20 January 2016

Response to Request for Qualifications:

Guilford County
STATE of NORTH CAROLINA

FIRE MASTER PLAN STUDY

EVENT # 502

GUILFORD COUNTY, NC

Prepared by:

FITCH & ASSOCIATES

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CONSULTANT PROPOSAL

FITCH
& ASSOCIATES

20 January 2016

Shayla Parker
Guilford County Purchasing Department
Guilford County - Old Courthouse
301 West Market Street, Suite B32
Greensboro, NC 27401

Dear Shayla Parker:

Fitch & Associates (*FITCH*) is pleased to respond to your Request for Qualifications for a Fire Master Plan for Guilford County, NC.

We have reviewed the RFQ and incorporated your specific needs into this submission and have organized the information requested for clarity. The *FITCH* team recognizes the importance of this project to the County and will objectively assess and benchmark the performance of each service line. We will identify implementable opportunities for operational and organizational efficiency, effectiveness, improvement, and long-term sustainability based on modern best practices and the unique characteristics of the County. We understand that the product of these efforts shall both serve the Department well and also provide an assessment of the progress of the 2011 master fire plan.

Our firm is uniquely qualified to submit this response and perform the work required. Our lead fire practitioner, Dr. Steven Knight is based in Asheville, NC. Fitch & Associates has provided similar planning and analysis services for major cities and emergency service agencies throughout its 30-year history. Our team has wide ranging technical expertise and North Carolina specific experience. We are known for delivering accurate reports within the agreed timeframes and budget.

We appreciate the opportunity to submit this response and look forward to talking with you more about how we can provide you superior services and value.

Warm regards,

Joseph (Jay) Fitch, PhD
Founding Partner

2901 Williamsburg Terrace Suite G ■ PO Box 170 ■ Platte City, MO 64079 ■ Office: (816) 431-2600 ■ Fax: (816) 431-2653 ■ www.fitchassoc.com

FIRE MASTER PLAN STUDY
GUILFORD COUNTY, NC

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EXECUTIVE SUMMARY

Guilford County has invested significant time and energy in creating a safe community. Its governing board seeks to meet or exceed public expectations for service by continuing its commitment to long-term fire master planning efforts. First, the County is desirous of developing and adopting a Fire Master Plan study that will help guide the strategic goals and objectives to focus future efforts. Understanding this goal, Board of County Commissioners seeks to understand what opportunities may exist to optimize and/or enhance the delivery of fire and emergency services within the County and how to maintain desired services in a manner that is sustainable into the future. Additionally, the County seeks to conduct a fiscal analysis evaluating opportunities for financial independence from the contracted fire services and to prepare for long-term sustainability. Second, the County is desirous of assessing the collective progress on the 2011 Fire Master Plan. The County desires a thorough, objective, and independent review of the fire service delivery models, deployment, and operations to ensure that services are meeting community expectations while maximizing effectiveness and economic and operational efficiencies. The requested evaluation approach is to incorporate, but not be limited to, recognized standards and benchmarks coupled with federal, state, and local industry codes and regulations. The selected firm needs to either validate existing service delivery strategies or develop strategic recommendations for the County to utilize to optimize operational and financial effectiveness and service delivery to the community that is sustainable.

Our Understanding of Your Objectives

The County requires its consultants use a research-based methodology to analyze the current situation, identify gaps, and use that information to describe and evaluate the costs and implications of implementing alternative models that serve to enhance and/or optimize service delivery and to formulate actionable recommendations. This scope of work requires a comprehensive assessment of all structures, operational and fiscal activities to assure highly effective quality fire and emergency medical services coverage throughout the jurisdiction. Specifically, the County desires that this be accomplished through the development of an independent and objective fire master plan study. Special analyses are desired to evaluate opportunities for financial independence as well as the progress on the existing master fire plan. The County seeks consultants experienced in fire and emergency medical services, and with North Carolina experience, with a solid reputation for collaborative approaches that facilitate stakeholder input and produce implementable recommendations for long-term sustainability.

BACKGROUND AND EXPERIENCE

Description of Fitch & Associates

Fitch & Associates, LLC is a Limited Liability Company. *FITCH* was established as a corporation in 1984 and converted to a Limited Liability Company in 1996. The Firm is located in Platte City, Missouri, a suburb of Kansas City. Our physical mailing address and contact information is:

Fitch & Associates, LLC
2901 Williamsburg Terrace, Suite G
PO Box 170
Platte City, Missouri 64079
Telephone: (816) 431-2600
Facsimile: (816) 431-2653

Joseph (Jay) Fitch, PhD, President, and founder of the Firm, will be providing oversight and be actively engaged in the project. Dr. Fitch has extensive experience with emergency service agencies and emergency services system design, communications, operations, and implementation. Dr. Fitch is also credentialed in all three emergency services, giving him a unique perspective on this project.

Steven Knight, PhD, is a senior associate with the firm that lives in Asheville, NC and will serve as the lead consultant on this project. Dr. Knight retired from St. Petersburg Fire & Rescue, Florida after nearly a 25-year career. In addition, Chief Knight is a technical advisor for the Center for Public Safety Excellence and a peer team leader for the Commission on Fire Accreditation International. Dr. Knight is a nationally recognized speaker on firefighter safety, deployment and operations, and leadership and recently participated in the Tampa 2 workshops sponsored by the National Fallen Firefighter Foundation. Prior to joining the firm, Dr. Knight served as the Senior Manager for Fire/EMS Consulting with the International City/County Management Association.

Organizational History

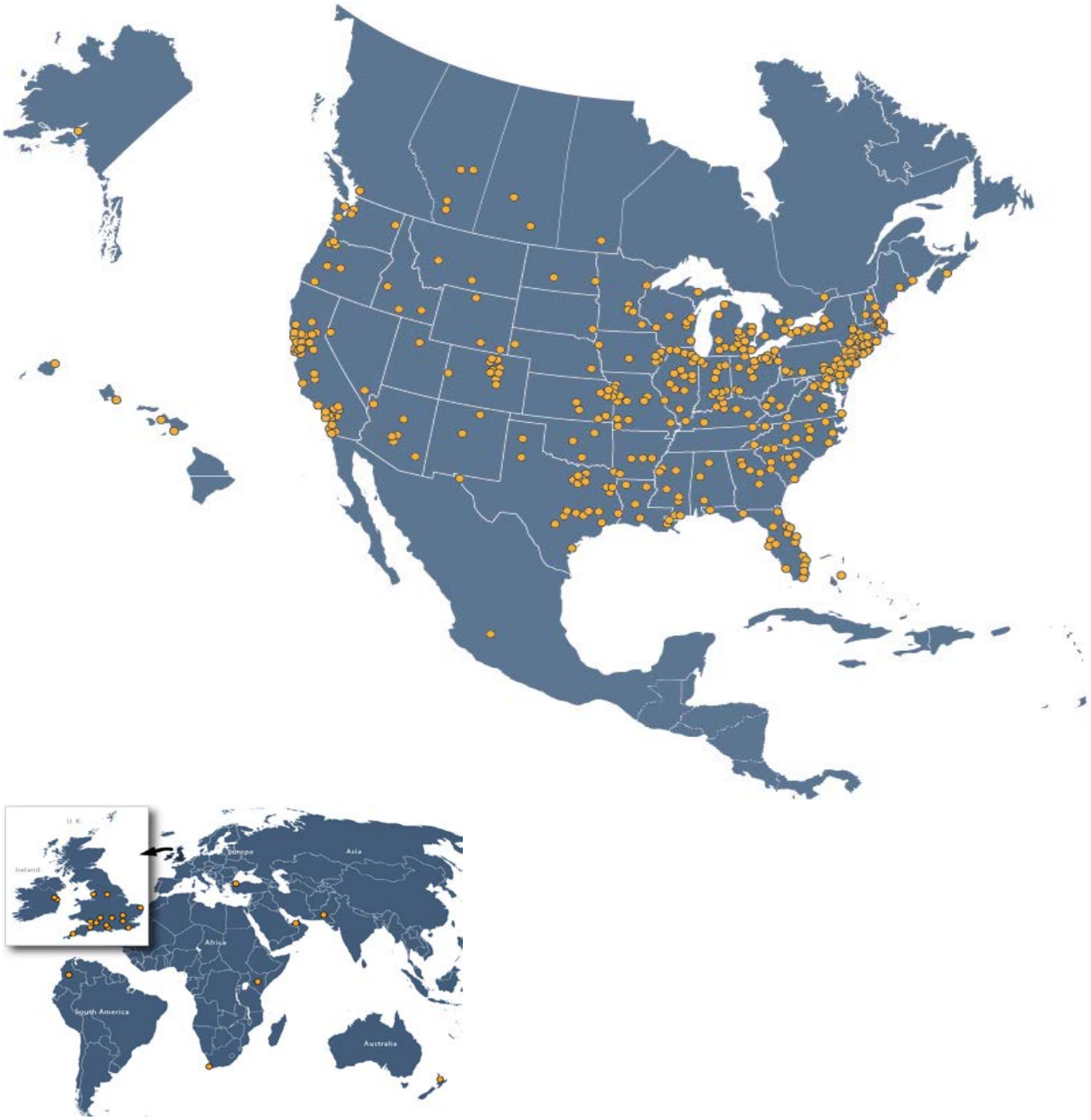
Throughout its 30-year history, *FITCH* has earned credibility by implementing innovative customized solutions in both the public safety and healthcare arenas. The Firm has consulted with nearly 1,000 communities and in all 50 U.S. states and in 12 countries.

Projects have ranged from objective reviews, analysis and system design issues, communications system design, productivity, and enhancement studies to detailed operational, financial, and transition management services.

In addition to its partners, *FITCH* has full-time Senior Associates, research, and support staff members. *FITCH* regularly utilizes more than half a dozen independent consultants that are content and technical experts that work exclusively for *FITCH.*

These combined resources provide expertise on matters as diverse as organizational psychology, accounting, economics, healthcare administration, public information and education, marketing research, emergency medicine, fire service administration, law enforcement, safety management and "Just Culture" concepts.

Figure 1: Fitch Client Locations



Firm Experience & References

In addition to the intuitive strengths derived from leadership in the emergency services field and more than three decades of consulting, *FITCH* also offers specific expertise gained from multiple projects that required similar expertise to the one proposed. *FITCH* has evaluated numerous communities' needs and provided leadership in a variety of projects that involved collaboration by many different agencies for the common good. We have an ability to keep focused on the final result while keeping the planning process moving.

FITCH is uniquely qualified to conduct Guilford County's Fire Master Plan Study. *FITCH* specializes in public safety consulting and has direct experience with assignments similar to yours. For example, FITCH is currently completing a *Strategic Planning* process and *Deployment Evaluation* for the City of Dallas, Texas Fire Department and is completing a *Fire Master Plan and Standards of Response Coverage Study* for the Town of Holly Springs, NC in Wake County.

Below are several projects that demonstrate our experience working in similar communities.

Pinellas County, Florida

In late 2012, Pinellas County turned to *FITCH* after multiple previous consultancies left the county without implementable solutions for its 18 fire service agencies and primary ambulance contractor. *FITCH* was retained to evaluate previous deployment models suggested by other consultants, the impact of those models on both EMS response and fire suppression capabilities and to identify an optimal plan. Pinellas is a highly effective system that has sophisticated fire first response and a countywide ambulance transport service. The challenge was the system is not fiscally sustainable. *FITCH* used sophisticated deployment modeling to find $6.9 million in efficiencies while modernizing the approach on response to low acuity calls. This new model responds in a superior way to the population by using the right resource for the right service request. The Board of Supervisors approved the report and directed staff to implement. A copy of the report may be downloaded at www.pinellascounty.org/emsstudy/pdf/Fitch-Report-Pinellas-July-2013-final.pdf.

The contact for this project is Craig Hare, MBA, Interim Executive Director of Public Safety Services, Pinellas County. He can be reached at 727-464-3835 or chare@co.pinellas.fl.us.

The relevance of the Pinellas project is the engagement involved a detailed assessment and future oriented planning process for an emergency response system with implications for both EMS and fire operations. Pinellas has a population of 900,000+ served by 18 fire departments and a single ambulance provider. It demonstrates the Firm's ability to successfully work in an adversarial climate between the county, municipal fire agencies, independent and dependent fire districts, and a private provider to improve the system.

City of Burnsville, MN

The City of Burnsville, MN was the point agency in a five-city shared services study. The participating cities were the Cities of Burnsville, Eagan, Savage, West St. Paul, and South St. Paul. The Cities of West and South St. Paul entered into a Joint Powers Agreement (JPA) forming the South Metro Fire Department that pre-dated the shared services study.

Two of the fire departments were career departments, one department was entirely volunteer, and one of the departments were a combination of volunteer and duty-crews from 8 am to 4 pm Monday through Friday. In addition, the Cities of West and South St. Paul were not of contiguous jurisdiction with the other participating agencies.

Overall, the study demonstrated that the cost to benefit ratio did not support the formation of an independent fire district at this time. In addition, three different JPA models were evaluated that ultimately found one JPA model that would be mutually beneficial to the region. However, the agencies were provided a framework for long-term success and regional consolidation by including additional regional partners that would assist in more equitably sharing the costs for services, providing similar service levels, and contiguous jurisdictions for seamless and borderless service delivery.

The contact for this project is BJ Jungmann, Fire Chief, City of Burnsville, MN. He can be reached at 952-895-4570 or BJ.Jungmann@ci.burnsville.mn.us.

The relevance of the Burnsville project is to demonstrate that we have expertise in evaluating the feasibility of enhanced cooperative efforts and the fiscal analyses necessary. In addition, this project demonstrates the ability to work with volunteer, combination, and career departments in designing the most operationally and fiscally efficient service delivery models. Finally, this project also demonstrates that Fitch is willing to honestly and candidly demonstrate when mergers are not in the best interest of the participating agencies.

Dallas Fire Department, City of Dallas Texas

FITCH was retained by the City of Dallas to assist in its resolution of complex litigation. Subsequently, the Department retained the firm to develop a documentation-training program for its 1,000+ workforce. The firm provided a high level summary of future trends for response systems and evolution of community paramedicine to assist the department's leadership in formulating future strategies. In 2014, the City again retained the firm to conduct a comprehensive review of its communications center and develop a department-wide strategic plan for the enhancement of the EMS services it provides.

The contact for the City is Assistant Chief Norman Seals, Dallas, Texas Fire Department. He can be reached at 214-670-4925 or Norman.seals@dallascityhall.com.

This relevance of this project is that it demonstrates the firm is able to manage complex projects for major cities that vary widely in scope. Specifically, this project demonstrates expertise in strategic planning and fire department based EMS deployment strategies.

Contra Costa County, California

In Contra Costa County the *FITCH* team conducted a comprehensive analysis of both fire and EMS services. Each agency was evaluated separately and associated synergies were described. These studies included reviewing all aspects of the operations from dispatch thru administrative functions. The *FITCH* team proposed multiple options for both agencies and some common objectives to both agencies.

The contact for this project is Tim Ewell Senior Deputy County Administrator, County of Contra Costa. He can be reached at 925-335-1036 or Timothy.Ewell@cao.cccounty.us.

Direct relevance is that this project involved working with multiple stakeholders to determine efficiencies and effectiveness in a complex environment.

City of Vancouver Fire Department, Vancouver, WA

FITCH was retained to complete a review of the City's EMS program and its relationship with the County and EMS District 2. The City made the decision to withdraw and not participate in the upcoming ambulance transport procurement prior to the consultation. In determining the optimal structure for the system, *FITCH* developed a strategy approved by both agencies to reverse roles and have the City lead the procurement process enabling the enhancements the City sought but preserving the economic advantages of procuring a single transport provider and maintaining service availability throughout the City and County. The firm subsequently analyzed coverage requirements, prepared detailed specifications and conducted a national procurement process.

The contact for this project is Chief Joe Molina. He can be reached at 360.487.7201, by cell at 360.553.5385, or Joe.Molina@cityofvancouver.us.

The relevance of the Vancouver procurement project is the engagement demonstrates the breadth of our consulting practice, familiarity with a labor environment and our ability to work with multiple agencies with divergent objectives.

Lacey Fire Protection District Three, Lacey, Washington

FITCH conducted a comprehensive business process and deployment review for the fire district. The Lacey Fire Department serves the City of Lacey as well as the Thurston County Fire Protection

District. This engagement involved reviewing service delivery components related to the people, processes, and technologies. The project objectively evaluated a stand-alone fire district separate of the City of Lacey. The final report included a series of recommendations and planning initiatives facilitating the agency's long-term success.

The contact for this project is Skip Houser, Attorney at Law. He can be reached at 360-754-8028 or shouser@mindspring.com.

The relevance of the Lacey Fire Protection District project is the engagement involved a detailed assessment and future oriented planning process within the interrelated demands of adjoining fire districts.

Richmond Fire and Rescue Service, City of Richmond, Virginia

In 2012, the City contracted with *FITCH* to develop a comprehensive fire master plan for Virginia's capital city. The project scope involved a detailed assessment of current operations and administrative functions including the scope of service delivery (i.e., suppression, special operations, EMS, rescue, etc.); Standard of Cover (distribution, reliability); work schedule/platoon structure; station locations, and facilities/equipment replacement requirements. The scope also included developing an optimized resource deployment plan, staffing and apparatus changes for both fire and EMS first response capacity and other changes that will provide for more effective utilization of resources.

