

**AGREEMENT BETWEEN LEVY COUNTY
and
FEDERAL ENGINEERING, INC.**

This Agreement is made and entered into by and between LEVY COUNTY, a political subdivision of the State of Florida, P.O. Box 310, Bronson, FL 32621 (hereinafter referred to as "County"), and FEDERAL ENGINEERING, INC., (hereinafter referred to as "FE") as of this 8th day of December, 2020.

WITNESSETH:

WHEREAS, County is in urgent need of a consultant to review of, and provide recommendations related to, County's communications systems; and

WHEREAS, the County staff that would be required to participate in a competitive selection process for such communications consulting services have been committed to addressing County and public needs arising from the COVID-19 public health emergency, and have not been and are not available to participate in a competitive selection process; and

WHEREAS, since the County staff that would be required to participate in a competitive selection process for the communications consulting services have been dedicated to services relating to the COVID-19 public health emergency, the County waived any requirements for a competitive selection process for such consulting services pursuant to applicable provisions of Chapter 2, Article VII, and Chapter 30, Article II, Levy County Code, and Chapter 252, Fla. Stat.; and

WHEREAS, FE submitted a proposal to County for communications consulting services that are needed by County; and

WHEREAS, County desires to acquire the communications consulting services from FE, and FE desires to provide such services in accordance with the Proposal, subsequent negotiations between the parties, and this Agreement;

NOW, THEREFORE, in consideration of the mutual terms and conditions, promises, covenants and payment hereinafter set forth, County and FE agree as follows:

**ARTICLE 1
INCORPORATION OF DOCUMENTS**

1.1 The proposal submitted by FE dated September 30, 2020 (herein the "Proposal"), is attached hereto as Exhibit "A" and hereby specifically made part of this Agreement as if same had been set forth at length herein.

In the event of any conflict between the documents constituting this Agreement, the documents shall be given precedence in the following order:

- 1) This Agreement;
- 2) The Proposal.

ARTICLE 2 FE'S DUTIES

2.1 FE agrees to perform all the services and provide all the materials described in the Scope of Work contained in the Proposal. FE shall perform all services and provide all materials in strict accordance with the provisions contained herein. FE shall perform all services contained in the Proposal in a professional, workmanlike manner, with such professional care, technical skill, ability and diligence as is required of similar communications consultants having the level of skill, expertise and specialized knowledge, as represented to County, both orally and in writing, to be possessed by FE.

2.2 FE agrees to provide its services and materials in the times allowed for performance contained in the Proposal.

2.3 FE confirms that its services provided are not "professional services" as the term is defined in Section 287.055(2)(a), Florida Statutes, and agrees that it will not perform any services that would constitute such "professional services" without providing prior written notice and approval from County's Project Manager.

2.4 Compliance with Laws.

FE shall comply with all federal, state, and local statutes, laws, ordinances, resolutions, rules and regulations in the performance of its obligations under this Agreement.

2.5 Compliance with Chapter 119, Florida Statutes.

(a) In addition to compliance with any other laws as required by this Agreement, FE shall comply with the public records laws of the State of Florida contained in Chapter 119, Florida Statutes, as the same may be amended. Failure to comply with the provisions of this subsection shall constitute a substantial failure to perform on the part of FE in accordance with the terms of this Agreement. Specifically, but not by way of limitation, FE shall:

- (i) Keep and maintain public records required by County to perform the service;
- (ii) Upon request by County's custodian of public records, provide County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes, or as otherwise provided by law;

(iii) Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the term of this Agreement and following completion of the services to be provided by FE under this Agreement if FE does not transfer the records to County; and

(iv) Upon completion of the services to be provided under this Agreement, transfer, at no cost, to County all public records in possession of FE or keep and maintain public records required by County to perform the services. If FE transfers all public records to County upon completion of this Agreement, FE shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If FE keeps and maintains public records upon completion of this Agreement, FE shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to County, upon request from County's custodian of public records, in a format that is compatible with the information technology systems of County.

(b) The definitions contained in Chapter 119, Florida Statutes, apply to terms used in this section, unless alternate or more specific definitions for any such terms are provided in this Agreement.

(c) For purposes of this Agreement, the term "custodian of public records" shall mean the County Coordinator of County, or his/her designee.

(e) IF FE HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO FE'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:

TELEPHONE: (352) 486-5218

E-MAIL: levybocc@levycounty.org

MAILING ADDRESS: P.O. BOX 310, BRONSON, FL 32621

ARTICLE 3 ADDITIONAL SERVICES

3.1 In the event that County desires FE to perform any of the Next Steps (Optional Services) contained in the Proposal, or any additional services not specifically contained in the Proposal, the parties shall enter into an addendum to this Agreement to provide for the provision of such Next Steps (Optional Services) or other additional services by FE and payment therefor by County.

ARTICLE 4
TERM/TERMINATION

4.1 The term of this Agreement shall begin on the date this Agreement is executed by the last party to execute, and shall continue for approximately fourteen (14) weeks as set out in the Deliverable Schedule in the Proposal, or until FE completes all services and provides all products contained in the Proposal and required under this Agreement, and County accepts such services and products as satisfactory, whichever is later, unless otherwise terminated in accordance herewith. To the extent that this provision amends the start date of December 7, 2020, listed in paragraph 7 on page 16 of the Proposal, such start date is hereby amended.

4.2 This Agreement may be terminated by County, with or without cause, by written notice to FE of the intent to terminate. Such termination shall be effective thirty (30) days after receipt by FE of such written notice of intent to terminate. However, no termination for cause will be effective unless FE is first given ten (10) calendar days after receipt of notice of intent to terminate in which to cure the cause for termination.

4.3 In the event of termination, FE shall be entitled to compensation for services rendered and costs incurred through the effective date of termination, based on FE's hours expended and the hourly rates of FE in accordance with the GSA rate schedule for FE contained in the Proposal. All finished or unfinished documents, data, studies, surveys, analyses, sketches, tracings, specifications, plans, designs, design calculations, details, computations, drawings, maps, models, photographs, reports, and other documents prepared by FE shall become the property of County and shall be delivered by FE to County immediately upon the effective date of termination.

ARTICLE 5
METHOD OF INVOICE AND PAYMENT

5.1 County shall pay to FE the total fixed price cost, including all labor, travel and other direct costs, is a not to exceed amount of Forty-Nine Thousand Three Hundred Ten Dollars (\$49,310) for FE's services performed in accordance with the Proposal and this Agreement.

5.2 Payment for services rendered by FE shall be made periodically upon the submittal by FE of proper invoices at certain milestones of completion of services listed in the Proposal. Completion of the milestone services shall be subject to review and approval by the County Project Manager or his/her designee. The invoices based on milestones in services provided by FE and the corresponding payments therefor will be as follows:

<u>Invoice #</u>	<u>Services Completed</u>	<u>Payment Amount</u>
Invoice #1	Documentation review, kickoff meeting, user interviews and site visit	\$17,000

Invoice #2	Coverage workshop, microwave system assessment and alternatives analysis	\$16,500
Invoice #3	Draft Radio System Needs Assessment and Alternatives Analysis Report delivered	\$ 9,500
Invoice #4	Final Radio System Needs Assessment and Alternatives Analysis Report delivered	\$ 6,310
TOTAL		\$49,310

5.3 FE shall submit all invoices for payment of services rendered following the completion of services for the milestones set forth above to the County Procurement Department for processing. Invoices shall be detailed as to nature of the services performed and shall refer to the particular services from the Proposal to which the invoices apply. Invoices shall include a summary of any amounts previously billed and any credits for amounts previously paid.

5.4 FE acknowledges that each invoice must be reviewed and approved by the County Project Manager or his/her designee. Should the County Project Manager, or his/her designee, determine that the invoice is not commensurate with services performed, work accomplished or hours expended, or are otherwise not proper, FE shall adjust the invoice accordingly. However, FE shall be entitled to payment of any portion of an invoice not in dispute.

5.5 Invoices submitted by FE will be subject to, and County shall pay FE's monthly proper invoices in accordance with, Sections 218.70 through 218.80, Florida Statutes, the Florida Local Government Prompt Payment Act.

5.6 In the event budgeted funds which are sufficient for the County to pay the amounts provided for under this Agreement are not available for any upcoming fiscal period, the County shall notify FE of such occurrence and this Agreement shall terminate on the last day of the then current fiscal period without penalty or expense to the County.

ARTICLE 6 COUNTY'S RESPONSIBILITIES

6.1 County shall perform the responsibilities contained in this Article 6 in a timely manner so as not to delay the services of FE.

6.2. County shall furnish to FE, upon request of FE and at County expense, all existing studies, reports and other available data pertinent to the services to be performed under

this Agreement which are within the County's possession. However, FE shall be required to evaluate all materials furnished hereunder using reasonable professional judgment before relying on such materials.

