineering

- Busy Hour Call Volume Per Shift
- Call-Taker Obligated Time
- Emergency Call Process Analysis

Performance Requirement Definition

- Call-Taker Grade of Service
- Telephone Grade of Service
- Staffing Levels

Communications Network Features

- Answering Point Location
- Dispatch Center Locations
- Central Office Service Areas
- Types of Telephone Lines
- Terminal Equipment
- Optional Service Features

Personnel Planning

- Call Takers
- Dispatchers
- Supervisory
- Support

Operational Methods

- Direct Dispatch, Transfer, Relay
- Single State or Multi Stage Emergency Call Handling Equipment
- Incoming Emergency Lines
- Outgoing Private Lines
- Non-Published Number Lines
- Administrative Lines
- Terminal Equipment

Other Equipment Requirements

- Logging Devices
- Instant Playback Devices
- Intercom Systems
- Automated Call Distributors
- Automated Attendant Systems
- Emergency & Standby Power Systems
- Lightening Protection Systems
- CCTV and Surveillance Systems
- Access Control

Wireless 9-1-1 Location Testing and Verification

RCC is the exclusive partner with the National Emergency Number Association (NENA) to provide testing and certification recommendation of wireless 9-1-1 location technology installations. This service provides assurance to the public safety answering point and to wireless carriers that the location of an emergency caller is properly routed and received. The benefits to wireless 9-1-1 location testing include:

- Greater public confidence in 9-1-1 systems
- Improved service to public
- Independent review and verification

Testing to the FCC's OET-71 Standards

Using a comprehensive software suite developed by RCC, ComSite 9·1·1e, our teams conduct field verification of wireless 9-1-1 position and call routing in accordance with the Federal Communications Commission's OET-71 Standards.

Our teams randomly establish the position of each test location and collect coordinate samples at a rate of one every three seconds. To ensure the highest level of accuracy in each test, ComSite 9·1·1e determines the optimal number of samples at each test location based on a statistical confidence level of 95%. The ground truth samples are compared against the location determination method used by the wireless carrier.

The tests are correlated with data received at the PSAP, providing true end-to-end testing of the system. Results of tests are subjected to statistical analysis to determine a "pass" or "fail" condition. This essential verification service can be provided on a turnkey basis, or RCC can train testers from a PSAP, 9-1-1 Board or district to use the equipment and to submit data for independent review by RCC engineers. The test seeks to verify if the wireless carrier under test is providing Phase II class of service and whether the location coordinates delivered to the PSAP meet the expected accuracy and confidence for a given location determining technology.

Ensure Accuracy with an Independent Review

An independent review of wireless location accuracy is the only way to ensure that wireless callers are receiving the same high quality of service that wired users receive. Field experience has indicated that regardless of the good intentions of the wireless industry, failures do occur in installations that on the surface appear to be functioning properly. Location accuracy testing provided by RCC gives the PSAP and other public safety managers the essential, objective analysis they need to be confident in their service delivery quality.

Business Planning and Management

Now, more than ever, Public Safety and Government agencies are expected do more with less. To ensure you get the most out of the money you spend, it is critical to work with a strategic partner who can provide planning, assistance, oversight and management to ensure you get the most from your investment.

RCC offers a wide array of business planning and management consulting services that can be tailored to meet a client's unique needs:

- Strategic Planning
- Business and Business Case Planning/Analysis
- Public / Private Partnership Planning
- Grant Writing
- Disaster Management Planning
- Project Financing
- Business Process Reengineering

- Needs Analysis
- System Design
- Evaluation and Vendor Negotiation
- Implementation Assistance
- Operations and Maintenance Management
- Cutover Support