The Contact for this project is Fire Chief Robert Creecy. He can be reached at 804-646-5451 or Robert.Creecy@Richmondgov.com.

The relevance of the Richmond project is the ability to objectively document departmental performance, recommend innovative approaches, and conduct the project collaboratively with City staff making nearly 60 improvement recommendations to be considered for implementation over a multi-year period.

Hong Kong Fire Service Department

The Hong Kong Fire Services Department serves nearly 8 million people in both the densely populated core city and scattered among 200 islands. It is considered one of the largest departments in the world with over 9,500 employees. To consider mechanisms to improve response times, in 2005 they turned to *FITCH*. The feasibility study included quantifying impacts of implementing a priority dispatch system. Key tasks involved evaluating communications hardware, software and communications processes, recommending response times and enhancement through deployment changes and determining the financial implications.

Reallocation of resources and improved processes resulted in the reduction of life threatening response time targets from 12 minutes to 9 minutes with 90% reliability at a projected increased annual cost of less than $1 million (USD). The department approved the study and forwarded a recommendation to the central government to implement *FITCH*'s recommendations. In 2007, the Firm accomplished additional analysis and provided support as the HKFSD began its operational planning for implementation.

The Superintendent of Planning for HKFSD is Mr. SK Chan. He may be contacted by email at sk_chan@hkfsd.gov.hk.

The relevance of the HKFSD project is the demonstrated ability to see needed change, recommend innovative and integrated technology and approaches and conduct the project in a manner that is supported by the medical community and multiple levels of Government.

Additional client references, case studies, and testimonials are available on the firm's website at www.fitchassoc.com.

Table 1: Sample of Studies from 2015

Agency	Content Relationship	Contact	Email
City of Burnsville, MN	Shared Services Study (Multi-agency Career, Combination, and Volunteer)	Chief BJ Jungmann	BJ.Jungmann@burnsvillemn.gov
Livingston County, MI	Dispatch Operations, Staffing, and Efficiency Study	Public Safety Director Jeff Boyd	JBoyd@livgov.com
Volusia County, FL	Fiscal and Deployment Validation Study	Public Safety Director George Recktenwald	grecktenwald@volusia.org
Orange County, VA	Strategic Planning for Volunteer Fire System	Chief John Harkness	jharkness@orangecountyva.gov
Highlands County, FL – (Delivered Draft Report)	Countywide Fire (volunteer – 10 dependent districts) and EMS (County paid service) Needs Assessment and Alternatives for Consolidation	County Administrator June Fisher	Jfisher@hcbcc.org
Martin County, FL – (Presented Draft Report)	Countywide Fire and EMS Consolidation Study (Career) – County and 4 Municipalities	County Administrator Taryn Kryzda	tkryzda@martin.fl.us
City of Edmonds, WA – (Presented Draft Report)	Strategies for Cost Containment and Negotiation with Contracted Services with Fire District	Finance Director, Scott James	Scott.James@edmondswa.gov

Project Team & Success Factors

FITCH's specific strengths for this project are centered in the ability to objectively conduct research, manage multiple project priorities and blend both expert and local resources while building support for the outcome. Our key strengths include talented and experienced consultants, time-tested methods, quality teamwork, timeliness, and the ability to provide tangible results.

Talent – Each project is managed by a *FITCH* partner who is responsible for bringing together the specific resources necessary to meet the client's needs. Staffing for this project involves eight team members. Team members have been selected for their specific areas of expertise that match the requirements of this project.

Time-Tested Methodologies – *FITCH's* experience and that of the individual consultants involved represents an unparalleled base for the tasks at hand. We have worked with more than 1,000 clients including local, state and federal government agencies; municipal and volunteer fire departments; ambulance services and hospitals.

Teamwork – Throughout its history, *FITCH* has stayed true to its core values by accomplishing projects using a collaborative approach. This approach offers high levels of involvement for system participants without compromising the independent or objective nature of the project.

Timeliness – *FITCH* is known for producing its work on or before the scheduled completion date and within budget. Timeliness also involves consultant access and response times. Both are as important in consulting, as they are in emergency services.

Tangibles – Tangible results in consulting mean developing solutions addressing the client's needs and providing recommendations that are implemented. *FITCH* is well known for developing innovative solutions to complex issues. Our recommendations and tangible work products have been implemented with greater frequency than those of any other national public-safety consulting firm.

Members of the *FITCH* project team are highly qualified academically with some serving as faculty members at leading educational institutions. Most importantly, *FITCH* has real-world experience managing large urban services across the nation and a track record of content-specific consulting. Each of the firm's partners and the project director proposed for this project has extensive emergency services management experience of more than 30 years. The commitment of top-level resources underscores the importance *FITCH* places on this project team.

FITCH has routinely undertaken projects over the last three decades similar in scope to that proposed by the Department. *FITCH* has reviewed systems and processes for nations, states, provinces, regions, and individual departments. Most of our recommendations are implemented due to our real-world approach, matching both the desired outcome with the clear realities in each system.

A project with this level of complexity requires a focused approach by each member of its team. The partners responsible for this project will be Joseph (Jay) Fitch, PhD and Guillermo Fuentes, MBA, and

will ensure the coordination of teams and provide overall leadership resulting in a comprehensive study, completed on time and within budget.

The *FITCH* team will be divided into the following project categories with each category having a specific lead based on areas of expertise:

Table 2: Projects and Team Members

PROJECT CATEGORIES	TEAM MEMBERS	GEOGRAPHIC LOCATION
Oversight & Governance	Jay Fitch PhD – Founding Partner Guillermo Fuentes, MBA - Partner	Platte City, MO Niagara Falls, Ontario
Project Lead	Chief Steven Knight, PhD	Asheville, NC
Fire/EMS Consultants	Chief Steven Knight, PhD Guillermo Fuentes, MBA – Partner Chief Bruce Moeller, PhD Chief Ian Womack	Asheville, NC Niagara Falls, Ontario St. Petersburg, FL Bradenton, FL
Finance	Dianne Wright, MBA	Reno, NV
Quantitative Analyses	Gang Wang, PhD	Miami, FL
Geographic Information Systems	Brian McGrath President and CEO of CAD North	Niagara Falls, Ontario

The following biographical profiles highlight the expert qualifications this team brings to Guilford County's project.

Project Team Members

Joseph (Jay) Fitch, PhD – Founding Partner. Dr. Fitch's areas of expertise include emergency services system design, business process improvement, change management, and project leadership. He will be involved in the research, development of innovative approaches and will regularly interact with the project team.

Dr. Fitch served as a police officer, firefighter, and paramedic prior to being named director of EMS for the City of St. Louis and subsequently in Kansas City. He is recognized as a public safety operation and systems design expert. Dr. Fitch is the author of one of the textbooks that have been used by both the United States Fire Academy and the American Ambulance Association. For more than a decade he served as chair of the board of directors of a suburban Kansas City municipal fire district.

Dr. Fitch co-authored the recent International City and County Management Association *InFocus Report* titled "Making Smart Choices about Fire and Emergency Medical Services in a Difficult Economy". Dr. Fitch received the Exemplary Service Award from the International Academies of

Emergency Dispatch and he was the recipient of the 2014 Lifetime Achievement Award from the National Association of EMT's.

Guillermo Fuentes – Partner. Guillermo Fuentes MBA has 25 years of emergency services experience that spans multiple public safety services and jurisdictions. He has held executive positions for more than a decade being named Deputy Chief of Montreal (Canada) EMS in 1999, Montreal EMS is the 5th largest municipal ambulance service in North America answering over 300,000 calls for service, while in Montreal he was responsible for overseeing 1100 field employees. One of his core duties was to manage a 118-person communication center. He subsequently served as Deputy Chief of EMS for Niagara EMS and was responsible for building and staffing a new communications center. He led both center through their NAED accreditation process.

Mr. Fuentes subsequently served as the Chief Administrative Officer for the Niagara Regional Police Service. In this role he was responsible for Information Technology, Human Resources, Records, Communication Center, Fleet and other administrative duties including the finance function. As CAO he also served as the CFO overseeing a 150 million dollar operating budget.

Mr. Fuentes has worked with Fitch & Associates on a part time basis for eight years and joined the firm full time in 2011. He routinely is involved in complex projects. His ability to move between field operations, dispatch centers and administrative functions - applying statistical analysis to real life situations makes his contribution to projects both complete and practical. He holds a Masters Certificate in Management from Tulane University and a Masters in Business Administration from Aspen University.

Chief Steven Knight (Ret.), PhD, Senior Associate – Project Lead. Dr. Knight has nearly 25 years of experience and recently retired as the Assistant Fire/EMS Chief for the City of St. Petersburg, Florida. He is a subject matter expert for both the National Fire Academy and the Center for Public Safety Excellence (CPSE). He has also served as a team leader and peer assessor for the Commission on Fire Accreditation International (CFAI) and has held multiple faculty appointments in Fire Science and EMS. Dr. Knight previously served the International City and County Management Association (ICMA), as the Senior Manager for Fire and EMS.

Dr. Knight holds a PhD from the University of South Florida in curriculum and instruction and a minor in research and measurement, a master's degree in public administration from Troy University and a bachelor's in Fire & Safety Engineering from the University of Cincinnati. Chief Knight is also a graduate of and faculty for the Executive Fire Officer Program (EFO) through the U.S. Fire Administration, Federal Emergency Management Agency. Knight is an accredited Chief Fire Officer (CFO) through the Center for Professional Credentialing. Knight also served as an adjunct professor at St. Petersburg College and the State College of Florida in their Fire Science and Public Safety Administration Programs, is the former program director for Emergency Medical Services at the

Manatee Technical Institute, and is an affiliate faculty with the University of Central Florida's College of Medicine.

Bruce J. Moeller, PhD – Senior Consultant. Dr. Moeller joined the firm after retiring as the Executive Director for Safety & Emergency Services in Pinellas County, Florida and as Interim Chief of Staff for the County. Pinellas County is a community of almost 1 million residents; his areas of responsibility include 9-1-1, EMS & Fire Administration, Justice & Consumer Services, Radio & Technology, Emergency Management and Animal Services. Prior to his current role, Dr. Moeller served as city manager in Sunrise, Florida. Moeller's background includes 30+ years of public safety service, culminating as Chief of Department for several fire-rescue agencies, including Broward County, Florida.

Dr. Moeller is active in fire service and public management organizations, having served in committee and leadership roles for the International City County Management Association (ICMA), National Fire Protection Association (NFPA), and International Association of Fire Chiefs (IAFC). He is also an active member of the International Chiefs of Police (IACP).

Ian Womack – Senior Consultant. Chief Womack has over 16 years of experience in fire and emergency services and is currently serving as a Division Chief for St. Petersburg Fire & Rescue, an ISO Class 1 and internationally accredited department. SPF&R serves more than 260,000 residents and responds to over 60,000 emergency incidents annually from thirteen fire stations. Chief Womack currently oversees the department's Rescue Division, which delivers EMS services to the community with 22 ALS Units. Chief Womack has cutting edge experience with fire based EMS system design, resource allocation/utilization and service delivery contracts. Ian has also helped multiple urban agencies develop standards of cover, strategic plans, and deployment strategies that employed cutting edge best practice.

Ian earned a degree with honors in Fire Science and a BAS summa cum laude in Public Safety Administration from St. Petersburg College. He is also a graduate of the Eckerd College Management Development Institute's Leadership Development program and the St. Petersburg Chamber of Commerce Leadership St. Pete program.

Gang Wang, PhD – Senior Consultant - Data Analyst. Dr. Wang has completed more than sixty emergency service operational analyses using data-driven analytical techniques to determine the most efficient organizational and operational structures. Gang has a PhD in Industrial Engineering from Wayne State University and a Master's degree in Management Information Systems from Chongqing University. Previously, Dr. Wang worked for the Center for Public Safety Management and the International City/County Management Association.

Dianne G. Wright, MPA – Governmental Financial Project Coordinator. Ms. Wright is the former Assistant Director of Fire-Rescue Services in Miami-Dade County, Florida. In that capacity for

10 years, she was the senior staff executive and Chief Financial Officer for one of the nation's largest and progressive fire-rescue departments. Ms. Wright enjoyed a 17-year career with Metro-Dade County. Her previous assignments were as the Division Chief for Finance/Public Services in the Public Works Department and as a Budget Analyst for the Office of Management and Budget.

In January 1998, Ms. Wright began consulting on a full time basis and has been affiliated with FITCH for fire and EMS projects since that time. She also independently served as a consulting staff member to the Governor's Financial Oversight Board for the City of Miami and consults in the area of business processes and performance improvement.

Brian McGrath – Senior Consultant – GIS and Mapping Analyst. Brian McGrath serves as President of CAD North Inc. His responsibilities include Administration, Marketing, Software Development and Business Analysis/Requirements Documentation. He brings over 18 years experience in Information Systems management and development in the public safety industry including 10+ years Business and Systems Analysis in public safety software development. He has exceptional ability at requirements capture, analysis and documentation and is fully conversant with all aspects of the software product development and implementation life-cycle. He is an experienced software developer of public safety dispatch applications including software development using TriTech's RAPTOR API. He possesses excellent communications and interpersonal skills, is comfortable at all organizational levels and has a solid base of operational experience in public safety communications.

Project Objectivity and Neutrality

The *FITCH* team has broad-based expertise that naturally blends the competing demands for efficiency and system design in an objective and neutral manner. By design, the firm utilizes a data and research-based foundation, coupled with inner rater reliability procedures, that controls for the naturally occurring biases. Our firm has extensive experience in high-performance system design and efficiency in the use of human and physical resources and continues to serve as a strategic partner with ICMA. Finally, *FITCH* brings nearly 150 years of direct fire/ems service system leadership and management experience to this project that serves to balance the "do more with less" movement with realistic and highly implementable solutions for long-term sustainability while maintaining high quality services.

Published Articles, Lectures, and Presentations

Complete Curriculum Vitae's are provided as appendices for your review. Each member of the proposed team routinely present at national and international conferences for fire and EMS. In addition, Fitch & Associates regularly participates as contributing authors for emergency services and public administration. For example, Dr. Fitch and Dr. Knight co-authored an article titled "EMS in the Era of Health Care Reform" that was the cover issue of the June 2015 Public Management magazine available at http://icma.org/en/press/pm_magazine/article/105817. In 2015, Dr. Knight has

presented at Firehouse World Expo, the Center for Public Safety Excellence's (CPSE) Excellence Conference, and the Pinnacle Leadership Conference. In addition, Chief Knight presented two courses at the International Association of Fire Chief's (IAFC) Fire Rescue International (FRI) conference and the California League of Cities.

Please feel free to review our CV's provided in the appendices.

PROJECT APPROACH

Introduction

FITCH is pleased to present a robust response to the County's request for proposal. Our experience spans the globe and provides over three decades of experience in evaluating and developing emergency service agency plans.

We have reviewed your request and have analyzed supporting documents. The Consultant's role is to objectively undertake a comprehensive fire service assessment and develop future oriented plans and alternatives that provides high quality services and is sustainable in the form of a Fire Master Plan. This evaluation will include a review of community risk, fire department operations, staffing, structure, dispatching, facilities and equipment, fiscal capabilities, performance, anticipated changes in community profile, population, and growth and development of future oriented strategic options. At a high level the County seeks to:

- Complete a community risk analysis for fire, EMS, specialty teams, and other non-fire risks
- Utilize the risk analysis process to inform delivery systems, staffing, and equipment
- Review system performance to ensure adequate fire and EMS coverage throughout the coverage area
- Define baseline and benchmark emergency response performance standards by jurisdiction and population density
- Evaluate current station locations and apparatus configurations and make recommendations for the future
- Complete a staffing analysis that includes measures of workload and unit utilization
- Evaluate system performance including measures of reliability and call concurrency
- Analyze the Departments' capabilities in terms of time and on-scene performance
- Maximize effectiveness by recommending optimal levels of service to be provided within the County
- Identify future needs for the community and the service areas including a cost versus service level analysis
- Identify opportunities to increase efficiencies of functions and make recommendations for long-term sustainability of systems including County financial independence from contractual relationships
- Complete detailed assessment of all fiscal and capital strategies and capabilities

Local governments throughout the country, including the state of North Carolina, are facing a new reality in the provision of public services. Many times the fiscal resources and/or volunteerism are unable to sustain the traditional methods and scope of providing services. Concurrently, taxpayers are increasingly unwilling to increase their contributions to fund the status quo. In this environment, it is incumbent on government to assess efficiency and explore options for the delivery of essential services so that policy is established in a transparent environment that links community expectations

and industry best practices. This proposal is designed to investigate implementable options for the County.

Many contemporary fire departments have incorporated EMS response into their mission. In these jurisdictions, this service typically accounts for a majority of fire department's emergency responses. *FITCH* brings a unique understanding of EMS systems in addition to fire protection. This fosters a comprehensive system assessment that accounts for the interconnectedness of service deliveries along with realistic and practical recommendations.