6.3 County shall provide reasonable access and entry to all public property required by FE to perform the services described in this Agreement. All such access and entry shall be provided at County expense. County shall also use reasonable efforts to obtain permission for reasonable access and entry to any private property required by FE to perform the services described in this Agreement.

ARTICLE 7
STANDARDS AND CORRECTIONS

7.1 FE shall perform or furnish to County all services being provided pursuant to this Agreement and related services to a level of technical skill, ability, and diligence as is required of professional having the level of skill, expertise and specialized knowledge, as represented to the County, both orally and in writing, to be possessed by FE, all in accordance with the standards contained elsewhere in this Agreement and in accordance with generally accepted standards of communications consulting practice and with the laws, statutes, ordinances, codes, rules and regulations governing FE's services provided pursuant to this Agreement. The same standards of care shall be required of any subconsultant or subcontractor engaged by FE.

7.2 FE shall, without additional compensation, correct and revise any errors, omissions, or other deficiencies in its work product, services, or materials arising from the negligent act, error or omission of FE or any subconsultant or subcontractor engaged by FE under this Agreement. The foregoing shall be construed as an independent duty to correct rather than a waiver of County's rights under any applicable statute of limitations. County review of, approval of, acceptance of, or payment for any of FE's work product, services, or materials shall not be construed to operate as a waiver of any of County's rights under this Agreement, or cause of action County may have arising out of the performance of this Agreement. The provisions of this section shall survive termination of this Agreement.

ARTICLE 8
COUNTY PROPERTY

8.1 All documents, data, studies, surveys, analyses, sketches, tracings, specifications, plans, designs, design calculations, details, computations, drawings, maps, models, photographs, reports, and other documents and plans resulting from FE's services under this Agreement shall become the property of and shall be delivered to County without restriction or limitation as to use. However, any use subsequent to or other than for the specific project for which such items were created, shall be at sole risk of County.

ARTICLE 9
NOTICES

9.1 Any notice required or permitted to be sent hereunder shall be sent by United States first class mail, postage prepaid, or hand-delivered to the parties at the addresses listed below:

If to County:

County Coordinator
P.O. Box 310
Bronson, FL 32621

with a copy to:

(County Project Manager and address will need to be inserted)

If to FE:

Ronald Bosco
President and CEO
Federal Engineering, Inc.
10560 Arrowhead Drive
Fairfax, VA 22030

ARTICLE 10
NO CONTINGENT FEES

10.1 FE certifies that it has not employed or retained any company or person, other than a bona fide employee working solely for FE to solicit or secure this Agreement and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for FE any fee, commission, percentage, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For the breach or violation of this provision, County shall have the right to terminate the Agreement without liability at its discretion, to deduct from the contract price, or otherwise recover, the full amount of such fee, commission, percentage, gift or consideration.

ARTICLE 11
NO ASSIGNMENT

11.1 This Agreement, or any interest herein, shall not be assigned, transferred or otherwise encumbered, under any circumstances by FE without the prior written consent of

County. Further, no portion of this Agreement may be performed by subcontractors or subconsultants without written notice to and approval of such action by County.

ARTICLE 12
INDEMNIFICATION

12.1 FE shall defend, indemnify and hold harmless County and all of County's officers, agents, employees, and volunteers from and against all claims, liability, loss and expense, including reasonable costs, collection expenses, attorneys' fees, and court costs which may arise because of the negligence (whether active or passive), misconduct, or other fault, in whole or in part (whether joint, concurrent, or contributing), of FE, its officers, agents, employees, subcontractors, or volunteers in performance or non-performance of its obligations under this Agreement. FE recognizes the broad nature of this indemnification and hold harmless clause, as well as the provision of a legal defense to County when necessary, and voluntarily makes this covenant and expressly acknowledges the receipt of such good and valuable consideration provided by County in support of these indemnification, legal defense and hold harmless contractual obligations in accordance with the laws of the State of Florida. This clause shall survive the termination of this Agreement. Compliance with any insurance requirements required elsewhere within this Agreement shall not relieve FE of its liability and obligation to defend, hold harmless and indemnify County as set forth in this section.

Nothing herein shall be construed to extend County's liability beyond that provided in section 768.28, Florida Statutes.

The provisions of this Article shall survive termination of this Agreement.

ARTICLE 13
INSURANCE

13.1 Before performing any work, FE shall procure and shall continue to maintain, at its sole cost and expense, throughout the term of this Agreement, insurance policies meeting the requirements, and in the coverages and amounts as set out below. Simultaneous with entering into this Agreement, FE shall provide evidence of insurance generated and executed by a licensed insurance broker, brokerage or similar licensed insurance professional evidencing such coverage, from companies authorized to do business in the State of Florida, and signed by a person authorized by the insurer to bind coverage on its behalf. In addition, FE shall provide County with a certified copy, or copies, of said insurance policies, with all endorsements, upon request. FE shall also provide Certificates of Insurance or other evidence of coverage which is allowed by law to carry an additional named insured, which shows Levy County, a political subdivision of the State of Florida, its elected officials, officers, agents, employees, and volunteers, as additional named insured. Each policy required below shall require that thirty (30) days prior to expiration, cancellation, non-renewal or any material change in coverages or limits, written notice thereof shall be given to County. FE shall also notify County, in writing, within twenty-four

(24) hours after FE's receipt of any notices of expiration, cancellation, non-renewal, or material changes in coverage; and nothing contained herein shall absolve FE of this requirement to provide notice. Each Certificate of Insurance shall be on a standard ACORD form, listing coverages and limits, expiration dates, terms of policies and all endorsements, and shall include the project name on the Certificate. Any and all deductibles to any insurance policy shall be the responsibility of FE. Said insurance coverages procured by FE as required herein shall be considered, and FE agrees that said insurance coverages it procures as required herein shall be considered, as primary insurance over and above any other insurance, or self-insurance, available to County, and that any other insurance, or self-insurance available to County shall be considered secondary to, or in excess of, the insurance coverage(s) procured by FE as required herein.

Coverages and limits for the insurance required herein shall be as follows:

A. **Commercial General Liability**. Commercial general liability insurance shall include products and complete operations performed by FE. This coverage shall have the following minimum limits: three hundred thousand dollars (\$300,000) per occurrence, combined limit of six hundred thousand dollars (\$600,000), products and completed operations limit of six hundred thousand dollars (\$600,000), fire damage limit of one hundred thousand dollars (\$100,000), and damage to rented property limit of one hundred thousand dollars (\$100,000). Insurance must be written on an occurrence form and shall include bodily injury and property damage liability for premises, operations, independent contractors, products and completed operations, contractual liability, broad form property damage and property damage resulting from an explosion, collapse or underground exposures, personal injury and advertising injury.

B. **Commercial Automobile Liability Insurance**: Automobile liability insurance shall cover all automobiles and trucks FE may use in connection with this bid. The limit of liability for this coverage shall not be less than three hundred thousand dollars (\$300,000) each accident for property damage and bodily injury. Coverage must include contractual liability and must include all owned, non-owned and hired vehicles.

C. **Workers' Compensation Insurance**: Coverage is to apply for all FE's employees for statutory limits in compliance with the applicable state and federal laws. The policy must include Employers' Liability with a limit of \$500,000 each accident, \$500,000 each employee, \$500,000 policy limit for disease.

ARTICLE 14 CONTACT PERSONS

14.1 County hereby appoints County Department of Public Safety Battalion Captain, Clayton Drew, or his successor in function or title as County Project Manager for this

Agreement. County Project Manager will perform all actions set out in the Proposal for the County's project manager. All communications pertaining to the day-to-day conduct of the performance of this Agreement shall be addressed and coordinated through the County Project Manager. Upon written notice of such designation to FE, County Project Manager may designate another County staff person to perform certain actions or duties on County Project Manager's behalf.

ARTICLE 15
SEVERABILITY

15.1 In the event any provision of this Agreement shall be held invalid and unenforceable, the remaining provisions shall be valid and binding upon the parties. One or more waivers by either party of any breach of any provision, term, condition or covenant shall not be construed by the other party as a waiver of any subsequent breach.

ARTICLE 16
GOVERNING LAW/VENUE

16.1 This Agreement shall be governed and construed in accordance with Florida law. In the event litigation arises involving the parties in connection with this Agreement, venue for such litigation shall be in Levy County, Florida.

ARTICLE 17
INDEPENDENT CONTRACTOR STATUS

17.1 FE is an independent contractor and is not an employee, servant, agent, partner or joint venturer of the County.

IN WITNESS WHEREOF, the parties hereto have caused the execution of these premises as of the date and year set forth below their signatures.

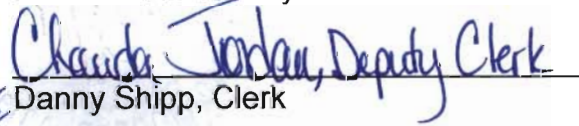
BOARD OF COUNTY COMMISSIONERS
LEVY COUNTY, FLORIDA



Matthew Brooks, Chair

Date: December 8, 2020

ATTEST: Danny Shipp, Clerk of the
Circuit Court and Ex-Officio Clerk of
the Board of County Commissioners


for Danny Shipp, Clerk

APPROVED AS TO FORM AND
LEGAL SUFFICIENCY:



Anne Bast Brown, County Attorney

FEDERAL ENGINEERING, INC.

By: Ronald F. Bosco
Ronald Bosco
President and CEO

Date: December 8, 2020

ATTEST/WITNESS:

Shawn Duke

Secretary of Corporation

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"Unleashing the Power of Technology"

Federal
Engineering®

Federal Engineering, Inc.

10560 Arrowhead Drive
Fairfax, VA 22030
(703) 359-8200

September 30, 2020

Mr. Clayton Drew
Battalion Captain
Levy County Department of Public Safety
Via email: cdrew@levydps.com

Dear Mr. Drew:

Federal Engineering, Inc. (FE) is pleased to offer this proposal to Levy County to provide land mobile radio (LMR) consulting services. We specialize in public safety radio communications projects. Our team looks forward to serving as your trusted advisor to evaluate your current radio system and provide recommendations for upgrades.

FE has extensive experience upgrading legacy communications systems to achieve improved coverage and interoperability. Our expertise includes system assessments, alternatives analyses, conceptual design, specifications development, and strategic planning. FE consultants offer a deep understanding of public safety organizations, regulatory guidance, and cultural frameworks.

FE has completed multiple projects in Florida and our team is currently engaged by the State for the SLERS-2 initiative. **We understand the distinctive conditions of the region, political influences, and geographical terrain.** Our team will conduct a needs assessment to assess the existing system and help you plan for desired improvements by recommending cost effective solutions. FE will work with the County to develop a customized plan that best meets your unique needs, while drawing upon insights gained from similar projects across the nation.

We encourage you to consider a direct procurement with Federal Engineering. We can proceed with this effort immediately using our GSA MAS MOD Contract GS-35F-0159Y.

We will assign an in-house team of consultants with direct experience planning, designing, and implementing system upgrades in environments such as Levy County. We also provide procurement and implementation support services for our clients to include RFP development, vendor proposal evaluation, contract negotiations, implementation project management, and testing oversight. Having successfully accomplished numerous similar engagements, we firmly believe FE is your best choice to support your mission critical public safety radio Initiative.

FE thanks you for the opportunity to provide public safety radio consulting services. This proposal will remain valid for 30 days from the date of its submittal. Our Senior Vice President, Scott Wiggins, is available to answer your questions; you can reach him via email at swiggins@fedeng.com or by telephone at 651-983-9306. We stand ready to assist as you proceed.

Sincerely,

Ronald F. Bosco

Ronald F. Bosco
President and Chief Executive Officer, Federal Engineering, Inc.

EXHIBIT "A"



FEDERAL ENGINEERING OVERVIEW

Corporate Profile

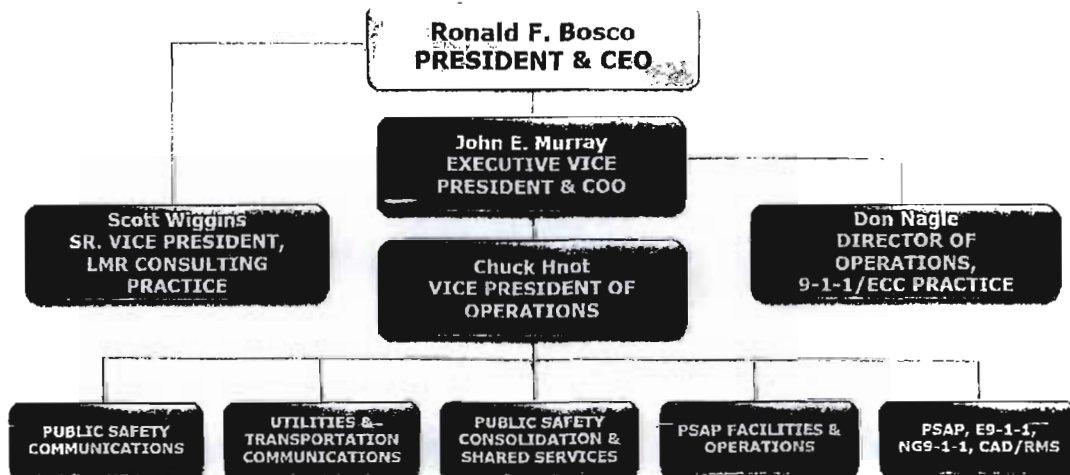
FE is the nation's leading independent consultant in public safety communications systems. For over 37 years, we have built an excellent reputation in the industry and have a rich history of providing system assessment, design, implementation, and project management support for public safety organizations, ranging from large statewide clients like Florida to smaller, rural cities and counties. **We are recognized for applying innovative technological and operational methods to keep critical infrastructure survivable and sustainable.** FE has successfully completed more radio projects than any other firm in the country. Our team brings valuable insight to our clients' projects from radio deployments and emergency response operations across the U.S., as highlighted in the map below.

Public safety communications consulting is FE's only business. Our founder, President and CEO Ronald F. Bosco, is a former first responder and degreed engineer. He continues to lead the firm and keeps his vision steady to improve the functionality and cost-effectiveness of public safety communications. This consistency in ownership translates to consistency in performance. Our earliest government clients remain clients today.



Serving public safety, commercial, transit, and utility clients nationwide.

Shown below, our corporate structure is strategically aligned to reflect our capabilities in public safety—voice and broadband—radio system planning, design, and deployment:





Levy County, Florida Land Mobile Radio Consulting Services

Federal Engineering specializes in public safety mobile radio projects for small, rural counties like Levy County. We appreciate the economic realities you must deal with and the fact that the radio solutions recommended must be both practical and affordable. FE also understands that the procurement of a new radio system is a major investment for the County and we are available to help you promote this project to the County Board. Rest assured your project will get the highest level of attention within our company from the start to the successful conclusion to ensure you get the support you need.

Every FE client receives a designated project manager and team of consultants. Our subject matter experts provide technical advice and guide each client through the challenges of determining the right upgrade path, given their unique circumstances. Senior management is actively involved in all projects, providing technical and operational guidance for our project team, yielding high-quality deliverables.

FE employs a deep bench of 50 consultants, specialists, and former first responders located in offices across the country, including a dedicated team based in Florida. ***Our consultants have served "in the field" and understand from a user's perspective how public safety systems must function.*** You can be confident that our recommendations are based upon real-world experiences. A sampling of prior career positions includes the following:

- Radio system managers
- Radio network technicians
- Telecommunications SMEs
- Communications engineers
- Interoperability coordinators
- Certified ENPs and PMPs
- First responders
- Fire services
- Law enforcement
- Cybersecurity specialists
- PSAP/dispatch managers
- DHS OEC contract specialists

Because FE staff have managed similar radio procurement projects as Levy County, we are able to quickly assess your systems and work with stakeholders to devise alternatives. Our consultants are trained to deliver a balanced technical message that is audience specific. They offer a deep understanding of legacy VHF, P25, and emerging wireless communication technologies, as well as regulatory guidance, local government dynamics, and cultural frameworks to achieve optimal upgrade results.

"Federal Engineering staff has demonstrated outstanding expertise in all facets of the project. These include technical expertise, project management, a well-structured system architecture assessment, the stakeholder needs assessment, the development of a statement of requirements document, and project management. The success of Collier County 's project to date has been facilitated by Federal Engineering's depth of knowledge and processes."