We propose a team of experts in municipal leadership, fire protection, and emergency medical services to assess performance and explore options for the Department to operate within funding limitations while preparing for the agency's future service delivery in an operationally effective, efficient, and sustainable manner that is aligned with the County's specific community risks and expectations for service.

FITCH is uniquely suited for this project. We have reviewed emergency service systems and developed staffing and deployment plans for over 30 years. We have taught multiple approaches for fire and EMS deployment models for more than a decade as part of the Communications Center Manager's (CCM) program and the Ambulance Service Managers program (ASM) we conduct under the auspices of the International Academies of Emergency Dispatch (IAED) and the American Ambulance Association, respectively. We have served as a resource for detailed reports on emergency services and are a Strategic Partner of the International City and County Management Association (ICMA).

Fitch & Associates' Methodology

Recognizing that each community is unique - our analysis of the County fire service delivery system's functions, structures, operations, finances and community expectations must be completed with due regard for local characteristics.

Figure 2: Review Components

This local awareness is balanced with a comprehensive review methodology that incorporates recognized objective benchmarks and international best practices. That information is turned into actionable recommendations incorporating both pros and cons of service delivery changes.

Fitch & Associates (*FITCH*) has over 30 years consulting experience and is internationally recognized as a leader in emergency services development. The project team's leadership has North Carolina, County Administration, and combination department-specific experience. The proposal that follows describes why *FITCH* is best suited to tackle the issues and objectives requested.

In order to appropriately tackle each of these complex issues in a meaningful, yet cost effective manner, *FITCH* has put together a multidisciplinary team that combines a senior officer with a partner to review each one of the areas required. In total, *FITCH* has assigned two partners on the project that will have overarching responsibility to meet the expectations of the Guilford County Board of County Commission.

In accordance with the RFQ, the project approach for this scope of work will be presented following the order of presentation in the RFQ's "Objectives".

Project Initiation and Development of Work Plan

The first step in the process is to conduct a kick-off meeting to finalize the work plan and timeline and is paramount to a successful study and the ability of *FITCH* to maximize the effectiveness of its

work teams. At the kick-off meeting an overview to the approach of the project will be provided. Any final logistical issues will be resolved during this phase. It is in this phase that key representatives will review and prioritize items outlined in the RFQ and provide an opportunity to refine any specific objectives related to each service area or objective.

Specifically, the following elements will be confirmed:

- Primary tasks to be performed
- Person(s) responsible for each task
- Timetable for each objective to be completed
- Method of evaluating results
- Resource identification
- Identify obstacles or problem areas associated with the accomplishment of each task

Acquisition and Review of Background Information

FITCH will submit an Information Data Request (IDR) that the County and Departments' will typically complete within 30 days of project initiation. As a data-driven analysis, the following sources of information have been pre-identified.

- Department RMS Data
    - Department Incident Reporting RMS
    - Department Patient Care Reports (if separate)
    - Department Inspection/Permitting Records
    - Department Pre-fire Planning Records
- Public Safety Answering Point (PSAP)
    - Five Years of Raw CAD Data
- Economic Development / Planning (or equivalent)
    - Identified Planning Areas
    - Projected Growth
    - Census Data
    - Anticipated Annexations
    - Zoning
    - Land Use Plans
- Facilities and Apparatus
    - Access and Observation
    - RMS or Database with maintenance records
    - Replacement Schedules
- Fiscal Services
    - County Budget
    - Fire-Rescue Budgets
    - Capital Improvement Plans
    - Revenue and Taxing Information
    - Grants - Current or Anticipated

- County/Department GIS
    - Station Territories (Shape files)
    - County Boundaries
    - Major Transportation
    - Critical Infrastructures
    - Growth Boundaries
- County/Department Human Resources
    - Payroll
    - Staffing
    - Scheduling
- Miscellaneous Documents
    - Automatic/Mutual Aid Agreements
    - Contractual Documents for External Services
    - County and/or Department Policies and Procedures
    - Strategic Planning Documents
    - Previous Studies and/or Research

This list is not intended to be all-inclusive as the unique environment in Guilford County may require the addition or deletion of required information.

Stakeholders Input

During the project initiation and/or first on-site visit, personal interviews will be scheduled with the following key stakeholders to ensure that the *FITCH* team has a comprehensive understanding of the County's and Departments' background, goals, expectations, and critical issues.

- Board of County Commission
- County Manager
- Guilford County Fire Rescue Council Leadership
- Fire Chiefs
- County Emergency Services and EMS Directors
- Representative Sample of Line Personnel (all ranks)
- City Managers and/or Municipal Fire Chiefs (as appropriate)
- Labors' Executive Boards (as appropriate)

At the conclusion of this objective a brief summary of stakeholder input will be provided.

In each of the objectives, there are multiple sub-objectives identified in the RFQ. However, for clarity and brevity, descriptions are provided that may combine similar sub-objectives in an effort to provide a seamless output. In all cases this proposal will complete each objective and sub-objective outlines in the RFQ.

Objective 1: Risk Management and Loss Potential

A risk analysis of Guilford County will be completed during the completion of objective 1. Risk analyses will include direct observations, structured interviews, and document and mapping reviews. In addition, a detailed occupancy level evaluation will guide recommendations for the distribution and concentration of resources throughout the County by department and/or station response areas.

Objective 1.1, 1.3, 1.4, 1.5: Community Risk Assessment

County and Departments' Overview

Within a risk-based schema, the first step in an analysis is to understand the individual or specific aspects to the County. Therefore, a description of the community served by the County will be completed. Elements included in the community description may include:

- Legal Basis
- Governance and Lines of Authority
- Brief History of the Agency
- Service Milestones
- Organizational Design
- Financial Basis, including Operating Budget, Funding, Fees, and Taxation
- Geography
- Topography
- Climate
- Population
- Demographic Features
- Disaster Potential

The next step is to review the services that are provided within the existing deployment model and the associated baseline performance. All of the currently provided service delivery programs will be evaluated in an effort to establish the current deployment strategy and to identify the current baseline performance. The deployment related service delivery programs to be evaluated include:

- Fire Suppression
- Rescue
- Emergency Medical Services
- Hazardous Materials
- Specialized Services such as Technical Rescue, Swift-Water Rescue, Marine Rescue & Firefighting, Dive Rescue, and Wildland Firefighting (as appropriate)

In addition, the current deployment strategy will be identified and described with regards to the number of fire stations, response territories or demand zones, and apparatus quantity and type. Similarly, the current staffing strategy will be identified and described including the organizational

structure, administrative and support staff, emergency response staffing, and a brief summary of the Departments' response history.

Risk Analysis for Each Station by Incident Type and/or Severity

The next step in the process is to understand the specific, individual, and inherent community risks. Risk can be evaluated from two different perspectives in the emergency services: Prospective (potential) and Retrospective (historical), respectively. Typical fire risks will be quantitatively evaluated using an agreed upon risk matrix that will classify the higher risk structures into four distinct levels of risk: low, moderate, high, and special or extreme. This will be accomplished with an evaluation of the County's and/or Departments' specific data. Sources of data may include the Insurance Services Organization's (ISO) Batch Report and the Departments' inspection records and pre-fire planning efforts. A Geographic Information System (GIS) will graphically illustrate relevant risks by risk severity.

Similarly, various other specific community indicators will be evaluated that are empirically found to be correlated to higher frequency of events and greater demands for service. For example, population density, income, and age are correlated with greater frequency of fires.

Non-fire risks will be evaluated as well. Typical non-fire risks fall into natural and man-made disasters, transportation risks, and emergency medical services (EMS). Overall, the following areas are proposed to be included in the County's community risk analysis for potential risks:

- Geospatial Characteristics
- Geographic and Weather-Related Risks
- Seismic Risks
- Transportation Risks
- Wildland Fire Risks
- Physical Assets
- Population Density
- Future Development, Annexation, and Growth
- Socioeconomic Indicators
- Demographic Indicators

The second lens to view community risk is through historical service demands and performance. Historical demands for service will be evaluated to balance the theoretical readiness or preparedness necessary to mitigate potential risks with the actual service demands realized in the community. It is through this analysis that determinations for the concentration and distribution of resources may be recommended. Elements evaluated in this review will include all elements of response time, workload, and call duration by call type. A detailed description for the measurement of historical system performance is provided in Objective 3.

Finally, elements of both potential and historical risk will be synthesized into a final risk rating and applied to each of the major service delivery programs provided by the Department. For example, fire suppression, emergency medical services, hazardous materials, rescue services, technical rescue, and special operations may have an independent matrix that balances the frequency of occurrence with the severity, or potential severity, of the incident. This risk analysis will then be utilized to develop recommendations for all deployment related services with alternative performance objectives and resource demands based on risk severity and risk type. ***Again, the forthcoming are only examples, as the Guilford County Emergency Services (GCES) staff will participate in creating the specific risk matrices to be utilized.***

Utilizing available data from the Department's Records Management System (RMS) or the Insurance Services Organization's (ISO) batch report; we will prospectively create a risk matrix that will categorize risks as low, moderate, high, or special risks. This information will be utilized at the occupancy level for properties within the jurisdiction. An example of an occupancy level risk matrix is provided below as Table 3.

Table 3: Example of Occupancy Level Risk Severity Matrix

Risk Class	Water Flow		Number of Stories		Protection Systems Present (Yes/No)	Occupancy Building Type*	Total Risk Score
	Value	Scale	Value	Scale			
High	3	≥ 1500 gpm	5	≥ 4	-3/0	3	≥ 9
Moderate	2	> 499 and < 1500 gpm	3	> 1 and < 4	-3/0	2	>3 and <9
Low	1	≤ 499 gpm	1	1	-3/0	1	≤ 3

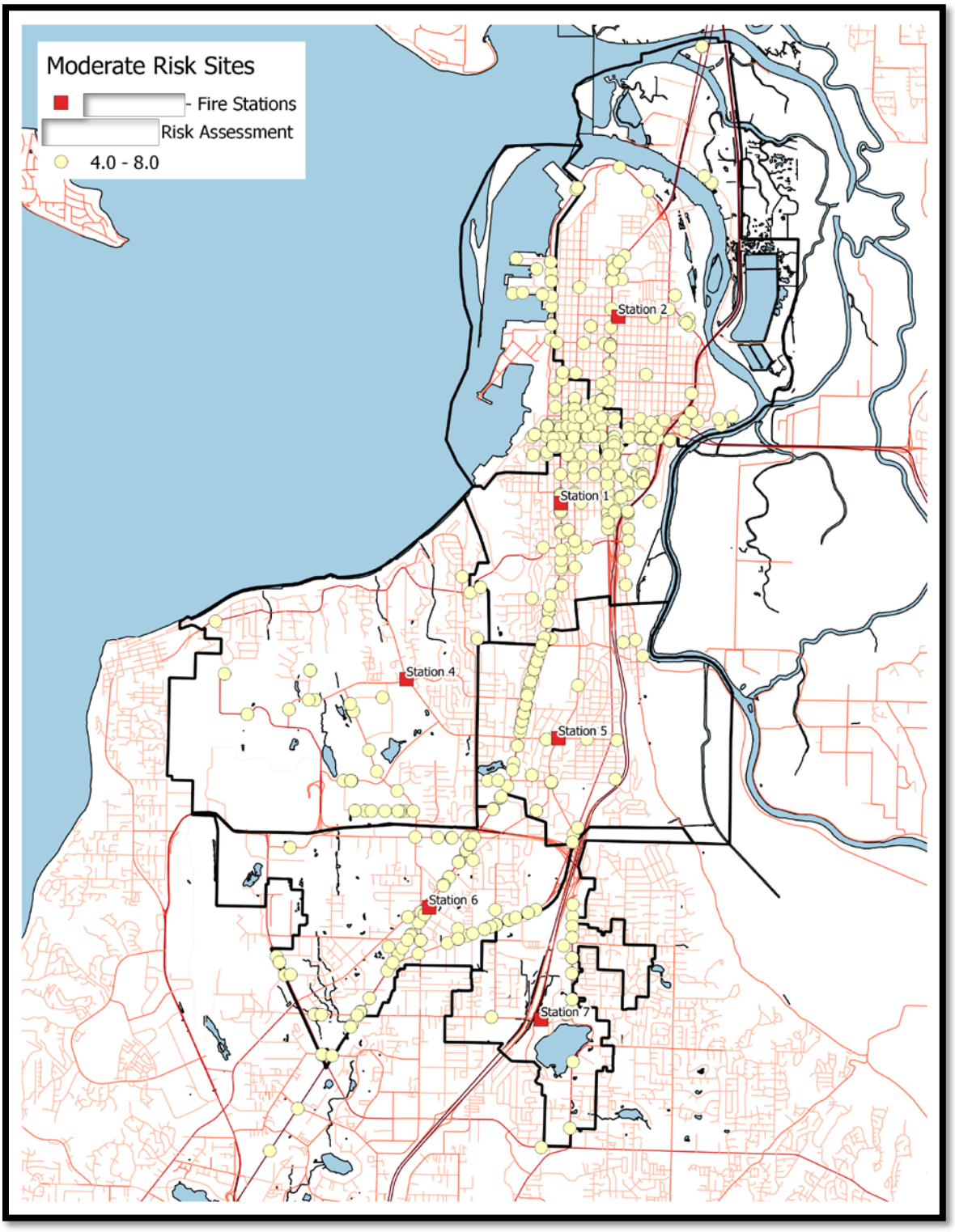
The combination of the prospective risk as defined (in this example) will generate risks that are mapped by station demand zone and quantitatively analyzed within the context of a station level risk matrix. An example of a station level risk matrix that incorporates both the historical demand (risk) and the prospective (potential) risk is utilized to determine the appropriate balance between the distribution and concentration of needed resources and is provided as Table 4 below.

Table 4: Example of Station Fire Response Area Risk Concentration Matrix

Risk Class	Coverage Area (mi²)		Moderate Risk Occupancies		High Risk Occupancies		Critical Infrastructure Occupancies		Workload (availability)		Total Risk Score
	Value	Scale (mi²)	Value	Scale	Value	Scale	Value	Scale	Value	Scale (%)	
High	3	≥ 9	3	≥ 100	5	≥ 20	5	≥ 20	5	≥ 20	≥ 20
Moderate	2	> 5 and < 9	2	> 50 and < 100	3	> 10 and < 20	3	> 10 and < 20	3	> 10 and < 20	>10 and <20
Low	1	≤ 4	1	≤ 50	1	≤ 10	1	≤ 10	1	≤ 10	≤ 10

The stratified risks will be geocoded and presented in map format by station territories or demand zones. In the following example, the moderate risk occupancies are mapped by station territories. Please see Figure 3 below.

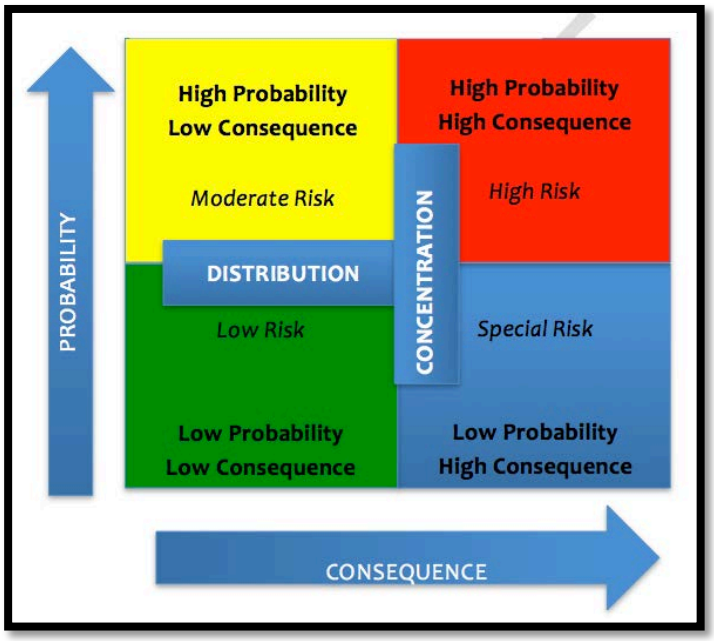
Figure 3: Moderate Risk Occupancy Sites by Station Territory



Translating Risk Classifications to Mitigation Strategies

Finally, all identified risk categories (program area) and risk severity (low, moderate, high, special) will be translated into actionable uniform or commensurate mitigation and response strategies utilizing the probability and consequence matrix. In other words, a probability and consequence matrix will be created for each risk area (fire, ems, hazmat, etc.). This process allows for focused attention between the need for greater distribution or greater concentration of resources that is objective and risk based. In addition, a uniform method of addressing each risk level will seamlessly inform staffing strategies.

Figure 4: Example of Probability/Consequence Matrix



Objective 1.2: Evaluation of Water Supply

While the capabilities for needed fire flow and the presence or absence of fire protection systems will be covered previously, specific analyses will be provided to assess the water supply system and recommendations made regarding development ordinances and equipment typing. In other words, what tradeoffs may be available to balance water supply capabilities and the demands placed on fire delivery services? For example, many communities have a trade-off for residential structures exceeding a predetermined square footage that may alleviate the cost of the infrastructure for a hydrant by requiring residential fire sprinklers. Recommendations may be offered regarding development and annexation planning for critical infrastructure as it relates to service delivery and long-term sustainability.

An assessment will be completed with regards to the availability of water, hydrant access, and functioning in light of patterns of historical call volume, community risks, response time capabilities, personnel capabilities, and code enforcement and plans review.

A combination of direct observations, document and data review, and structured interviews will be utilized to guide this assessment. The available data elements to review would include the most recent ISO PPC rating as it accounts for 40% of the overall rating. In addition, documentation from the County's water department and Fire Departments should provide a robust review of the water system capabilities and opportunities for improvement.

Important elements of this review would be how the fire department deployment has adjusted to areas with limited water supply (if appropriate). Are there appropriate water tenders and drafting capabilities? Are they supported by code enforcement and plans review? Is there a sprinkler trade-off during the plans review process in areas of limited water availability? Finally, a brief review of the area's annexation policies will be completed as to the process for providing infrastructure, impact fees, and etcetera.

Overall, an assessment of the County's water supply capabilities will be completed and recommendations for improvement will be provided. Specific and timelier recommendations will be posited for the fire departments appropriate mitigation efforts employed in areas that are challenged with water supply.

Objective 1.6: Evaluation of ISO Ratings versus Actual Premium Experiences

Considerable ambiguity exists between the relationship or correlation of ISO ratings and the individual insurers premium rate setting policies and practices. During the completion of this objective, the *FITCH* team will research a sample of commercial and residential premium structures for several carriers. A matrix will be created in an attempt to provide perspective for future policy decisions regarding the impact of ISO ratings.

Several limitations may exist in this type of analysis. For example, rate-setting strategies by insurers are generally viewed as proprietary and they may not proactively share information. Similarly, the impact of the "fire peril" may only be a small percentage of the overall premium experience. For example, differences in how independent insurers value credit history may introduce greater variability in rate setting than the actual changes in community classification. Any challenges experienced during the completion of this objective will be reviewed with the County and will assist in forming agreed upon alternative strategies to meet the intent of this objective.

Objective 2: Suppression/First Responder Delivery Systems

Objective 2.1 and 2.8: Facility Locations

Analyses at the station level will determine the appropriateness of the fire station locations in relation to the risk identified and the geographic limitations for travel time. Factors related to the distribution (station locations) such as geographic size, travel impedance, workload, and risk will be evaluated. Similarly, the station level analyses will also include elements of concentration such as the numbers of apparatus or personnel required at each level of distribution necessary to reliably respond to the demands for service. Elements evaluated for concentration may include the number or risks located in each demand zone or station territory and the capabilities to assemble an effective response force by program area. Station level and/or department level performance and capabilities will be illustrated utilizing GIS mapping and quantitative analyses presented in tabular form. Examples of similar analyses are presented for your review and convenience.

Marginal Utility of Optimized Resource Allocation

We utilize a proprietary marginal utility model to engage communities in their understanding of the balance between response time performance, the communities willingness to assume risk, and the costs associated with comparative service levels. In this transparent dialogue, community policy can be clearly derived that meets the best balance between community expectations for service, costs, and outcomes.

Therefore, in each community at any given response time objective (Minutes), an optimal number of fixed facility fire station locations are identified. Many communities have sited their fire station locations for a wide variety of reasons with the least of them being a specific performance objective. The concept that "faster is always better" passes the common sense test, but in most communities there is a marginal benefit or marginal return on fixed cost investments that may not be providing the desired return on investment. These analyses and continued dialogue with the community provide for a transparent and accountable method to best meet community expectations for service.

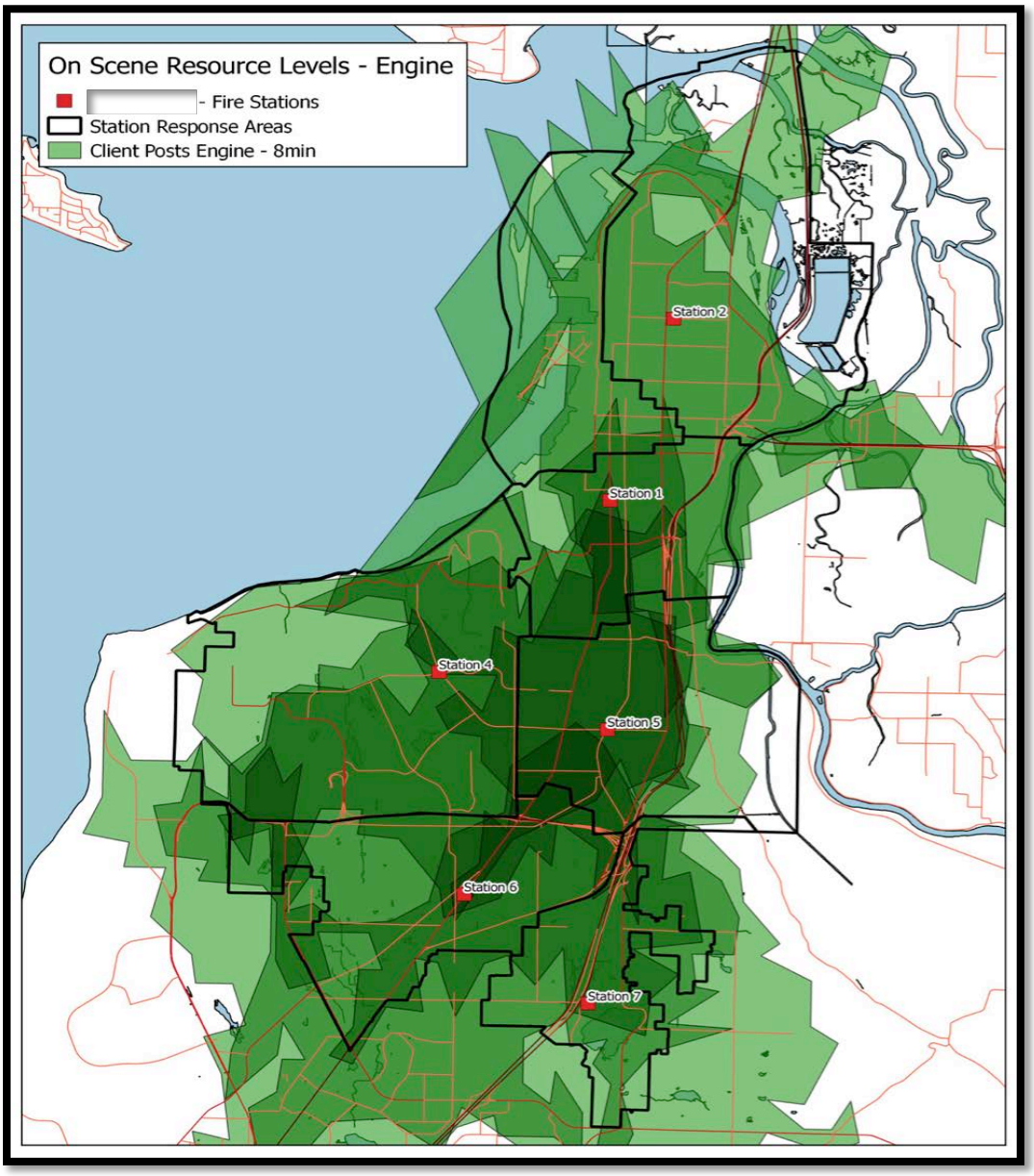
In the following example, this community has two fire stations and was meeting their desired performance (minutes). However, the first fire station can capture 97.46% of all of the calls in the community from the current location within the desired performance level. In this case it was eight (8) minutes travel time. The second station only added 0.3% improvement in coverage. A quantitative analysis, such as typically presented in an annual report, would report the aggregate performance at 8 minutes 90% of the time, but fall short of illustrating the diminishing return on investment of the second fire station's contribution at a constant fixed cost for each fire station.

Table 5: Marginal Utility and Optimization of Fire Station Locations

Station Rank in Contribution to System	Existing Station Number	Station Capture	Total Capture (Cumulative)	Percent Capture (Cumulative)	Contribution to the System
1	Station 2	4,562	4,562	97.46%	97.46%
2	Station 1	14	4,576	97.76%	0.3%

Our approach to optimizing the fire station locations and utilization is determined by the desired service level and capabilities from each of the facilities. Since an optimal number of facilities exist, some communities may be able to consolidate stations, some may currently have the optimal number of facilities, and some may need additional facilities to meet the desired service levels. However, this analysis is the only method to identify the diminishing return or marginal utility of resource allocation as quantitative analyses alone will not identify "overlapping" predetermined response areas. For example, in the following GIS mapping, this illustrates the degree to "overlapping" or redundancy of station coverage areas. The darker the shading the more units are able to cover the same area within the desired performance level. Please see Figure 5 below.

Figure 5: Illustration of Overlapping Station Response Capabilities



Analyze Need for New Stations or Identify Opportunities for Consolidating Existing Stations

All previous efforts as outlined in this scope of work will flow seamlessly to identify the need for new stations as well as identify opportunities to consolidate existing stations. The major elements that will contribute to this analysis are the risk assessment, historical demand, workload, system reliability, and geographic limitations of the jurisdiction.

As an objective data-based firm, we let the data resonate with the policy makers, and then design the system that best meets the competing demands of balancing the community's tolerance for risk and their expectations for service with the desire or capability to pay for preparedness.

All results will be provided in both tabular form as well as through GIS mapping. The following two maps are provided as examples of our objectivity for system design. In the first example, the agency has seven (7) EMS stations with a desired performance level that far exceeds current performance. In this example three years of historical data were analyzed and the optimal station locations were posited. The agency would have to increase from seven (7) stations to 10 stations in order to meet the desired performance. In contrast, the fire services for our example agency has 17 fire stations and could cover 90% of their calls within the desired timeframe within 10 minutes with six (6) stations.

The County will be provided the latitude and longitude coordinates of recommended locations. The GIS mapping for these two examples are provided as Figures 6 and 7 below.

Finally, the GIS analyses and process include the utilization of average travel times that encompass variation in traffic patterns and congestion. Specific assessment of the number and frequency of calming devices will be considered in each response territory and travel impedance may be adjusted accordingly.

Figure 6: Example of Need for Additional Stations and Optimized Locations

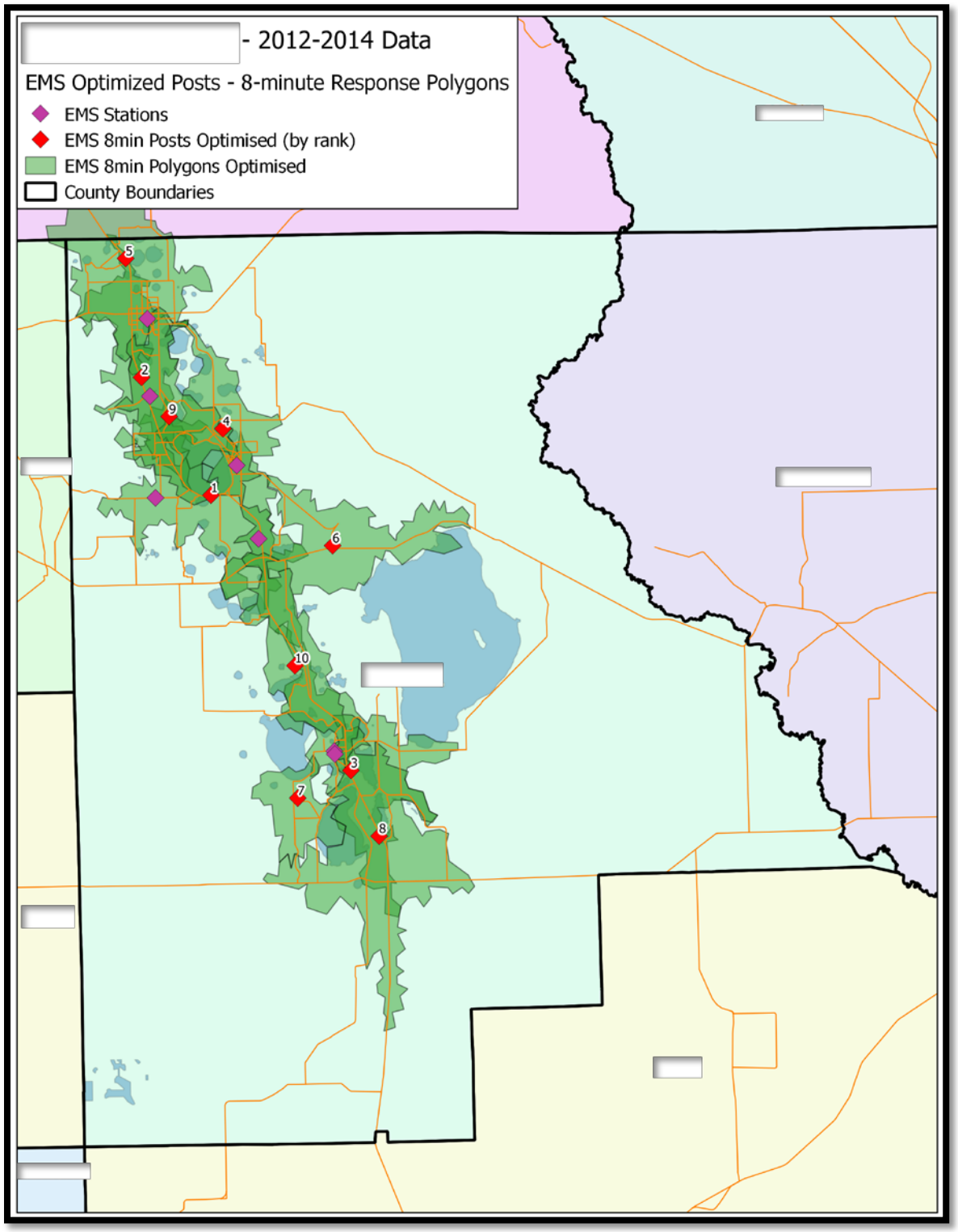
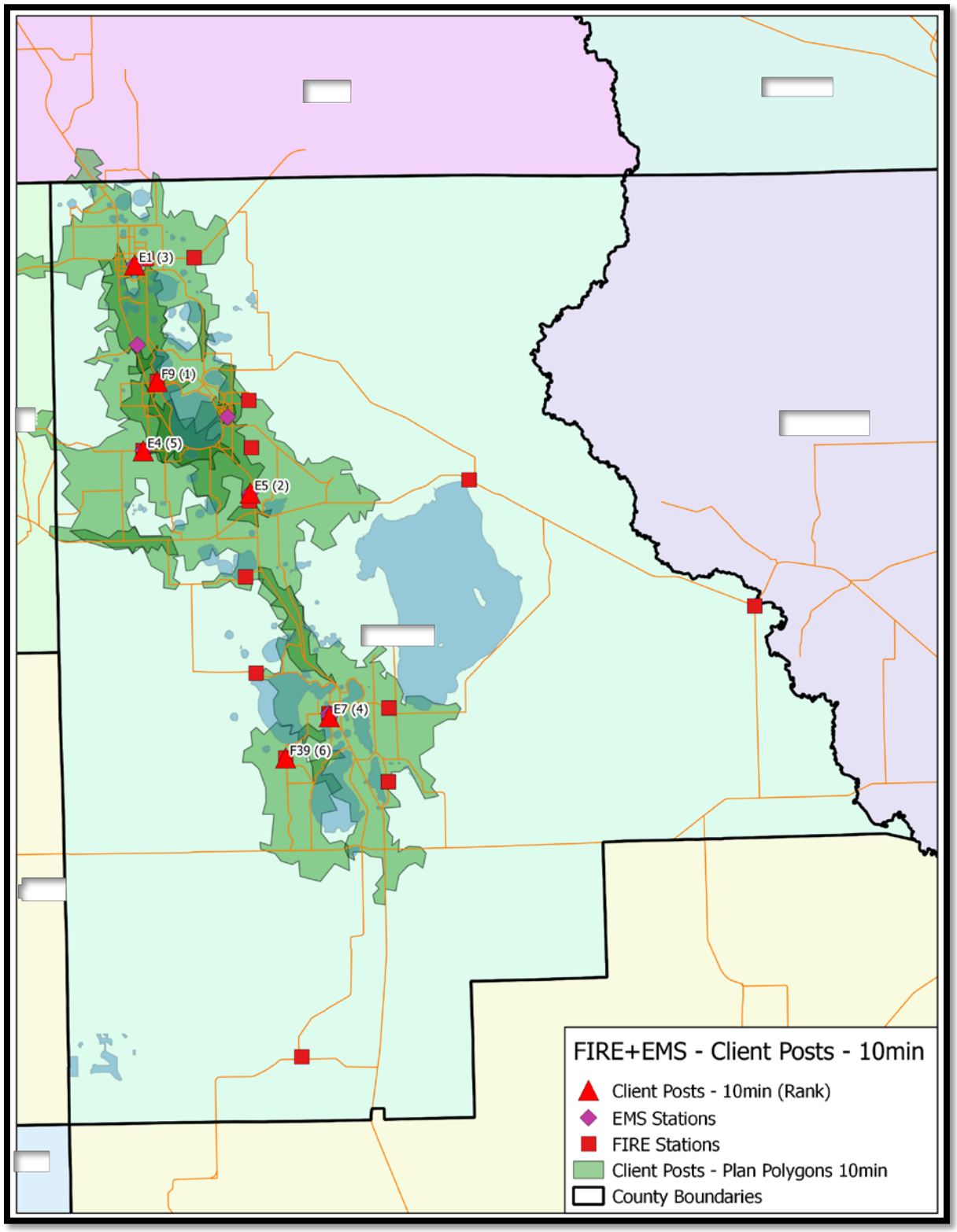


Figure 7: Example of Consolidated Stations



Objective 2.2: Fire District Areas

While the "response" components of each district will be evaluated in Objective 2.1, the remaining financial elements of taxation, insurance, rural protection, and service districts will be evaluated. Assessment and recommendations of the current revenue capabilities, fairness and equity between districts, variability in performance, and comparison of ISO ratings will be provided.