*~ John Daly, Telecommunications Manager
Collier County, Florida*





Consulting Services

FE offers end-to-end technology and communications consulting for the planning, design, and implementation of public safety systems and dispatch center projects. We have developed the tools and methodologies necessary to deliver practical and affordable solutions. *We help clients assess the current landscape of their public safety radio infrastructure and support radio system procurement initiatives through a successful implementation.*

FE's full lifecycle of services for public safety radio and 9-1-1 system projects is highlighted below:

Capabilities and Expertise



System Upgrades

- PM and migration planning
- System assessment
- Procurement support
- Contract negotiation
- Implementation oversight
- IV&V

Governance & Funding

- Governance models
- CAPEX/OPEX funding models
- Legislative support
- DHS OEC contract support



Public Safety Radio

- Trunked, conventional
- Digital, analog, simulcast
- P25 Phases 1 and 2
- Coverage enhancements
- All frequency bands
- RF system recommendation
- IP radio knowledge and expertise

Other Wireless & Data

- Broadband/LTE
- FirstNet®
- Fire alerting/paging
- Microwave/fiber
- DMR technologies
- Cybersecurity



9-1-1 Systems

- NG9-1-1/9-1-1
- Mapping/GIS/Database
- Network/ESINet

Dispatch/Call Centers

- CAD/RMS/JMS
- Staffing/efficiency analysis
- Regional consolidation

Knowledge of LMR Systems

FE consultants have worked on virtually every type of system and in hundreds of operational situations. Our team has extensive experience with all system vendors, P25 and conventional equipment, radio systems in all frequency bands, in-building and tower antenna systems, site planning and development, coverage analyses, RF safety exposure, and interoperability.

A sampling of FE's technical knowledge base includes the following:





Levy County, Florida

Land Mobile Radio Consulting Services

Land Mobile Radio Systems

- Trunked
- Simulcast
- Multicast
- Analog
- Digital

Frequency Bands

- Low band
- T-band
- VHF
- UHF
- 700/800 MHz
- 900 MHz
- 2.4, 4.9, 5.8 GHz
- Other licensed and unlicensed bands

Land Mobile Radio Technologies

- APCO TIA P25
- MPT1327
- TETRA
- DMR
- SCADA

Manufacturers' Systems and Equipment

- L3Harris
- Motorola
- Tait
- Airbus DS (Cassidian)
- EF Johnson
- Raytheon
- DataRadio
- Others

Broadband/Advanced Wireless Technologies

- LTE/FirstNet
- WIMAX
- WiFi
- Integrated voice and data

Backhaul Systems

- Microwave
- T-carrier
- Optical fiber

FE has developed a proprietary propagation and system design tool, **FEPerformancePro™**, to accurately model radio network performance in any band. **FEPerformancePro™** is further discussed in the Systems Analysis and Recommendations section of the Scope of Work. Using **FEPerformancePro™**, **FE will determine feasible network modifications to meet user requirements and build consensus among stakeholders, resulting in "buy-in" of the eventual system.**

Independence Guarantee

FE's certified independence guarantees Levy County will receive totally objective analyses, free from the influences of hardware vendors, software suppliers, or service providers. We are not engaged in, nor associated with, the business of selling, servicing, providing managed services or leasing radio communications, mobile computer, mapping/GIS, CAD, RMS, telephony, 9-1-1, or any other public safety systems, hardware, or software.

At FE, we take pride in the vendor neutrality of our recommendations, system designs, and specifications. Our involvement has resulted in a wide range of major system vendor contract awards, including Motorola, L3Harris, Tait, Airbus, and EF Johnson. Because we have no affiliation with public safety equipment manufacturers, software, or service providers, **FE is truly your trusted advisor.** Our recommendations and design approaches are unbiased toward any technology, product, approach, or vendor. **FE offers vendor-neutral support that only a truly independent consultant can provide.**



We put our clients' interests first.

Shaping the Industry

FE is a corporate affiliate of leading industry groups and our team is recognized by their peers. Our consultants chair national technical committees and have had papers published by many professional organizations. FE consultants serve on the APCO Commercial Advisory





Levy County, Florida

Land Mobile Radio Consulting Services

Council and *MissionCritical Communications Magazine's* editorial advisory board. Our Chief Consultant, authored *Cybersecurity in Public Safety*, published in the September 2018 issue of *MissionCritical Communications Magazine* and is currently serving his second term on the NG9-1-1 Institute Board of Directors.



Over the past two years our experts have presented in over 80 sessions at the International Wireless Conference Expo (IWCE), International Association of Public Safety Communications Officers (APCO), National Emergency Number Association (NENA), and other conferences, on topics including the following:

- Planning a New or Upgraded Radio System
- Measuring Performance: Get the Network You Need; Get the Network You're Paying For
- Negotiation: The Art of Getting What You Want
- Successful System Procurement; Avoiding the pitfalls through proper planning
- Project Lifecycle Management; Operation to Replacement
- Not Your Grandpa's Logging System
- Wireless Signal Propagation Concepts
- Pick Me! Choosing the Right Digital PTT Technology for Your Needs
- Technology Choices; How and where emerging technologies fit in your communications planning.
- P25 New Products and Services

"Federal Engineering has done outstanding work for our organization. We originally hired them for assistance with the nationwide NPSPAC/800MHz rebanding project. Federal Engineering performed at levels that were beyond our expectations. We have kept Federal Engineering on retainer ever since that time to help guide us with critical decision-making processes on our public safety radio system."

*~ Mr. Jim Werner, Supervisor
Gainesville Regional Utilities*

"The service provided by the Federal Engineering team greatly impacted the success of our project. We are fortunate to build such a strong professional relationship with these dedicated professionals."

*~Don Ash, Henry County, Georgia
Director of Emergency Management*

"Your team has done wonderful things and has provided quality deliverables above and beyond our expectations making a very complex task manageable and leading to what we expect to be a successful upgrade!"

*~ Thomas Montoya, E.I.T.
County of Monterey, California*





PROJECT UNDERSTANDING

The County public safety agencies have been using the State of Florida SLERS system, which is nearing end-of-life with spares and parts difficult to find. In addition, users are experiencing poor coverage in certain areas of the County. Levy County Sheriff and Police Departments in Cedar Key and Chiefland remain on the SLERS system, while Fire/EMS departments and non-public safety users have been using an ICOM NXDN VHF system for the past seven years. Public safety users have approximately 500 radios with additional non-public-safety subscriber radios countywide. There are interoperability challenges communicating across both systems and with neighboring counties.

The communications center utilizes AVTEC consoles, dispatching over four NXDN voice channels and one channel for two-tone fire paging. The County's six-towers are linked via a 4.9 GHz hub-and-spoke microwave system.

The County desires a needs assessment of the two radio systems and microwave system with systems' analyses, coverage studies, and cost-benefit analysis. *FE* will assess the needs of both public safety and non-public safety users in the County. We will evaluate two LMR alternatives: waiting to join the anticipated SLERS 2.0 system versus building a stand-alone standards-compliant P25 system, as well as identifying options to meet non-public safety user needs and replacement of the existing microwave system.

FE will serve as your independent consultant to assist in determining which alternative is best. We will assess existing radio communications, compare alternatives, and facilitate consensus among emergency organizations for next steps to improve communications and enhance interoperability among agencies.

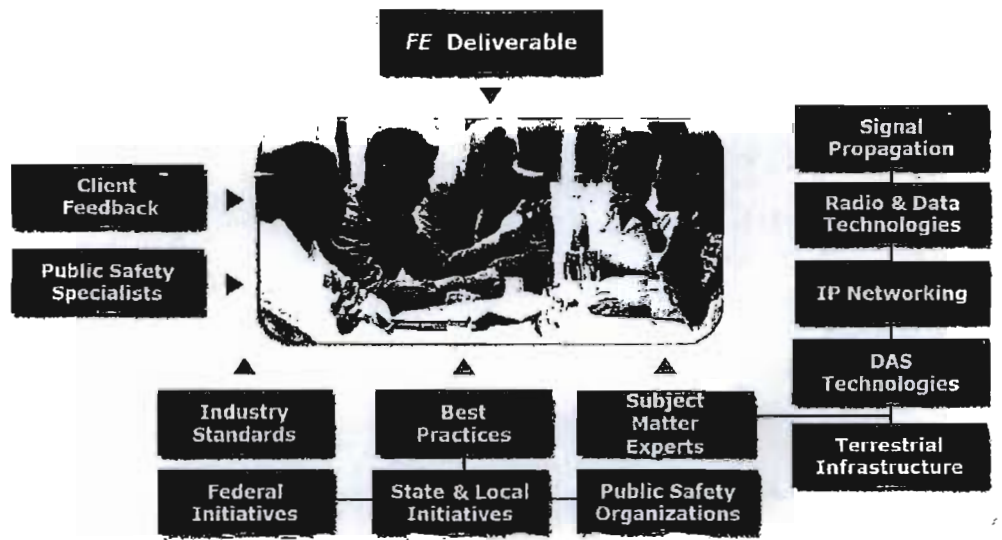
FE will determine high-level user requirements for the County radio system connectivity, fire paging, and portable and mobile coverage. Based on our assessment, ***we will recommend the best alternatives to achieve acceptable mobile and portable radio coverage and improve interoperability throughout Levy County. FE offers lessons learned from similar projects to save money and mitigate risks.***

Commitment to High-Quality Deliverables

No project is complete without a rigorous quality assurance (QA) program. *FE* supports the successful execution of a project by applying specific QA measures to system analysis, design, vendor processes, independent quality verification testing, documentation, and our reports. Through industry contacts, client feedback, and the use of subject matter experts, we have developed a comprehensive deliverable QA review program.

FE's Quality Assurance Review Board manages our peer review process to assure that our internal procedures and delivered documentation are of the highest quality. Peer reviewers are individuals with skill sets directly applicable to the program. ***They challenge the program team, assuring that all decisions have been well thought-out.***





Stakeholders from the County and other designated agencies will be active participants in our QA process by providing feedback on draft deliverables, so we can include necessary revisions in the final deliverables.

Ability to Perform During COVID-19

FE proposes this project with the effective and efficient ability to complete tasks under changing COVID-19 restrictions. Although we prefer onsite meetings, our approach can shift to remote techniques if needed to maintain the safety of County and FE staff.

FE has employees in 17 states and clients across the nation. We have developed the tools and methodologies needed to efficiently work remotely. Our team routinely employs web applications such as WebEx, MSTeams, GoToMeeting, Skype, and Zoom, as well as our own proprietary web-based application **FEClientNet™**, our productivity enhancement tool.

While “social distancing” has become the new paradigm dictated by the coronavirus, FE has been operating in this remote manner for decades. Our approach has significantly reduced our carbon footprint and our employees are more productive. We will meet your project needs, while protecting your employees and ours. FE currently has multiple projects that are proceeding unabated and on schedule with our off-site methodologies.

FE will work with Levy County to adjust the project to meet the shifting COVID-19 mandates. We can acquire critical data and radio infrastructure understanding either onsite (if restrictions have lifted and we can do so safely) or virtually. Conducting face-to-face meetings, interviews, and reviews is preferred, but we can support all efforts remotely should current conditions persist, ensuring the safety of your employees and ours.





SCOPE OF WORK

Data Collection and Needs Assessment

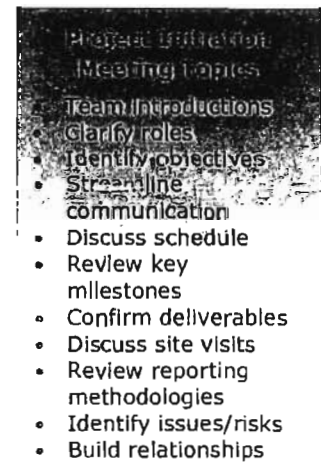
Documentation Review

Prior to the project initiation meeting, *FE* will request and review County-supplied system documentation, other studies, FCC licenses, site data, inventories, maintenance records, documented requirements/needs, and other relevant documentation to begin assessing the existing system.

Project Initiation Meeting

FE will work with the County's project manager to schedule a mutually agreeable project initiation meeting date and confirm background data gathered from the documentation review. ***Our project initiation meeting will establish a common understanding of the project goals, objectives, and vision***, items best understood through a close working relationship between our respective management teams and staffs.

Participation in the project initiation meeting allows our team to set project expectations, introduce the project team and participants, develop the framework for ongoing work efforts, and identify critical success factors for the project. At the conclusion of this meeting, *FE* will deliver a mutually agreed to project schedule that will serve as the guiding document throughout the program.



User Interviews

Following the project initiation meeting, *FE* will conduct interviews with designated stakeholders. We will gather information about the existing VHF analog system and the NXDN system, their size and characteristics, and confirm user needs to include the following:

- Voice performance (on-street and in-building)
- Dispatch consoles/accessory systems
- Spectrum
- Emergency backup
- Interoperability requirements
- Communications sites (towers, buildings)
- Backhaul connectivity
- Subscriber functionality

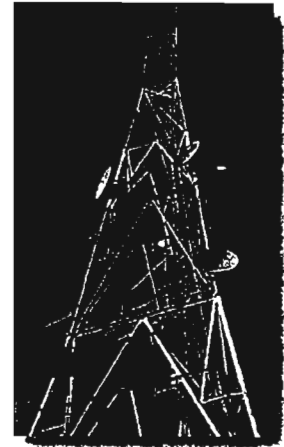
FE will assess the collected information to understand current systems, infrastructure, and functionality, as well as ongoing user needs and new system expectations. If additional information is required, it will be obtained via follow-up telephone calls. Where information is unavailable, *FE* will document appropriate assumptions based upon our experiences with other public safety agencies and systems. Our team recognizes that this task establishes the foundation for all future work, and we will gather sufficient information necessary to accurately document current and future user needs.





Existing System Assessment

Leveraging our experience across the country, our project team will review the status of the radio sites in Levy County. FE will review data and inventory records, information from the radio system service provider, and feedback from stakeholder interviews to develop an assessment of the conditions and equipment at each site. We will visit each of the six sites. Based on our analysis, we will identify the components of the existing system that could be retained in a new system to provide a cost-effective plan. The results of our analysis will be included in our final report.



High-Level Requirements Review

FE understands this project must deliver practical, affordable solutions. History has taught us that while a shared wireless system makes sense on both technical and economic grounds, one cannot overlook human factors if a shared system is to be a success. Fire, Sheriff, and EMS are diverse groups with differing needs.

FE will develop a set of high-level requirements based on the needs assessment interviews and assumptions agreed upon with the participating stakeholders. We will typically define requirements for the following:

- Basic functionality
- Mobile/portable roaming needs
- Number/basic functionality of subscribers
- Dispatch center capabilities
- Training requirements
- Maintenance and service levels
- Mobile and portable coverage needs
- Infrastructure and backhaul components
- Network management
- Capacity and spectrum
- Interoperability with local agencies, adjacent counties, state, federal agencies

We will review and validate the high-level requirements with the stakeholders via a conference call to gain consensus and acceptance.

"The Federal Engineering team was instrumental in developing a viable solution to improve the Merced County interoperability system. We were very satisfied with their performance on the project and found them to be very responsive and professional."

~Kim Nausin, Merced County, California

Coverage and Alternatives Analysis

Analyzing System Coverage

Once we have completed and analyzed the information from the project initiation meeting, site documentation review, and stakeholder interviews, we will develop recommendations for an enhanced system based on Levy County's needs and industry best practices.





Mobile and portable coverage are the single most important characteristics of a mobile radio network. An advanced digital network is of little value if the users cannot access it due to unreliable coverage. Recognizing this years ago, *FE* made major investments and developed **FEPerformancePro™**, a powerful in-house toolset used to accurately model radio network performance.

FEPerformancePro™ is based upon the ICS Telecom software engine used by the Department of Defense (DoD), Federal Communications Commission (FCC), National Telecommunications and Information Administration (NTIA), and Association of Public Safety Communications Officials (APCO) for radio network analysis. Its accuracy has been confirmed by the Federal Government and validated for clients through drive testing by *FE* on numerous network implementations. **FEPerformancePro™** includes the following network analysis tools:

- **FECoverage™** Complete coverage analysis tool
- **FEMapper™** High-resolution mapping tool
- **FENetwork™** Network capacity analysis tool
- **FEMitigate™** System-wide interference analysis tool (optional)
- **FETeamCoverage™** Interactive user coverage workshop

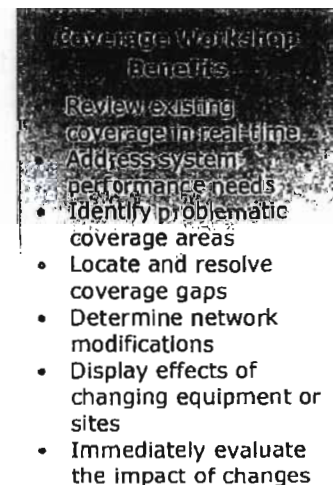
Our coverage expert will work with the County's project manager to determine how coverage plots should be depicted, including color schemes, topology, roads, dispatch zones, and other characteristics unique to the County. This actively involves our clients in the system design process. He will then load the existing transmitter locations and other relevant information into the **FECoverage™** model and generate coverage maps of the current VHF radio system using **FEMapper™**. This will serve as the baseline to begin developing network alternatives.

Interactive Coverage Workshop

FE pioneered the concept of a coverage workshop over a decade ago. Our coverage expert has delivered the **FETeamCoverage™** experience to over 80 clients, the majority of which had goals similar to Levy County. Our interactive coverage methodology has set the standard and we were recently invited by IWCE to deliver a real-time workshop, highlighting the effectiveness of our **FETeamCoverage™** workshop in modeling both LMR and LTE coverage parameters.