In addition, specific analyses and recommendations will be provided through the lens of future financial independence for the County.

Objective 2.3: Evaluation of Mutual, Auto, and Reciprocal Aid Agreements

This objective will be accomplished during the review of the optimized fire station locations and quantities in Objective 2.1. Station capabilities will be evaluated as the status quo, a comparison to NC ISO recommendations, and through a systems approach. Therefore, in a systems approach, all auto and mutual aid agreements, as well as municipal capabilities, will be evaluated for the most efficient and effective service delivery for the citizens and the most cost effective for the County.

Objective 2.4: Water Supplies

Water supply capabilities will be evaluated during the completion of Objective 1.2. However, as consideration for station placement and apparatus configurations, water supply will continue to be a consideration for placement.

Objective 2.5: First Responder

In tiered or integrated systems, such as exist between County EMS and the various first responder departments, a synergistic relationship is created when designed well and performing as designed. However, as variables affecting the performance of one agency change there is typically a ripple effect experienced by the other agency. At times these dynamic changes in the system performance can shift costs between providers and potentially impact performance capabilities such as system reliability, time on task, and response time.

Detailed analyses will be completed to evaluate the correlation between these agencies with respect to response time performance standards, current performance, reliability of each agency, and any existing deficiencies. Specifically, the relationship between fire departments' response time performance and County EMS' response time performance will be evaluated to maximize the clinical, operational, and economic efficiency between the agencies.

Objective 2.6: Projected Community Development and Growth

Empirical research concerning the incidence of fire has been correlated with population density and socioeconomic status. United States Census data and community development data will be utilized to make future projections concerning population growth and/or density. Analyses of land use plans, annexation plans, the City's urban growth boundaries, and anticipated changes in community demographics, socioeconomic status, or population will be profiled in preparation of translating community changes to changes in demands for services. Specifically, the annexation plans will be evaluated for the following agencies:

- City of Greensboro
- City of Burlington
- Town of Kernersville
- City of High Point

All information will be utilized to project future service demands as well as inform alternatives for assigned response areas and taxing districts. Similar to previous examples, analyses will be provided through the lens of a financial independent integrated County service.

Objective 2.7: Incident Control and Management

Structured interviews, document reviews, after action reports, and command personnel qualifications and certifications will be utilized to assess the efficacy and effectiveness of command and control elements for incidents. Further, analyses may include a review of standard operating procedures/guidelines and incident policies as well as each Department's capacity to assemble safe and effective response forces.

Finally, a review of practices concerning the utilization of the remaining command structures, and specifically the Safety Officer position, will be evaluated. Available outcome data will be utilized to assist in forming a well-rounded assessment of the effectiveness of incident control and management. Examples of available outcome data may include:

- Fire loss data
- Percentage of buildings controlled to the room of origin, floor of origin, and building of origin
- Civilian fire injuries
- Civilian fire fatalities
- Firefighter injuries
- Firefighter fatalities

Objective 3: Analysis of Calls for Service

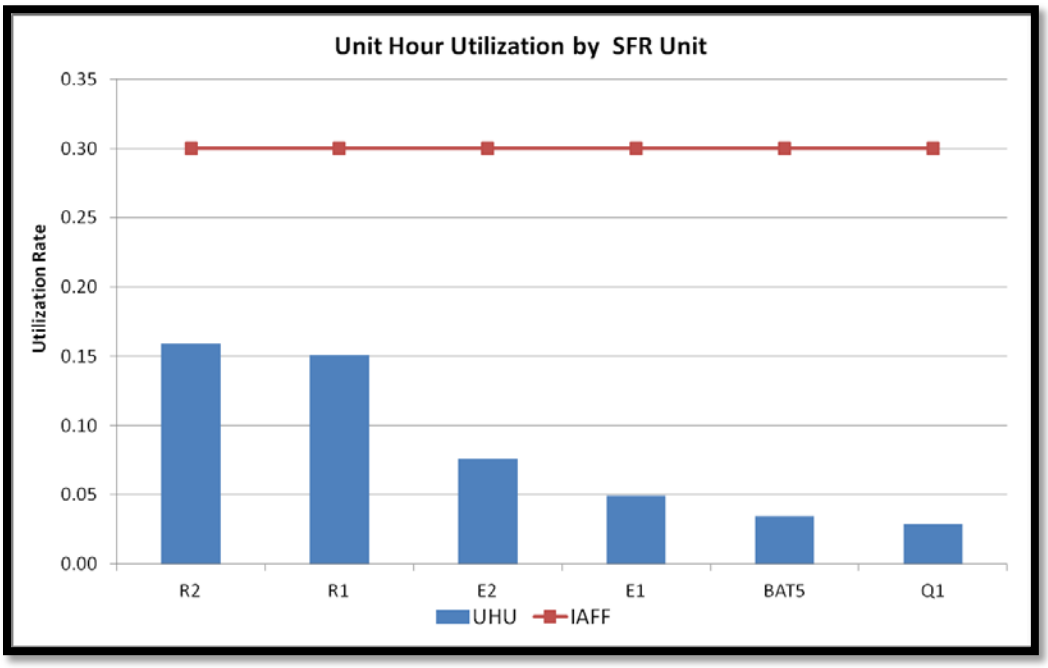
Objectives 3.1 and 3.2

Workload will be evaluated from multiple perspectives; total unit responses per station, time on task as measured by the Unit Hour Utilization (UHU) for each unit and/or station, workload distribution, and total responses by risk type. Examples of the total responses and annual busy hours are provided in Table 6 and the UHU is provided as Figure 8 below.

Table 6: Example of Overall Workload by Station

Station	Avg. Busy Minutes per Unit Response	Annual Busy Unit Hours	Annual Total Unit Responses
11	68.9	136	118
14	35.1	943	1,613
16	35.2	2,217	3,776
18	37.8	1,658	2,630
21	35.3	2,832	4,818
22	43.9	1,817	2,482
23	31.9	2,189	4,120
24	48.7	1,722	2,120
30	31.5	2,600	4,952
32	38.8	1,545	2,387
33	36.5	2,152	3,540
34	27.1	62	137
36	43.4	899	1,243
HQ	29.9	1,749	3,510
Total	**36.1**	**22,519**	**37,446**

Figure 8: Example of Unit Hour Utilization Analysis



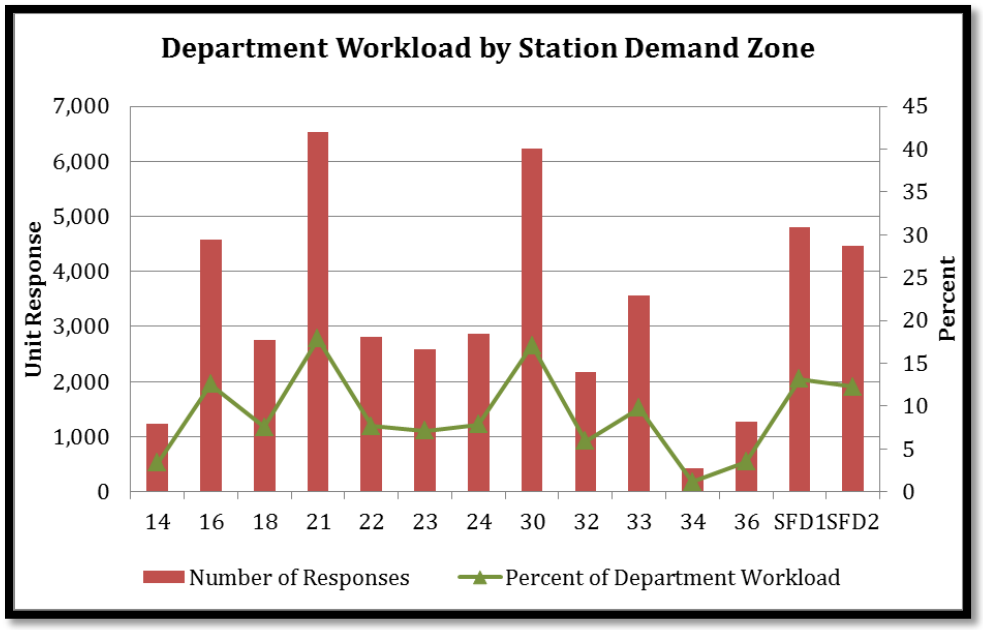
In addition, the type of historical demands for service are examined by each station response area in an effort to validate that the appropriate resources are provided to handle the unique risk profile of the fire station response area. The outcome of these analyses will inform the appropriate staffing, certifications, and apparatus type and quantity.

An example is provided as Table 7 below. Next, workload is expressed in terms of the total percentage of department workload by each individual station. This is utilized to assist in determining the appropriate staffing and apparatus resource allocation per optimized station. An example is provided as Figure 9 below.

Table 7: Example of Number of Responses by Station Area and Call Type

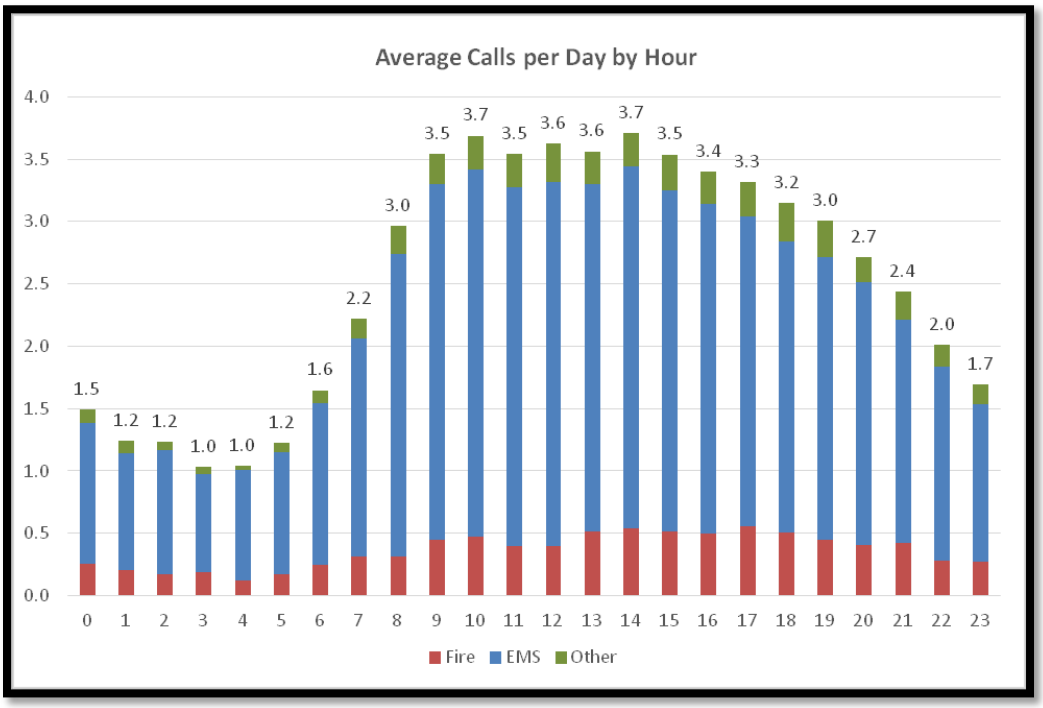
First Due Station	EMS	Fire	Rescue	Hazmat	Mutual aid	Canceled	Total
14	851	283	7	14	0	70	1,225
16	3,679	625	0	27	9	237	4,577
18	2,056	455	3	50	9	177	2,750
21	4,834	1,177	7	43	10	459	6,530
22	1,898	569	0	21	9	306	2,803
23	1,952	428	0	17	33	162	2,592
24	1,840	542	0	40	262	187	2,871
30	4,893	700	0	33	79	533	6,238
32	1,519	514	0	6	28	99	2,166
33	2,951	455	0	32	22	112	3,572
34	296	86	0	14	0	22	418
36	900	294	0	11	9	60	1,274

Figure 9: Example of Department Workload by Station Area



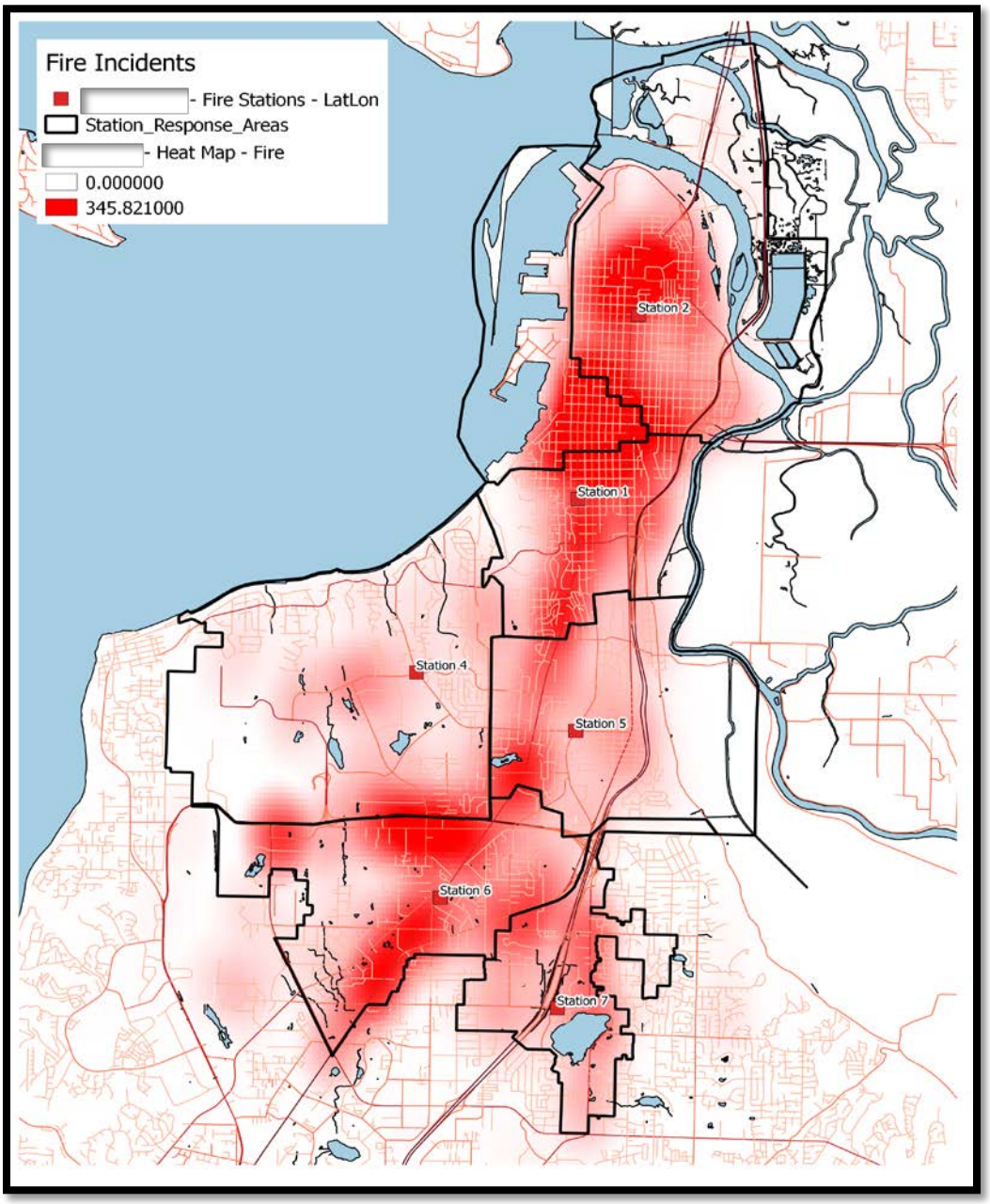
In addition, workload is analyzed by temporal distribution and mapped by station area utilizing GIS. Examples are provided as Figures 10 and 11, respectively.

Figure 10: Example of Average Calls per Day by Hour of Day



The analysis for this part of the scope of work is a continuation of previous quantitative work for the station locations and response areas as well as the GIS analysis of the location of historical incidents. Therefore, in addition to the previously presented tabular data, all incidents will be geocoded in GIS to generate heat maps as presented in Figure 11. Each major call type will receive a specific analysis (fire, ems, hazmat, technical rescue, etc.)