We will schedule an **FETeamCoverage™** workshop for the County, to be delivered via the internet. This hands-on session allows participants to confirm the current radio coverage and to immediately see the impacts of adding and/or deleting transmitter sites. In the process, we will incorporate knowledge about existing systems and sites (and potential future sites) and reported coverage issues, targeting those areas where gaps have been identified. The benefits of the **FETeamCoverage™** workshop include the following:

- Visual demonstration of areas of coverage requirements
- Visual depiction of selected sites in the system





- Visual representation of coverage for each site
- Fast, interactive system site, technology, and spectrum impact decisions

As radio coverage is modeled and gaps are indicated, our subject matter expert will interactively, and in real-time, manipulate the model and display the effects of changing site equipment, placing additional sites in the network, and the impact of spectrum decisions. Workshop attendees will immediately be able to evaluate the impact of these changes and determine what is needed to meet user requirements.

The workshop identifies desirable locations for new radio system transmitters or receivers. We will work with stakeholders to identify structures in the locations—existing towers, water tanks, or buildings—to determine if Levy County has assets that would be suitable for new tower sites in the area(s) identified to best enhance coverage.

Our coverage analysis will yield coverage maps as image files that can be viewed using Word or a PDF viewer. The raw data can be manipulated either in a GIS program (such as ArcGIS) or Google Earth application. We can provide coverage footprints in Google Earth format (KML or KMZ files) to make viewing coverage interactive, allowing clients to zoom in to street and building level.



Optional Service: If COVID-19 restrictions allow, *FETeamCoverage™* can be presented as an onsite workshop.

Microwave Backhaul Analysis

FE will then develop a microwave network conceptual design for backhaul of the envisioned radio network. Our technical expert will load the transmitter locations and other relevant information into the *FENetwork™* model and generate individual path profiles of each link.

We will model potential microwave backhaul paths for the envisioned system, taking into consideration both municipal (building) and terrain clutter using *FENetwork™*. We will deliver path profile plots that depict the optimum solution that can be anticipated for the new network. These profiles will serve as the baseline to begin developing a conceptual microwave system network architecture, linking the County dispatch center to transmit sites with access to all voice channels.

Cost Estimates

FECostPro™ is a database of network cost elements developed from billions of dollars of procurements, as well as our knowledge of acquisition and ownership costs, and operations and maintenance estimates. Using this in-house tool, *FE* will estimate the cost of the public safety radio system alternatives under consideration. Cost data will be based on coverage design, number of tower sites, our experience with systems comparable to the County's, and publicly available industry information. The analysis will consider the anticipated life cycle of the proposed design, as well as total cost of ownership for support and maintenance costs over 5 years.





FE understands the dynamics of the public safety mobile radio market and vendor bid prices can vary significantly. Therefore, our itemized cost estimates are realistic yet conservative in nature, so the vendor proposal pricing does not exceed the estimates. This high-level, quantitative analysis relies on our team’s knowledge base, which spans numerous similar projects. Clients rely on our estimates to establish initial project budgets and funding allocations.

Recommendations and Final Report

FE will develop a draft report that summarizes the results of the assessment and analysis activities included above. The content of the report will include the following at a minimum:

- Summary of emergency response communications needs and high-level requirements
- Overview of the existing systems, including equipment, site infrastructure of LMR and microwave systems, and related system components
- Analysis of radio coverage and challenges across the County, and the identified system gaps based on the user needs
- Coverage maps indicating potential coverage from a new stand-alone system and from the anticipated SLERS-2.0 system
- Cost analysis with pros and cons of each alternative
- Recommendations on how to move forward to meet County needs

We will provide a draft report to Levy County’s designated stakeholders for review, then meet with the stakeholders to discuss the draft and incorporate any comments. This meeting will be onsite, if current restrictions allow, or via conference call if necessary. Once feedback is addressed, *FE* will submit the final *Levy County Radio System Needs Assessment and Alternatives Analysis Report*.

Deliverable Schedule

FE has a proud history of completing every project on time and within budget. The Levy County LMR assessment and alternatives analysis project schedule below assumes contract execution and notice to proceed is received no later than November 9, 2020. This tentative 14-week schedule will be adjusted and refined through discussions with the County’s project manager to meet expectations.

Task Description	Est. Task Duration	Est. Completion from Project Initiation Date
Documentation review	1 week	Week 1
Project kickoff meeting, user interviews and site visits complete	4 weeks	Week 5
Coverage Workshop complete (remote)	1 week	Week 6
Microwave system assessment and alternatives analysis	2 weeks	Week 8





Task Description	Est. Task Duration	Est. Completion from Project Initiation Date
Draft <i>Radio System Needs Assessment and Alternatives Analysis Report</i> delivery and Levy County review	4 weeks	Week 12
Final <i>Radio System Needs Assessment and Alternatives Analysis Report</i> delivery	2 weeks	Week 14

Next Steps (Optional Services)

Upon the County’s selection of the desired alternative, *FE* can support the, procurement and implementation by completing the tasks shown below.

- Development of functional technical specifications for inclusion in a competitive RFP based on the approved requirements
- LMR system procurement support, including vendor proposal evaluation
- Vendor contract negotiation support
- FCC licensing support
- LMR implementation project management
- Vendor preliminary design review and final design review
- Site inspections to determine the vendor’s contract compliance and good workmanship standards
- LMR factory testing, equipment delivery, and installation verification
- Oversight of vendor-provided coverage and system testing
- Oversight of LMR system acceptance and cutover
- Review of documentation, including system manuals, as-built drawings, and training plans and curricula
- On-call technical support

We can provide these tasks on a Time and Materials basis or develop a separate firm fixed price proposal.

*“Our County relied on consulting services in the past, but never really obtained any clarity, recommendations, or direction on how to evolve our radio system to meet user requirements. Through *FE*’s assessment and recommendations, we now have our existing system thoroughly documented and clear recommendations on a path forward.”*

~ Tioga County, New York

Delivering the Most Cost-effective Solution

Typical public safety mobile radio projects have three phases: system analysis and alternative recommendations, procurement, and implementation. The first phase is the lowest cost and often involves thousands of dollars in consulting fees; the last phase is by far the highest,





Levy County, Florida Land Mobile Radio Consulting Services

potentially involving millions of dollars in equipment costs. The County can realize significant savings during the implementation phase by engaging the right consulting firm from the start.

FE starts with a proven RFP process that encourages competition and motivates equipment vendors to compete. Our subject matter experts review the vendors' proposed designs to determine if they meet requirements without the need for post-cutover enhancements.

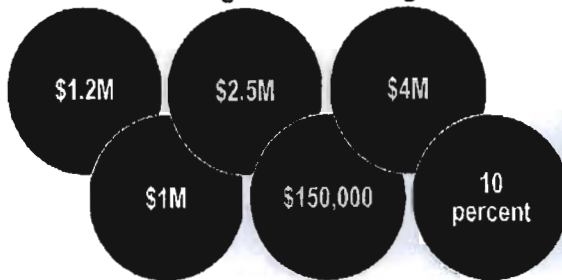
FECostPro™ provides a database of historical equipment pricing, ***allowing FE to determine if the vendor is bidding an appropriate amount for a specific piece of equipment.***

Furthermore, experienced negotiators know where to look in the vendor proposals for hidden services and equipment costs that can be eliminated.

FE will work with the County to finalize a contract that contains the specifications developed during the RFP process that tightly defines system performance. The vendor's ability to "up scope" the project is minimized. ***The result is significant cost savings for our clients.***

FE has saved our clients millions of dollars while delivering solutions that meet or exceed their needs. Through our involvement in billions of dollars in systems procurements, we have developed unmatched skills, methodologies, and database resources that consistently yield incredible results. In summary, an investment in the right consultant during the first phase of a project will yield significant savings in eventual implementation costs.

FE Negotiated Savings



"FE's technical expertise in dealing with our vendor was outstanding. Their vendor negotiation experience proved invaluable, resulting in a significant savings for the city over the course of the project. In one case alone, they saved us over \$150,000!"

~City of Newport News, Virginia





COST PROPOSAL

Firm Fixed Price

The total firm fixed cost, including labor, travel, and other direct costs for the Levy County, Florida LMR consulting project is \$49,310.

FE's proposed costs for this project are indicative of the efficiency of our operations, our proven automated tools, our vast experience completing similar projects, and our view of the strategic nature of Levy County's project. Further, it is not our culture to "up-scope" during contract negotiations or during the project, unless the County adds scope of work beyond that outlined in the proposed scope of work.