Figure 11: Example of Historical Call Location Heat Map for Fire Incidents



Finally, previous projections for changes in population, population density, and growth will be translated into projections for future service demands over the next 10 years. Projections will include consideration for both the demand to provide, and ability to receive, mutual/automatic aid. Results will be presented in tabular form and mapped, as appropriate.

Objectives 3.3 and 3.4

Three years of system performance data will be collected from both the Public Safety Answering Point (PSAP) and the available National Fire Incident Reporting System (NFIRS) data and Electronic Patient Care Reporting (ePCR) that may be available in the Departments' Records Management Systems (RMS).

Data will be analyzed to determine both the average and 90th percentile performance for call processing, turnout time, travel time, and total response time. Also, elements of time will be examined by major call types, time of day, day of week, and month of year. Similarly, analyses will be completed describing historical performance at the unit/apparatus level that describes the frequency of calls, workload, and call duration by call type. Finally, all of the above historical performance data will be evaluated at the station level.

Analyses at the station level will determine the appropriateness of the fire station locations in relation to the risk previously identified and the geographic limitations for travel time. Factors related to the distribution (station locations) such as geographic size, travel impedance, workload, and risk would be evaluated. Similarly, the station level analyses will also include elements of concentration such as the numbers of apparatus or personnel required at each level of distribution necessary to reliably respond to the demands for service. Elements evaluated for concentration may include the number or risks located in each demand zone or station territory and the capabilities to assemble an effective response force by program area. Station level performance and capabilities will be illustrated utilizing GIS.

In addition, measures of reliability will be utilized to determine the effectiveness and validity of the current deployment strategies. Specifically, the percentage of calls that the primary station territory and/or unit was able to respond to when called will be evaluated. Another measure that may be useful is that of analyzing the frequency of concurrent calls.

Finally, the completion of the objective will include an analysis of the effectiveness of the current deployment strategies for each program area. This will be accomplished through direct observations, structured interviews, and an analysis of available outcome data from the Department's RMS programs for Fire/EMS incident reporting.

In summary, the following elements will be evaluated while completing the review of historical system performance:

- Number of calls
- Call frequency
    - Time of day
    - Day of week
    - Month of year

- Call type
    - Fire
    - Ems
    - Hazmat
    - Tech Rescue
- Elements of Time
    - Dispatch time
    - Turnout time
    - Travel time
    - Total response time
- Effectiveness / Outcome Measures
    - Call Type
    - Program Area
- Performance
    - Unit performance
    - Station performance
    - System performance
    - Reliability / Concurrent Calls
- Workload
    - Call duration
    - Unit Utilization
    - Workload Distribution at Unit and Station levels
- Deployment Modeling
    - Effective Response Force (ERF) performance and capabilities
    - Distribution of Resources
    - Concentration of Resources
    - Automatic and Mutual Aid Capabilities

Each station's performance is evaluated by both their response time performance within their respective fire station first due area and the reliability/concurrency of the stations ability to answer the requests for service. An example of the response performance is provided as Table 8 below.

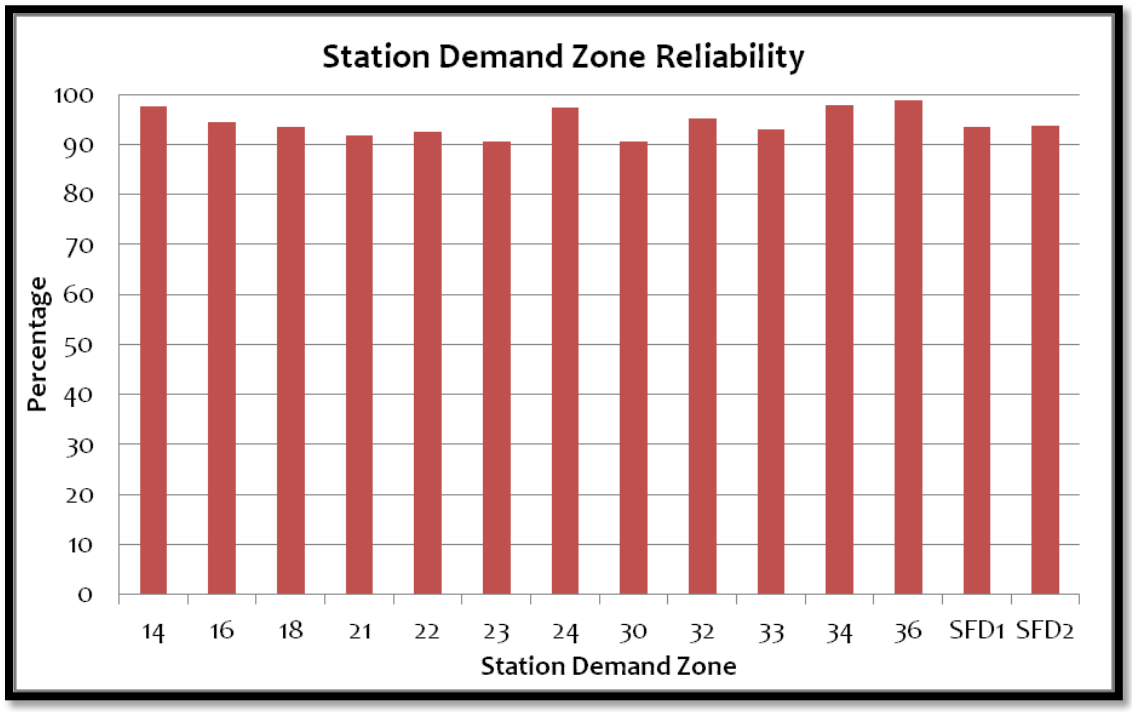
Table 8: Example of Response Time Continuum by Station and Unit

Station	Unit	Dispatch Time	Turnout Time	Travel Time	Turnout and Travel Time	Response Time	Sample Size
1	ALS3	1.9	1.8	9.0	10.2	11.5	1,488
	ALS6	2.0	2.1	9.4	10.7	12.0	1,364
2	ALS2	1.9	2.1	7.1	8.7	9.9	2,009
3	ALS4	1.9	2.0	8.1	9.3	10.5	2,421
4	ALS7	1.8	2.3	9.0	10.7	11.9	1,640
5	ALS5	1.9	2.2	11.5	12.9	14.2	2,048
6	ALS8	1.7	2.2	12.2	13.4	14.7	1,407
7	ALS1	1.7	2.0	12.1	13.5	14.6	1,530
NA	JAWS	3.0	1.8	9.8	10.8	12.6	73
Total		**1.9**	**2.1**	**9.9**	**11.3**	**12.5**	**13,980**

In addition, measures of reliability will be utilized to determine the effectiveness and validity of the current deployment strategies. Specifically, the percentage of calls that the primary station territory and/or unit was able to respond to when called will be evaluated. Another measure that may be useful is that of analyzing the frequency of concurrent or simultaneous calls. Examples of analyses for station reliability and call concurrency or overlapping calls are provided as Figures 12 and 13, respectively.

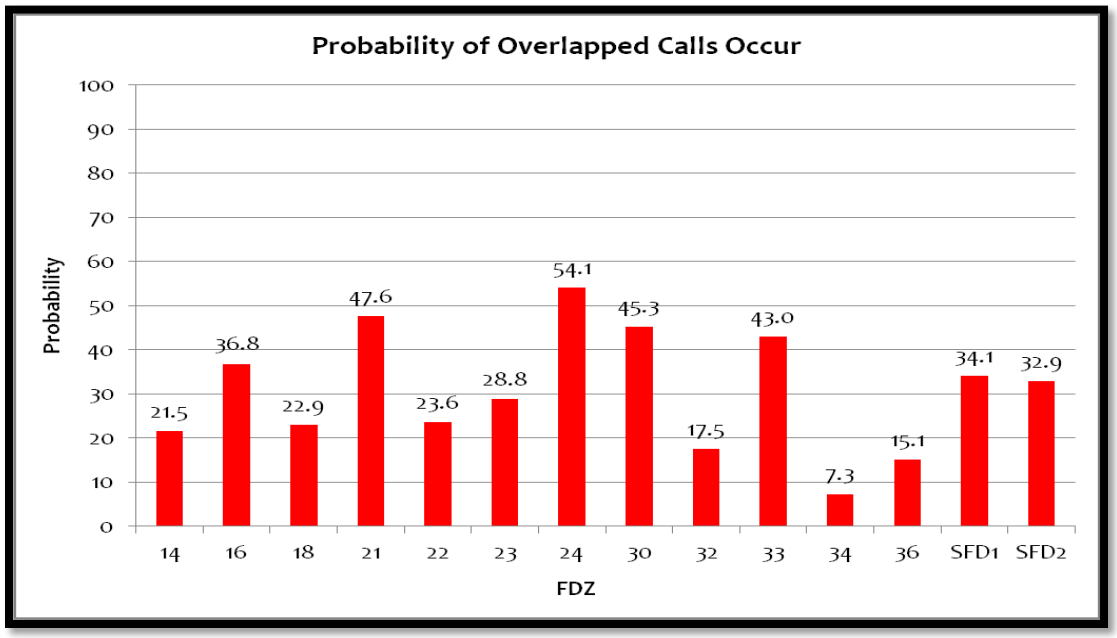
Collectively, these analyses, in conjunction with the GIS analyses previously discussed, will provide a robust assessment of the current station configurations, response areas, unit resource allocation, and the appropriate staffing for each fire station based on objective data specific to the community.

Figure 12: Example of Station Reliability Analysis



Comparisons between the current and/or desired response time performance and recommendations from NFPA, CFAI, and ISO will be provided both quantitatively and with GIS mapping of response time capabilities (travel time).

Figure 13: Example of Probability of Overlapping or Simultaneous Calls by Station Area



Finally, these analyses will provide sufficient data for the *FITCH* team to meet with County administration to establish a standards of response coverage policy designating urban, suburban, and rural performance objectives for both staffing and response time. Once the desired performance objectives have been established, the most efficient system design will be presented that accomplishes the desired performance.

Objective 3.5: Evaluation of Emergency Communications and Dispatch Delivery

FITCH has extensive experience in the design, installment, and management of emergency communication centers. During the completion of this objective, an evaluation of performance of each of the communication centers (municipal and County) will be completed and recommendations for the most efficiency and effective delivery model will be provided from a system perspective.

The fire dispatch center(s) will be evaluated as part of the overall response time continuum as previously described. In addition, direct observation, data analyses, and structured interviews will guide the *FITCH* team to identify areas for optimization or improvement. Assessment may include an evaluation of the following elements with respect to the fire dispatch center(s) (as appropriate):

- Infrastructure Assessment For Risk Exposure
- Staffing
- Scheduling
- Supervision
- Training
- CAD And Radio Equipment
- Backup Procedures
- System Redundancies
- Utilization Of Priority Dispatch Procedures In Fire And EMS
- Call Answering Time
- Call Processing Time
- Quality Assurance / Quality Improvement Efforts
- Utilization Of Emergency Medical Dispatching (EMD/EFD) as appropriate
- Call Categorizations
- Ability To Record All Tactical Channels
- Dispatcher And Communications Center Workload
- Integration And Capability Of Records Management Systems

Objective 4: Specialty Technical Rescue Services

Objectives 4.1 and 4.2

A comprehensive evaluation of the current capabilities within the collective fire service departments will be provided regarding the delivery of technical rescue, hazardous materials, and search and

rescue. It is desired that the consultants compare and contrast with NFPA 1006, 1670, and the Guilford County Emergency Operations Plan (GCEOP).

Similar analyses will be completed with the capability to respond to incidents involving Weapons of Mass Destruction (WMD) and benchmarked against NFPA 1072 and the GCEOP.

Objectives 4.3 and 4.4

Analyses of call types for specialty technical rescue services and all of their associated performance will be accomplished during the completion of Objective 3. Similarly, the risk analysis and critical tasking previously completed will seamlessly drive the appropriate number of personnel and quantity and type of apparatus required to mitigate these risks.

A gap analysis will be completed between the current state and the recommended state of NFPA and the GCEOP. In addition to the quantity of personnel, this analysis will recommend the appropriate certifications and training elements required for successful and safe mitigation of specialty risks.

Objective 5: Staffing

Objective 5.1: Administration, Operations, and Support Staff

A comprehensive analysis will be completed concerning the overall effectiveness and efficiency of the organization by function. These analyses will include a review of all levels of the organization from administration to line personnel. Specific attention will be provided to administrative, staff and supervisory structures and their related assignments. Finally, the decision-making processes will be observed and validated through structured interviews and a review of department policies and documents.

Recommendations will flow through the result of these on-site structured interviews, observations, and our extensive experience in leading and evaluating fire and emergency service organizations. In addition, assessments will be completed with respect to comparison communities, national best practices, and *FITCH's* experience in designing and operating highly efficient and effective organizations. The following questions are representative of the breadth and depth of this assessment:

- Is the Department management and administration structure efficient and effective?
- Are the present standards of service and delivery for fire suppression, EMS, rescue, and hazardous materials appropriate for the County's specific and unique characteristics?
- What is the optimal number of personnel needed to continuously staff for the unique community demands?
- To what degree are the following management elements completed? Are they effective?
    - Planning

    - Organizing
    - Staffing
    - Directing
    - Coordinating
    - Reporting
    - Budgeting
- What is the organization's overall commitment to firefighter safety?
- What is the preferred communication style? Medium? Is it effective?
- How is information received and processes from the field? Is it effective?
- What is the relationship between the County Emergency Services and the individual Fire Departments? Are communications effective?
- To what degree is system oversight integrated between the County and individual Fire Departments?

Objective 5.2, 5.7, 5.8, and 5.10

A comprehensive staffing analysis will be completed during this phase of the project with respect to the present staffing and deployment. Recommendations for optimal staffing levels will naturally flow from a review of the unique community characteristics, response configurations, expectations for service, and historical demands for service both Countywide and by department jurisdiction.

Within the development of the optimized staffing configuration, *FITCH* will evaluate the present shift coverage and scheduling system. Temporal analyses will be completed in an effort to explore options for optimally aligning schedules with demands for service. An evaluation of variables that impact staffing needs such as workweeks, minimum staffing policies, back-fill or contingency policies, vacation accrual and use guidelines, volunteer recruitment and retention, and unique community risk and service demands will be completed. Opportunities for improved operational and economic efficiency will be identified and recommendations to mitigate deficiencies will be provided.

Analyses will be completed with respect to the utilization of volunteers, retirees, residents/live-ins, paid on call, part time paid, and Community College Academy student usage. Finally, evaluation and assessment of the responsibilities and activity levels of personnel will be completed here in addition to the workload analyses completed previously in Objective 3.

Objective 5.3, 5.4, 5.6, and 5.9

The results of the quantitative analyses of both potential risk and historical community demand will inform the *FITCH* team on the appropriateness and effectiveness of the training programs and certification levels of department personnel.

This portion of the evaluation will ensure that the Department's processes and procedures are appropriately aligned to deliver the desired service levels for today and into the future. This evaluation will answer questions of similar nature to the following:

- Does the training program support the desired deployment strategies?
- Are fireground standard operation procedures/guidelines aligned with deployment strategies?
- To what degree do they enhance firefighter safety?
- Are the current training and education levels adequate for each staffing position?
    - In 5 and 10 years?
- Do the Department's training program guidelines, procedures, and process meet industry standards?
- Is the training program competency-based?
- Is there appropriate support capacity?
- What efforts exist for quality assurance and quality improvement?
- How does the training program align with ISO and NC requirements?

Overall, an evaluation will be completed with respect to current or adopted standards of performance and for future service demands over the next 5 to 10 years. Recommendations for changes to the training program must be aligned with the delivery system, deployment, policies, and procedures.

Specifically, analyses will be completed comparing the departments' operational rosters versus the State Fireman's Association roster. Dual rolled personnel will be accounted for as well as evaluating all certification levels. In addition, firefighting requirements and certifications will be compared and contrasted between across departments countywide. Certification levels may include the following:

- Firefighter 1
- Firefighter 2
- Medical Responder
- Emergency Medical Technician
- Hazardous Materials Responder Level
- Interior Firefighter Capability
- Support Personnel Only

Objective 5.5: Call Analysis in Relation to Response of Volunteer versus Career

Call analyses will be completed during Objective 3. Included in these analyses will be the performance of each fire department and comparisons between volunteer and career staffed units and departments by function and/or time of day depending on crew configurations. Specific analyses will be completed to assess the reliability of the performance as well. In other words, this analysis will identify the frequency of "no responses" and/or "delays" in responses by unit/department as compared to career staffing.

Objective 5.11: Cultural Diversity

An evaluation will be completed as to the diversity of personnel and administration across the individual departments. Comparisons to the representative proportions of the County will be provided. Gaps in representativeness will be identified and recommendations for improvement will be provided as appropriate.

Objective 6: Capital Improvement Plans

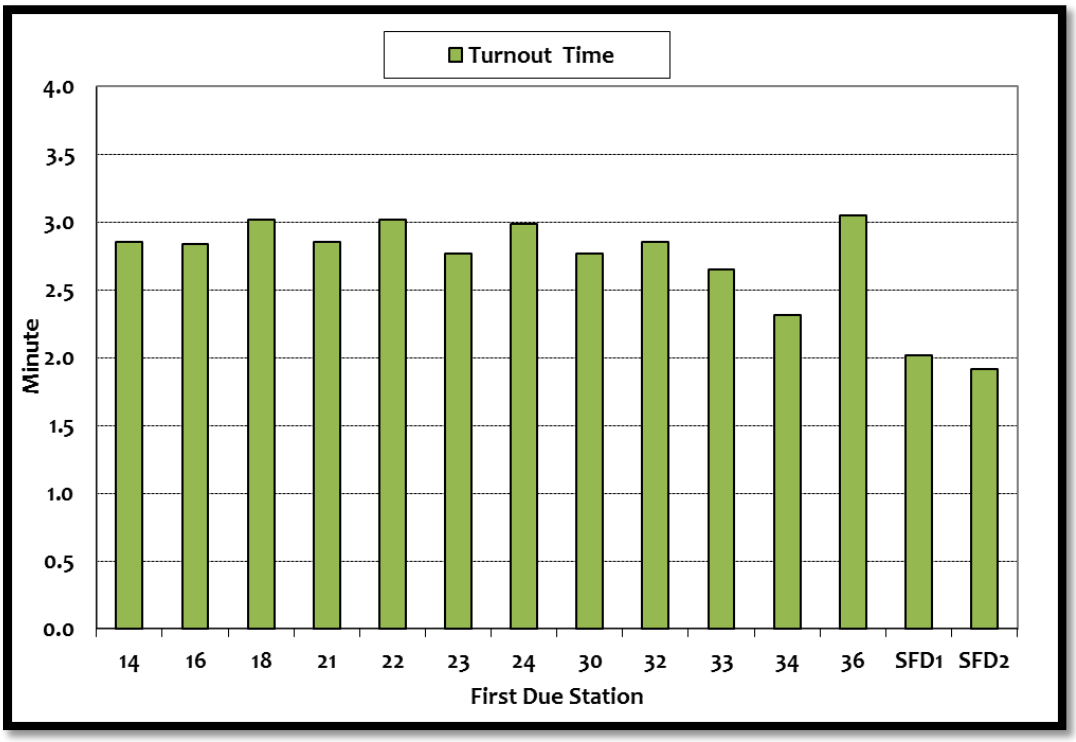
Objective 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, and 6.8

A comprehensive fiscal and operational analysis will be completed regarding the utilization of capital improvement strategies. Adopting the definition of capital from the current County budget, the following capital items will be evaluated as to quantity, quality, replacement schedules, appropriateness for unique risks and demand, and fiscal conservancy:

- Fire stations and other structures
- Training facilities
- Apparatus
    - Minimum standard by apparatus type
    - Ensure compatibility and consistency
- Protective equipment
    - SCBA
    - PPE
- Support equipment
- Rescue equipment
- Communications equipment
    - Radios
    - Pagers

Specifically, each of the fire stations will be evaluated through direct observation and through the lenses of both the current and recommended (if applicable) deployment strategies. In addition, the layout of each station will be evaluated through direct observation and quantitative analysis of station performance on turnout time defined as the time increment from when the crews are notified of an alarm (call) and when they arrive on-scene of the incident for on-duty staff. An example of the per station turnout time is presented as Figure 14 below.

Figure 14: Turnout Time Performance by Station at the 90th Percentile



Objective 6.9: Methods of Financing Capital Needs

An evaluation of current capital financing methods will be accomplished during this objective. Recommendations for future strategies that are in the best interest of the County and/or support a fiscally independent integrated County fire service will be offered.

Objective 7: Apparatus and Equipment

Analyses completed for this scope of work will be utilized to inform the *FITCH* team as to the optimal quantity of resources, staffing, and resource configurations to meet both current and future demands for services. As proposed this will be accomplished in conjunction with the optimization of the station locations, staffing, and overall risk-based deployment model.

In addition, to direct observation and inspection of vehicles and equipment, *FITCH* will review compliance with regulations, maintenance practices, replacement schedules, funding strategies and policies, and utilization within the response configurations with respect to unique community service demands and risk profile. A similar process will be completed concerning the equipment carried on each apparatus as they are aligned with community service demands.

The final deliverable for this objective will include a summary of capital assets and resources and an accompanying recommendation for capital improvement planning, replacement schedules, and

optimized station deployment strategies (additions or consolidations). Where applicable, results will be a combination of narrative, mapping output, and data in tabular form.

Objective 8: Fiscal Analysis

Objective 8.1, 8.2, 8.3, 8.4, 8.5, and 8.6: Fiscal Analysis

A comprehensive and detailed fiscal analysis will be completed for the budgeting process of each department and the County. These analyses will include all revenues, expenditures, reserve funds, and long-term debt in an effort to project future financial needs and support policy decisions for long-term sustainability.

As described in the RFQ, all elements included in Objective 8 will be completed. In summary, the fiscal analysis will include the following:

- Budget review
- Financial Controls
- Identify financial issues
- Identify short and long-term savings and costs
- Identify each agency's revenue and describe impacts
- Identify future financial funding models

The identification of future financial models may include consideration for trends in tax values as compared to city values, the tax rates relative to service demands, the redistribution of available sales tax, political strategies for establishing tax rates, and debt ratios. Elements for capital funding, such as radio replacement, will be included in the completion of Objective 7 as well.

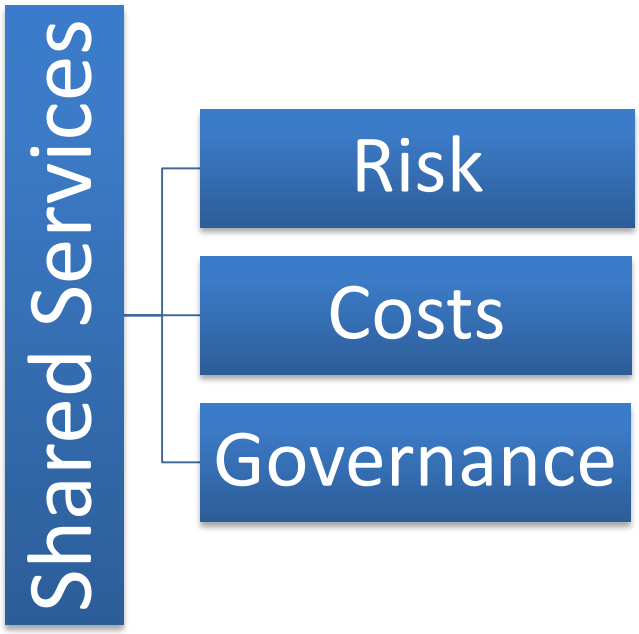
Objective 8.7: Methods of Consolidation

Opportunities for regionalization and borderless service delivery is gaining considerable ground throughout the nation and is typically in the best interest of the citizenry, but not always. A careful analysis must be completed to ensure that the three main pillars are being met; risks, costs, and governance. It has been our experience that these pillars must be evaluated and fully developed to determine the appropriateness and long-term sustainability of any regionalized or shared service models.

In short, the types of risks and demands across communities should be similar in nature as they drive the deployment strategies. Since labor is typically the majority of the total department expenditures it is important that the response to said risks are relatively similar as well. Second, the costs and funding associated with each potential service partner should be relatively similar so that the potential partnership does not create "winners and losers" in the new model, especially when the new model does not create greatly enhanced service delivery. Finally, the governance model must be acceptable to the partnering agencies. In this respect the need for balancing elements such as

fairness, equity, representation, and individual identity must be accounted for in a reasonable manner. The Shared Service Model developed by *FITCH* is offered as Figure 15 below.

Figure 15: Shared Services Model - Pillars for Success



Consolidation is not a one size fits all endeavor and there are several incremental layers to consolidation or shared services that may be examined. For example, there could be operational or functional consolidation, administrative consolidation, financial consolidation, and full consolidations or mergers. Recommendations will be provided that are in the best interest of the County through a system delivery and fiscal responsibility lens.

Objective 9: Planning for Fire Protection and Medical Response

An evaluation will be completed with respects to future oriented planning efforts for fire protection and emergency medical responses. The *FITCH* team will evaluate each of the departments and the County's planning efforts. Previously developed projections for future demands will be seamlessly incorporated in gap analyses to identify future needs and any gaps in planning processes. For example, metrics may be developed through the standards of response coverage that may indicate when resources should be redistributed or allocated for the system. Finally, a GIS overview including the capabilities of the PTRC regional data center, County GIS, County Planning, and the Municipal GIS and Planning will be provided.

Objective 10: Organization Review

An overview of each of the agencies will be developed that may include the following:

- Responsibilities and lines of authority
- Organizational structure and chain of command
- Description of each fire agency
- Structure and operational functionality

Several of the items that will be completed in this scope of work will be accomplished during the completion of Objective 5. However, any additional elements necessary will be introduced during this task and the information will be integrated as appropriate into the final report and recommendations.

Finally, this analysis will include the Cities of Greensboro, High Point, Burlington, and the Town of Kernersville as it relates to the coverage areas within Guilford County. This will supplement the analyses completed in Objective 2.

Objective 11: Personnel Management

Objectives 11.1, 11.2, 11.6, 11.7, 11.8, 11.9, 11.10, and 11.11

A comprehensive review of personnel management practices for each individual department and County will be provided. Policies, rules, regulations, and guidelines will be evaluated as well as disciplinary processes. In addition, personnel programs such as application and recruitment, promotional processes, health, safety, and wellness programs, compensation and benefits, and counseling services will be evaluated for thoroughness and consistency across the County departments.

Attrition rates will be evaluated and retention programs will be evaluated for effectiveness. Successful programs and best practices will be recommended for countywide application as appropriate.

The completion of Objective 11 will compliment previous work from Objective 5. In all cases, recommendations will be provided through the County's or systems lens to strive for a high level of professionalism and consistency across the County.

Objectives 11.4 and 11.5

Analyses of and the establishing of response time and staffing objectives for effective response forces for each program area (fire, ems, hazmat, tech rescue, etc.) will be completed in conjunction with previous Objectives 1, 3, and 5.

The current performance will be compared and contrasted with desired service levels as well as 1710/1720 and the Commission on Fire Accreditation International (CFAI) as appropriate for the service delivery model (volunteer, combination, or career) and population density (urban, suburban, rural).

Objective 12: Contract Administration

Objectives 12.1, 12.2, and 12.4

A review of the current cadre of external service contracts will be provided with specific attention to availability, compensation, administration, and renewal cycles. A brief analysis of each contract will be provided identifying strengths and weaknesses in the contract. Recommendations based on gaps will be offered in the context of continuing the contractual relationship.

Objectives 12.5, 12.6, 12.7, 12.8, and 12.9

Comprehensive analyses for mutual, automatic, and reciprocal aid agreements will be completed in conjunction with Objective 2. In addition, the concurrency of response and the relationship of aid given and received will be provided during the completion of Objective 3. Finally, all District area alignment issues will be provided with both geospatial and quantitative analyses with the tasks associated with Objective 2.

Objectives 12.3, and 12.10

Any remaining gaps in service capabilities or less than optimal efficiency and effectiveness will be addressed with the development of alternatives to the current contractual relationships. Specific attention will be provided to the potential fiscal independence of the County service delivery that is fully integrated with Guilford County government.

Objective 13: Plan for Implementation

Alternatives will be evaluated through a data based objective lens ensuring optimal utilization and resource allocation. In addition, each alternative evaluated will take into consideration the interconnectedness of the services and provide advantages and disadvantages for each alternative allowing transparency in policy decisions. Prioritized alternatives will also be accompanied with the anticipated costs and implementation strategies.

Finally, additional alternatives that are discovered during the study and data analyses will also be evaluated. As designed, prioritized service delivery options for each program area will be identified, and recommended, as appropriate.

All options will be identified and clearly articulated with cost benefit analyses for implementation. This description in this phase will include the relative degree of benefit against the intended outcome will be provided with both advantages and disadvantages, including consequences, of adoption and implementation. In addition, this evaluation will include sensitivity to the interrelatedness or "ripple effect" of service changes. Finally, all options will be accompanied by projected costs, as appropriate.

Specifically, implementation plans for substantive changes will be developed that will include the responsible parties, schedules and timelines for completion, and methods for evaluating results. In addition, mitigation strategies for known or suspected challenges will be provided.

Progress Report from 2001 Fire Master Plan

A stepwise progress report will be provided for the recommendations generated from the 2001 Master Fire Plan. A matrix will be created with brief narrative on progress of each recommendation.

Development and Review of Draft Project Report

As designed, the project will have incremental milestones where the County will have an opportunity to validate and provide feedback on results. For example, after the risk analysis, the draft data report, and the geospatial and temporal analyses the County will be informally presented the material. Therefore, approximately 60% of the final draft report will have been reviewed and validated by the County staff prior to completion.

The project is designed to be facilitative and highly collaborative between the *FITCH* team and the County and Departments' staffs. The draft report will be provided for further validation, feedback, and discussion prior to finalizing the draft report.

Delivery and Presentation of the Final Report

Once the feedback from the draft review has been incorporated into the revised final report, a formal presentation of the report will be provided to the BoCC, County Administration, staff, elected officials, and/or the general public as desired.

Project Management and Interaction with Guilford County

Our project management is a disciplined and structured process. Key activities are clearly outlined and logically organized to produce specific deliverables within the defined period of time. We will review our progress against the work plan on a regular basis to ensure that we are progressing according to plan. Any deviations will be flagged immediately and appropriate action taken, through discussion with you, to address issues. As designed, this project will be transparent and highly collaborative.

Work Plan and Timetable

The process identified in the previous sections will yield the desired results for this project.

The proposed scope of work demonstrates that the consultant understands the desired outcomes and has proposed objectives and tasks to achieve that outcome. A table for each of the proposed objectives and time frames is included to describe the project more clearly.

Table 9: Proposed Timeline

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8
Project Initiation and Development of Work Plan								
Acquisition and Review of Background Information								
Stakeholder Input								
Objective 1								
Objective 2								
Objective 3								
Objective 4								
Objective 5								
Objective 6								
Objective 7								
Objective 8								
Objective 9								
Objective 10								
Objective 11								
Objective 12								
Objective 13								
Progress Report								
Development and Presentation of Draft Report								
Presentations to Board of Directors								
Projected On-Site Meetings	#1		#2	#3	#4		#5	#6

PROPOSED FEES, EXPENSES, AND DELIVERABLES

As proposed in the RFQ the total project will require 218 consultant hours billed at our blended professional services rate of $275 per hour for all consultants. A total of $10,000 has been budgeted for travel and other expenses. This proposal encompasses the development and delivery Master Fire Plan Study and includes six on-site visits that include a formal presentation of the final study results. This proposed pricing is an all-inclusive fixed cost fee that is not to exceed $69,950.

Table 10: Proposed Fees and Expenses

Project Activity	Costs
Professional Service Fees	$59,950
Travel Expenses	$10,000
All Inclusive Project Total	**$69,950**

ATTACHMENT A

Curriculum Vitae's

FITCH
& ASSOCIATES

Joseph J. Fitch, PhD. **2901Williamsburg Terr, Ste G**
President, and Founder, Fitch & Associates **Platte City, Missouri 64079**

SUMMARY Known for a low-key, hands-on approach, Dr. Fitch frequently is involved in complex system design, organizational and operational issues. He is an expert in EMS operations, communications, finance and resource utilization. He has led consultations with a diverse array of domestic and international EMS clients. His responsibilities are centered upon improving system efficiency, enhancing financial performance, designing system status plans, and structuring agreements between public authorities and private contractors for the provision of emergency medical services. Dr. Fitch has received numerous honors including the Leadership Legacy Award presented by the International Association of EMS Chiefs and the Lifetime Achievement Award presented by the National Association of EMTs.

CAREER

Present ***Partner/Officer***

The Emprize Group, LLC

- Developed in 1997 as a response to changing client needs and industry trends, the Emprize Group consolidated multiple organizations that Fitch & Associates partners jointly held interests.

MedServ International, LLC

- Established in 1995 to provide management and operational services both abroad and domestically. MedServ also provides management and patient accounts services for ambulance and air medical services in more than 10 states.

1984 to present ***Founder and President***
Fitch & Associates, LLC **Platte City, Mo.**

- Provides consulting and turnkey management services to a wide variety of public safety, healthcare, government, and business organizations.
- Designs and implements programs enhancing effectiveness; improving productivity; and maximizing potential for organizations and individuals.
- Serves as an information resource for professional associations.
- Conducts the management certification programs for the International Academies of Emergency Dispatch and the American Ambulance Association.
- Serves as the Program Chair for the firm's annual *Pinnacle EMS Leadership Conference*.