Hourly Rates for Optional Services

If requested by Levy County, FE will provide additional optional services on a Time and Materials basis in accordance with the GSA rate schedule below:

**GSA Schedule 70
Contract Number: GS-35F-0159Y
Federal Engineering Rates**

GSA Rates Effective January 23, 2012 through January 22, 2022

Labor Category	Off-site Price w/ IFF
Director/Chief Consultant	\$207.78
Project Manager	\$159.29
Senior Communication Systems Engineer	\$164.43
Senior Radio Engineer (RF Eng. II)	\$159.29
Senior Subject Matter Expert II	\$164.43
Senior Systems Engineer II	\$159.29

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Fairfax, Virginia





Basis of our Proposal

1. This proposal assumes Federal Engineering, Inc. will perform the tasks as called out in the proposal. This is excluding optional tasks, which will be performed on a Time and Materials basis. The deletion of a task, a significant change in scope of one or more tasks or use of a phased implementation approach, may affect the overall price.
2. *FE* will provide draft and final deliverables electronically to Levy County, Florida.
3. This proposal assumes that the County's project manager will schedule meetings, provide meeting facilities, notify attendees, and arrange for onsite visits.
4. Any optional or additional tasking will be authorized by mutual agreement of the County and *FE*. Such tasking will be performed on a Time and Materials basis in accordance with the rates in Schedule A or on a fixed price basis as mutually agreed upon in a task order by the County and *FE*.
5. *FE's* ability to fulfill this task depends on the willingness and ability of Levy County, participating Agencies, equipment vendors, service providers, third parties, and others to provide information in a timely manner, and upon the accuracy of the information as supplied. The accuracy of input data, whether provided in electronic or hard copy form, and the recommendations, actions, system designs, system procurements, and license filings resulting therefrom cannot, therefore, be warranted by *FE* nor can the performance, suitability, or reliability of said systems be warranted by *FE*.
6. *FE* accepts no responsibility or liability to any third party in respect to any information or related content delivered by *FE*. This information is subjective in certain respects, and, thus, susceptible to multiple interpretations and may need periodic revisions based on actual experience and subsequent developments.
7. This proposal is based upon a start date on or before December 7, 2020 and assumes a 14-week schedule to completion. Delays to the project schedule due to actions or lack of actions on the part of the County, County and Agency participants, third parties, and others including, but not limited to vendor protests, protracted contract negotiations, vendor delays that impact the program schedule and/or costs to the County will be brought to the attention of the County's project manager in a timely manner and the schedule and cost impacts will be reduced to writing via a mutually agreed upon contract amendment.
8. This proposal assumes a mutually agreeable invoicing schedule for work completed.
9. Federal Engineering reserves the right to assign/reassign work efforts and associated costs across tasks and between our professional staff members to meet our contractual obligations to the County.





APPENDIX: RESUMES AND REFERENCES

FE has demonstrable knowledge and experience in many upgrades from legacy Harris, Motorola, and other systems. Many of our clients have migrated from legacy conventional systems from various vendors to standards based P25 Phase 1 and Phase 2 systems. References for similar FE projects are provided on the following pages, as well as representative resumes of FE's LMR experts.

FE has crafted the most cost-effective and reliable solutions based on our clients' unique communications needs for decades.





BRADLEY R. BARBER
Director of Operations



RELEVANT SKILLS

- Public safety communications project management
- Develop project plans and schedules
- Complete existing systems review and needs assessments
- Conduct stakeholder interviews and capabilities assessment
- Determine system requirements
- Present alternatives
- Conceptual design and specifications development
- Develop procurement documents
- Assist with vendor interviews, selection, contract negotiations
- Supervise system implementation

GENERAL BACKGROUND

Mr. Barber has over 30 years of experience in wireless communications systems and project management. His background includes implementation and management of public safety and commercial wireless communications networks and the operation of enterprise activities in commercial, utility and governmental environments. With this diverse background in land mobile radio communications, Mr. Barber is actively involved in the technical and operational issues inherent in today's complex and rapidly changing wireless environment such as P25, rebanding, narrowbanding, interoperability, and system lifecycle planning.

RELEVANT PROJECT EXPERIENCE

State of Florida

- Alachua County PSMR Design and Engineering Services
- Collier County PSMR Procurement and Implementation Services
- Gainesville Regional Utilities LMR Consulting Services
- City of Gainesville Radio Enhancement Design, Development, and Implementation
- Lee County Radio Communications P25 Migration

State of Georgia

- Camden County Communications Consultant
- Henry County LMR System Replacement

State of North Carolina

- Forsyth County Public Safety Communications Consulting
- Rowan County Radio Communications Consulting

Commonwealth of Virginia

- Dinwiddie County Radio Assessment and Procurement
- Essex County Radio Communications Consulting
- Floyd County Radio Consulting Services
- King and Queen County PSMR Consulting Services
- Middlesex County PSMR Implementation Services
- Montgomery County Regional Radio System Consulting
- Orange County Radio Consulting and Engineering Services
- City of Portsmouth Radio System Upgrade and Implementation

AREAS OF EXPERTISE

- Digital and analog LMR, including trunked, 700/800 MHz, VHF/UHF, and P25
- Emergency Communications Centers/Public Safety Answering Points
- CAD/RMS
- NG9-1-1
- Wide area simulcast radio systems
- Public safety software applications
- System lifecycle analysis

PROFESSIONAL TRAINING

- Motorola systems
- PCIA-Certified Land Mobile Radio Communications Technician

PROFESSIONAL ORGANIZATIONS

- Association of Public Safety Communications Officials (APCO)
- NPSTC Interoperability Committee, 2013- present
- Motorola Trunked Users Group Technical Support Subcommittee
- Motorola Utility Trunked Users Alliance
- Motorola Data Users Group





ADAM NELSON
RF Coverage Specialist



EDUCATION

- Master's Degree, Geographic Information Systems, The Pennsylvania State University
- Bachelor of Science, Information Technology, University of Phoenix, with honors

RELEVANT SKILLS

- RF propagation prediction/analysis
- RF interference assessment and mitigation
- System capacity planning
- Frequency planning
- Frequency coordination and licensing
- GIS coordination, curation, analysis, and modeling
- Spectrum availability
- Radio infrastructure and performance analysis
- LTE system design

GENERAL BACKGROUND

Mr. Nelson has over 15 years of experience providing consulting services in the fields of public safety, telecommunications, and information technologies. As a member of **FE's** Spectrum Center of Excellence, his specialties include radio frequency prediction and analysis, frequency and capacity planning, interference mitigation, LTE system design and analysis, and spectrum-related efforts pertaining to frequency licensing and coordination.

His background also includes the management and maintenance of various municipal wireless networks, specifically in the realm of public safety communications. He has participated in all phases of communications system lifecycle from needs assessment, system recommendations, RFP development, through implementation. Mr. Nelson has extensive experience with GIS platforms such as ESRI's ArcGIS. Leveraging his GIS expertise, he has developed web apps, geo-processing tools, and analysis models for various types of communications systems

RELEVANT PROJECT EXPERIENCE

RF Coverage Prediction, Capacity Analysis, Interference Analysis, and/or Channel Planning for the following clients/projects:

State of Florida

- Alachua County, Florida
- Collier County, Florida
- City of Gainesville, Florida
- Lee County, Florida

State of Georgia

- Camden County, Georgia
- Henry County, Georgia

State of North Carolina

- Buncombe County, North Carolina
- Pitt County, North Carolina
- Orange County, North Carolina

Commonwealth of Virginia

- King William County, Virginia
- Lenoir County, North Carolina
- Middlesex County, Virginia
- Pittsylvania County, Virginia
- Sussex County, Virginia

CERTIFICATIONS AND TRAINING

- Simulcast Radio Systems, Motorola Certified Training
- Integrated Voice and Data Systems, Motorola Certified Training
- RAPTR Certified Training
- ATDI Developer Training
- ArcGIS Developer Training
- Certified GEOINT Professional
- Satellite Communications Systems Terminal Maintainer Course, U.S. Army
- ASTRO 25 Radio System Management, Motorola

PROFESSIONAL ORGANIZATIONS

- Association of Public Safety Communications Officials (APCO)





TERRY FOREHAND
Technical Lead



AREAS OF EXPERTISE

- Public safety and private wireless networks
- Needs assessment and solution development
- Voice and data communications network implementation & acceptance testing
- Radio system exercise development and execution
- Radio system budgetary analysis

GENERAL BACKGROUND

Terry Forehand has over 18 years in designing, implementing, managing, and maintaining land mobile communications systems for the United States Army, local government, and private enterprises. He is experienced with P25 systems and broadband systems and has developed interoperable programming templates for trunking and conventional radios and networks. Mr. Forehand has also developed budgetary requirements for communications systems and managed the implementation of complex systems.

RELEVANT PROJECT EXPERIENCE

State of Florida

- Alachua County P25 Radio Communications System Upgrade
- Collier County Radio System Analysis and Infrastructure Replacement
- State of Florida SLERS2 Business Case and Project Management Support
- City of Gainesville Radio System Enhancement Study
- Gainesville Regional Utilities 800MHz Radio System Consulting Services
- City of Lakeland 800 MHz P25 Radio System Upgrade Support
- Lee County P25 PSMR Communications Upgrade Support
- Nassau County Public Safety Radio Procurement, Implementation, and Maintenance

State of Georgia

- Camden County P25 PSMR Needs Assessment
- Henry County P25 PSMR Assessment and Procurement Support

State of North Carolina

- Lenoir County PSMR Consulting Services
- Orange County PSMR Interoperability and Systems Engineering Services
- Rowan County Radio Communications Consulting
- Yadkin County PSMR Implementation Support

Commonwealth of Virginia

- Caroline County P25 PSMR Upgrade Support
- Dinwiddie County Radio Consulting Services
- Floyd County Radio Consulting Services
- King and Queen County P25 Radio Communications System Procurement and Implementation Support
- Northumberland County Radio System Assessment
- Orange County Radio Consulting and Engineering Services
- Sussex County PSMR Consulting Services

PROFESSIONAL TRAINING

- Radio Repeater Course, U.S. Army
- Satellite Communications Systems Terminal Maintainer Course, U.S. Army
- ASTRO 25 Radio System Management, Motorola

PROFESSIONAL ORGANIZATIONS

- Association of Public Safety Communications Officials

CERTIFICATES AND AWARDS

- CENTRACOM Gold Elite Certificate of Achievement, Motorola
- SmartZone Overview Certificate of Achievement, Motorola
- ASTRO 25 Integrated V&D Certificate of Completion, Motorola





LEE COUNTY, FLORIDA P25 Radio Communications Consulting



Project Dates
2017 – 2020

Relevant Technologies

- 700 / 800 MHz
- P25
- Simulcast
- Motorola Smartnet / Smartzone
- Digital / analog
- VHF / UHF
- Fiber optic / microwave

Project Contact

Andrew Stadler
Public Safety Communications System Manager
2000 Main Street, Suite 100
Fort Myers, FL 33901
239-533-3617
astadtler@leegov.com

Project Snapshot

- Needs analysis
- Existing system assessment
- Develop requirements
- Coverage analysis
- Develop vendor RFP
- Procurement support including contract negotiation and vendor selection
- Implementation project management

Project Description

Lee County contracted with *FE* to provide public safety communications consulting services for the replacement of its radio systems, upgrading from the existing aging analog Smartnet/Smartzone 800 MHz network with a newer, digital P25 standards based system.

FE collaborated with the County's project management staff to establish a structured project schedule that included: project plan definition, goals, milestones, regular update meetings, status reports, and deadlines for deliverables. We developed and delivered a project plan, written recommendations for a governance structure, and a budgetary estimate of what the future system would cost.

The team conducted interviews with system users to determine requirements and expectations, which included interoperability, subscriber unit condition, available features, and existing radio site conditions. We used the results of these interviews to evaluate and recommend optimal system models, factoring in future requirements and industry trends of five, ten, and fifteen year projections.

FE further assisted the County with RFP development and procurement support by determining technical specifications, reviewing vendor proposals, conducting contract negotiation, and vendor selection. Phase 2 of the project saw the *FE* team provide implementation project management of the chosen system, performing customer design reviews, acceptance test planning, and a migration plan.





GAINESVILLE REGIONAL UTILITIES 800 MHz Rebanding and Radio System Upgrade



Project Dates

2006 – 2022

Relevant Technologies

- 800 MHz
- Trunked
- Simulcast
- P25

Project Contact

Jim Werner
Trunked Radio System Supervisor
P.O. Box 147117
Station A136
Gainesville, FL 32614
352-316-2400
wernerje@gru.com

Project Snapshot

- Rebanding planning and research
- Negotiation support
- 800 MHz reconfiguration implementation
- Generate RFP and review vendor proposals
- Program planning and design reviews
- Radio operations analysis and site analysis
- Conduct special presentations

Project Description

The City of Gainesville, Florida selected **FE** to assist in the rebanding of the City's 800 MHz mobile radio systems. **FE** was contracted to provide support all phases of the program from the initial analysis of existing facilities through migration to the new frequencies. The City of Gainesville owns and operates multiple 800 MHz radio subsystems that are integrated into the trunked radio system (TRS). The TRS is managed by the communications division of the municipal utility, Gainesville Regional Utilities (GRU).

The TRS provides public safety and public service communications throughout Alachua County, Florida via inter local agreements established between the City and Alachua County, and between the City and the University of Florida. GRU was obligated to adjust the frequency usage of its systems to comply with the FCC rebanding order.

The 800 MHz band reconfiguration process is divided into two main segments. Phase 1, the Planning and Negotiation Phase, includes all planning and research activities that will prepare GRU for the actual reconfiguration. Phase Two, the Reconfiguration Implementation Phase, includes the actual reconfiguration is performed, as well as the final completion of the process. **FE** supported both phases.

FE was also contracted to support the upgrade of GRU's public safety radio communications system to a countywide interoperable P25 system by leveraging existing 800 MHz frequencies, sites, and infrastructure.

GRU successfully rebanded their frequencies complying with FCC mandates. GRU retained **FE** to upgrade their current network to a new, interoperable system providing communications throughout GRU's extensive service area, the City of Gainesville, and most of Alachua County. **FE** is currently providing on-call implementation support of the new system.

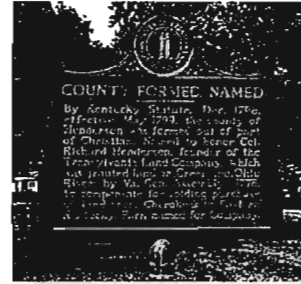




CITY AND COUNTY OF HENDERSON, KENTUCKY Radio Communications Consulting

Project Dates: 2014 – 2019

Contract Value: \$120,000



Relevant Technologies

- Motorola
- 700 MHz
- Analog and digital
- VHF/UHF
- Conventional and trunked
- Logging recorder
- Fire alerting

Project Contact

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Project Snapshot

- Conduct needs assessment
- Prepare alternatives analysis
- Develop RFP and procurement-related documents
- Assist with vendor proposal review and contract negotiations
- Provide implementation support

Project Description

FE provided professional guidance in support of acquiring a modern, efficient, and cost-effective communications system for the first responders. The project was setup for three phases: Phase 1–Needs Assessment and Alternatives Analysis, Phase 2–Procurement Support, and Phase 3–Implementation Support.

FE inspected radio communication sites to determine the current state of the equipment and installations, and conducted onsite interviews to identify user communication needs. We identified the needs of the five primary system categories, which included City Police and City Fire, County Sheriff, and multiple volunteer fire departments. Part of the on-site interview process was potential interest in sharing a new countywide system.

From the information obtained during the on-site interviews and site visits, *FE* developed and evaluated three alternatives for improving the City and County systems: upgrade the current system, simulcast conventional, and simulcast trunking.

FE then prepared a competitive RFP for procurement of the replacement system. Multiple proposals were received, and *FE* conducted technical compliance reviews, and requested clarifications from bidders where appropriate. *FE* also assisted in vendor negotiations and vendor contract finalization. *FE* further provided additional technical assistance to the City and County during implementation of the replacement system.





DINWIDDIE COUNTY, VIRGINIA Public Safety Communications System Consulting Services



Project Dates: 2016 – Present

Relevant Technologies

- 700/800 MHz
- VHF & UHF
- Fire alerting
- Motorola ASTRO

Project Contact

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Project Snapshot

- Existing system assessment
- Site visits and interviews
- Alternatives evaluation
- Conceptual design
- Recommendations
- Identify funding sources or grants
- Develop technical specifications for procurement
- Analyze projected costs
- Assist with procurement and implementation

Project Description

Dinwiddie County sought the services of a qualified Public Safety Communications System Consultant to provide an analysis and review of the current radio system and its elements, make recommendations, and provide direction for the County-wide Public Safety radio system that will, eventually, be fully interoperable in the region.

The County required a public safety radio system to fully cover the varying topography of the region. The system shall be interoperable during emergencies with the public safety agencies in surrounding localities, to include Amelia, Chesterfield, City of Petersburg, Prince George, Sussex, and Brunswick. These localities currently operate public safety radio systems in multiple areas of the radio spectrum including VHF, UHF, and 700/800 MHz. A collaborative expanded system consisting of neighboring systems was explored, as well as a stand-alone system. The system also needs to provide alerting for Fire/EMS stations and volunteer Fire/EMS personnel. *FE* evaluated the existing system and provided the most practicable and best solution and options for Dinwiddie County.

The team further provided assistance during the procurement phase, including technical specification development, cost analyses, funding research, RFP development, vendor proposal evaluation and interviews, and selection of a vendor.