1982-1984 ***President, Chief Operating Officer***
Medevac MidAmerica, Inc. **Kansas City, Missouri**

- Expanded a start-up company's sales to over $4 million in less than two years
- Served as Vice-President of parent corporation, Medevac, Inc., based in San Diego, Calif.
- Directed division managers to assure service quality and contract compliance, manpower planning, local marketing efforts, and interface with both healthcare and community organizations
- developed of new services, markets and acquisition candidates
- administered services-budgeting and cost analysis
- developed of short and long range operational planning and monitoring systems

1981 to 1982 ***Executive Director, ASI***

Metropolitan Ambulance Services Trust **Kansas City, Missouri**

Responsible for the operational reorganization/conversion of a private corporation acquired by a governmental entity to a public utility model ambulance system. This position subsequently moved to Medevac MidAmerica, Inc. following the competitive procurement conducted by MAST.

- enhanced clinical performance through education, quality assurance, supervision
- Implemented preventive maintenance, supply, and operational control systems.
- Implemented System Status Management to maximize utilization of resources.

1978 to 1981 **EMS *Chief (Director)***

Emergency Medical Services **City of St. Louis, Missouri**

Changed the system's reputation from being "one of the three worst cities in America for EMS" to being recognized as an innovative urban advanced life support service.

- Responsible for planning, coordination, and administration of the division
- converted the service from basic life support to an advanced life support variable staffed system
- Instituted a capital replacement program
- Developed administrative support systems to assure both daily operations and political support.

1974 to 1978 ***Paramedic, Senior Crew Chief***

Charleston County EMS **Charleston, South Carolina**

- Provided direct patient services
- Assigned special projects including instructor in the paramedic training program
- Served as the liaison to the Palmetto-Lowcountry Health Systems Agency.

1972 to 1974 ***Emergency Medical Technician***

Slattery Associates, Inc. **Washington, D.C.**

- Established and managed on-site emergency medical and safety center for major contractor during the construction of the L'Enfant plaza station within the metropolitan subway system

1971 to 1972 ***Police Officer***

Canton/LaGrange, Missouri

- Employed as a full time police officer in these two rural communities in Northeast Missouri
- Graduated, 110th Law Enforcement Academy, Missouri State Highway Patrol.

1970 to 1974 ***Firefighter/EMT***

Dunn Loring VFD **Fairfax County, Virginia**

- Served as a volunteer firefighter and Emergency Medical Technician
- Certified as firefighter and equipment apparatus operator.

EDUCATION

William Lyon University; San Diego, California 1987
Doctor of Philosophy Degree in Psychology
Specialization in Organizational Development

Webster College; St. Louis, Missouri 1978
Master of Arts in Public Administration

Southern Illinois University; Carbondale, Illinois; at the Charleston, South Carolina Military Extension Campus 1977
Bachelor of Science Degree in Education

LOCAL ELECTED OFFICES HELD

- Board Member and President, Weatherby Lake, Missouri, Fire Protection District, 1991-2007

PROFESSIONAL APPOINTMENTS & RECOGNITION

- Board Member, Secretary, 911 Wellness Foundation, 2015-present
- Lifetime Achievement Award, presented by the National Association of EMTs and sponsored by the National Registry of EMTS, 2014
- Leadership Legacy Award, International Association of EMS Chiefs, 2013
- Program Committee, International City and County Management Association, 2012-2013
- Adjunct Assistant Professor of Emergency Medicine, The George Washington University School of Medicine and Health Sciences, Washington, DC (2001-2011)
- Adjunct Graduate Faculty, (Organizational Leadership and Training) Royal Roads University, Victoria, British Columbia, Canada (1999-2002)
- Board Liaison, EMS Chiefs of Canada and American Ambulance Association (2001-2004)
- Editorial Board Member, Journal of Emergency Medical Services, San Diego, California. (2003- Present) previous term (1984-1987)
- Editorial Board Member, Best Practices in Emergency Services, San Diego, California. (2009- 2014)
- Member, American College of Healthcare Executives, Chicago, Illinois. 1993 to present.
- College of Fellows, National Academy of Emergency Medical Dispatch, Salt Lake City, Utah. Appointed in 1991 and 2000.
- Former Member of Board of Directors and President, Foxwood Springs Living Center (a not-for-profit retirement community of 800 persons, including skilled nursing facilities) Served two previous terms as President of Board and Chair of the Development Committee (1986-1995) (2000-2003).
- Adjunct Faculty, EMS Administration Program University of Maryland, Baltimore, Maryland (1991-1992).
- Instructor, Adjunct Assistant Professor, University of Kansas, Lawrence, Kansas (1984-85 & 1987-88).
- Subject Matter Expert, EMT-Paramedic National Standard Curriculum Revision Project. United States Government-Department of Transportation, through University of Pittsburgh. (1996-1998).
- Former member, Governor's Advisory Council, Department of Health, State of Missouri.
- Former Director, American Ambulance Association (Alternate).
- Former Director, National Association of Emergency Medical Technicians - Administrators Section.

PUBLICATIONS Books, Book Chapters and Monographs

- "The New EMS Imperative: Demonstrating Value" Item number [Item No. E-44001] (jointly authored with S. Knight, PhD and Keith Griffiths) In-Focus Report 47-1, (2015), Washington, DC: International City and County Management Association (ICMA)
- "Making Smart Choices about Fire and Emergency Services in a Difficult Economy," [Item No. E-43636] (jointly authored with Ragone, M. (2010). InFocus Report, 42(5), Washington, DC: International City and County Management Association (ICMA).
- "Volunteers" a chapter contribution in Medical Oversight of EMS, Edited by Robert R. Bass (Emergency Medical Services: Clinical Practice and Systems Oversight) Kendall Hunt Publishing Company, National Association of EMS Physicians (2009)
- "EMS Deployment and System Status Management" a chapter contribution in Paramedic Practice Today, Edited by B. Aehlert (St. Louis, Mo.: Mosby, 2009)
- "The Management Role of the Medical Director" a chapter contribution in I.J. Blumen & D.L. Lemkin (Eds.), Principles and Direction of Air Medical Transport. Salt Lake City, Utah: Air Medical Physician Association (2006).
- "EMS Volunteers" a chapter contribution for the Prehospital Systems & Medical Oversight, Edited by Alexander Kuehl, (St. Louis, Mo.: C.V. Mosby, 2005)
- "EMS in Critical Condition: Meeting the Challenge," [Item No. E-43338] (jointly authored with Keller, R.A., & Williams, D.M.) (2005). IQ Report, 37(5), Washington, DC: International City and County Management Association (ICMA).
- "Prehospital Care Administration: Second Edition," Editor (San Diego, Calif.: JEMS/KGB Media, 2004) 632 pages.
- "Prehospital Care Administration: Issues, Cases, and Readings," Editor (San Diego, Calif.: JEMS Publishing Co., Inc., 1995) 700 pages.
- "EMS Management" (jointly authored with Richard Keller, Douglas Raynor, and Christine Zalar). (San Diego, Calif.: EMS Publishing Company, Inc., 1993) Softcover, 432 pages.
- "Service First," with Doug Raynor, Ph.D., (Kansas City, Mo.: Fitch and Associates, Inc., 1989) Softcover, student workbook, 64 pages; accompanied by series of four videotapes.
- "Beyond The Street: A Handbook for EMS Leaders and Management" (San Diego, California: JEMS Publishing Co., Inc., 1987) Hardcover, 300 pages.

Major Articles –

- "EMS in the ERA of Health Care Reform" PM Magazine, June 2015
- "Breaking Through the Shadows – Six Steps to address Caregiver Suicide & Improve Mental Wellness" – EMS Insider, April 2015
- "Consultant Perspective - EMS by any other name" EMS Insider, September 2014
- "Improving Efficiency in an EMS and First-Response System, Case Study: Pinellas County, Florida" PM Magazine, March 2014
- "Q&A with Jay Fitch, Ph.D" Best Practices, Feb. 2014
- "Seeking Stability Being 'the rock' in times of chaos" EMS Insider, Jan. 2014
- "Closing the distance between the door and the window," EMS Insider, April 2013
- "Is Your Organization Agile or Fragile?" 12-part series, May 2012 – April 2013, Best Practices in Emergency Services
- "Strategies for Building Rapport in EMS," EMS Insider, October 2012
- "Teachable Moments from the Titanic," EMS Insider, April 2012

- “EMS Leadership Needed Now,” EMS Insider, August 2011
- “Failure Is Not an Option, but Success Is,” EMS Insider, February 2011
- “Could you be an EMS leader?” NAEMT News, Fall 2010
- “Mentoring Tomorrow’s EMS Leaders,” EMS Insider, August 2010
- “Optimize Performance & Improve Outcomes: EMS Groundhog Day?” with Mike Ragone, EMS Insider, May 2010
- “Optimize Performance & Improve Outcomes: Running Fire-Based EMS like a Business,” with Mike Ragone, EMS Insider, February 2010
- “Kansas City’s System Transition,” EMS Insider, November 2009
- “Optimize Performance & Improve Outcomes: Leadership Lessons for Tough Times,” EMS Insider, August 2009
- “Getting Along - Mentoring Builds on Skills Learned in Relationships,” The Journal of Emergency Dispatch, Jan/Feb 2009
- Optimize Performance & Improve Outcomes: Lies EMS Leaders Tell, May 2008
- “Optimize Performance & Improve Outcomes: Understanding the Two ‘Moments’ of Advanced Deployment,” with Guillermo Fuentes, EMS Insider, June 2007
- “Optimize Performance & Improve Outcomes: Make EMS a Priority for New Council Members,” EMS Insider, July 2006
- “Talk the Talk: Benchmarking Your Comm Center,” Journal of Emergency Medical Services, May 2006
- “Response Times,” Journal of Emergency Medical Services, September 2005
- “Improving Not-for-Profit EMS,” Journal of Emergency Medical Services, May 2005
- “Innovations: Positively Shaping the Future of EMS,” Ambulance Industry Journal, Summer 2003
- “The Evolution of Deployment,” Journal of Emergency Medical Services, February 2002
- “Make Your Service Shine,” Journal of Emergency Medical Services, July 2000
- “Compliance Programs are Essential for Ambulance Services,” Journal of Health Care Compliance, January/February 2000
- “Working and Living In-between,” Ambulance Industry Journal, Summer 1999
- “Leading at the Edge of Chaos,” Ambulance Industry Journal, October/November 1998
- “Marketing to Skilled Nursing Facilities,” Ambulance Industry Journal, April/May/June 1998
- “The Next Wave,” Ambulance Industry Journal, January/February, March 1998
- “Triumphs and Tribulations in Turbulent Times,” Ambulance Industry Journal, July/August 1997
- "Redefining Boundaries," Ambulance Industry Journal, January/February 1997
- “ALS Staffing in Transfer Services,” Ambulance Industry Journal, July/August 1996
- "Running Out of Gas? Hospital Related Services," Ambulance Industry Journal, May/June 1996
- “Does Lightening Strike Twice?” Ambulance Industry Journal, March/April 1996
- “Sell, Merge or Grow!” Ambulance Industry Journal, January/February 1996
- “Insights from the Annual Conference,” Ambulance Industry Journal, November/December 1995
- “Change Happens!” Ambulance Industry Journal, July/August 1995
- “Fire Service EMS Evolution,” Emergency Magazine, April 1995
- “What's Happening to Our Profession?” Ambulance Industry Journal, March/April 1995
- “Old Traditions, New Realities,” Ambulance Industry Journal, January/February 1995
- "Career Catapulting, Contests and Catastrophes," Ambulance Industry Journal, November/December 1994
- "Endangered Species: Volunteers," Emergency Medical Services, November 1994
- "Dealing with Disconnect," Ambulance Industry Journal, September/October 1994
- "Procurements: Why Structured is Better", Ambulance Industry Journal, July/August 1994
- "Is There Life After Managed Care?" Ambulance Industry Journal, March/April 1994
- "Clearing a Path (to Success)," Ambulance Industry Journal, January/February 1994

- "Public and Private Sector Changes Influencing the Future," Ambulance Industry Journal, November/December 1993
- "Private Sector Workforce Flexibility," Ambulance Industry Journal, July/August 1993
- "Creating Partnerships: When Collaboration Overcomes Confrontations and Competition", Ambulance Industry Journal, May/June 1993
- "Dousing Conflict's Fire," Emergency Magazine, May 1993
- "The Next Insurance Crisis," Ambulance Industry Journal, March/April 1993
- "Mandate of the 90's: Strength Through Diversity," Ambulance Industry Journal, January/February 1993
- "Sacramento's Failed Procurement," Management Focus, Spring/Summer 1992
- "Health Care Reform: Boon or Boondoggle for Ambulance Services," Ambulance Industry Journal, September/October 1992
- "Twentysomething: Turnover, Troubles & Triumphs," Ambulance Industry Journal, July/August 1992
- "Specialty Transport Units...Are They for You?" Ambulance Industry Journal, May/June 1992
- "Quick!! Release Your Hand Grenades!!" Ambulance Industry Journal, March/April 1992
- "Making EMS Meetings More Effective," Ambulance Industry Journal, January/February 1992
- "Why Communities Consider Privatization," Ambulance Industry Journal, November/December 1991
- "Deployment as an Employee Stress Factor," Ambulance Industry Journal, August/September 1991
- "Avoiding the Financial Critical List," Ambulance Industry Journal, June/July 1991
- "You've Got to be Kidding," Ambulance Industry Journal, April/May 1991
- "The Need for ALS Services in Urban and Suburban EMS Systems," (with Joe Ornato, M.D. et al), Annals of Emergency Medicine, December 1990
- "Solving the Employee Health Insurance Puzzle," Ambulance Industry Journal, November 1990
- "Using Incentives to Boost Performance," Ambulance Industry Journal, September/October 1990
- "Helping Staff Members Deal With Disillusionment," Ambulance Industry Journal, July/August 1990
- "Re-Learning to Walk the Talk," Ambulance Industry Journal, May/June 1990
- "Thoughts on Being Tough," Ambulance Industry Journal, March/April 1990
- "People Make the Service Difference," Ambulance Industry Journal, September/October 1989
- "A Marketing and Customer Service Strategy: Targeting Your Own Hospital's Physicians," Special AAMS Conference Issue, Management Focus, Fall 1989
- "How to Avoid Killing the Customer Relationship," Journal of Emergency Medical Services, September 1989
- "Dealing with Plateaued Management Employees," Ambulance Industry Journal, May/June 1989
- "Dealing with City Hall," Ambulance Industry Journal, July/August 1989
- "Where Are Management Skills Learned?" Ambulance Industry Journal, March/April 1989
- "Why Unions are Increasingly Appealing to EMS Workers," Ambulance Industry Journal, October 1988
- "Gaining the Competitive Advantage," Ambulance Industry Journal, July 1988
- "Working Together in Emergency Services," Life Support, Spring 1988
- "Celebration-A Leadership Skill To Be Developed," Ambulance Industry Journal, April 1988
- "What Hospitals Will Pay for Ambulance Services," Ambulance Industry Journal, January 1988
- "Preparing for the Crisis," Ambulance Industry Journal, October 1987
- "Market Research: The Thorny Task of Getting in Touch with Your Customers," Ambulance Industry Journal, July 1987
- "Preparing for Acquisition," Ambulance Industry Journal, April 1987
- "Pick Your Ruts Carefully," Ambulance Industry Journal, January/February 1987
- "Drugs in the Workplace," Ambulance Industry Digest, October 1986
- "Growth - That Can Lead to Bankruptcy," Ambulance Industry Digest, July 1986
- "Can You Handle it in EMS," Life Support, Spring 1986
- "Stopping Elderly Abuse," Journal of Emergency Medical Services, April 1986
- "Reducing Malpractice Exposure," Ambulance Industry Digest, April 1986
- "Developing Individual Accountability," Ambulance Industry Digest, January 1986
- "Perceptions on Growth," Ambulance Industry Digest, April 1985
- "Ensuring Success," Journal of Emergency Medical Services, October 1984
- "On Becoming An Effective Supervisor," The EMT Journal, June 1979

Guillermo Fuentes **2901Williamsburg Terr., Ste G**
Partner, Fitch & Associates, LLC **Platte City, Missouri 64079**

SUMMARY Mr. Fuentes has broad experience in the areas of communications, operations, deployment and administration. He is a leading expert on the analysis, design, and management of EMS system status. Known internationally for his consultant work, he provides statistical and operational analysis, computer modeling, and the development of deployment plans for the Firm's clients.

CAREER

January 2013 - Present ***Partner***
Fitch & Associates, LLC **Platte City, Mo.**

September 2011 – January 2013 ***Senior Consultant***
Fitch & Associates, LLS **Platte City, Mo.**

- Responsible for complex math modeling, system reviews and dispatch builds and reviews
- Assist clients in EMS, Fire and Police with complex operational issues

November 2007 - August 2011 ***Chief Administrative Officer***
Niagara Regional Police Service **St. Catharine, Canada**

- Responsible for Human Resources, (350 civilian employees) Finance, ($125 million operating budget and $84 million capital budget) Information Management, Central Records, Information Technologies, Fleet, Facilities, Quartermasters, and Labor Relations

February- March 2007 ***Interim Director of Niagara Emergency Service Division***
Niagara EMS **Niagara Falls, Canada**

- Responsible for EMS, Fire coordinator, CBRN (Chemical, Biological, Radiological, Nuclear), and Emergency Management

December 2004 - February 2007 ***Associate Director Emergency Medical Services***
Niagara EMS **Niagara Falls, Canada**

- Created a new dispatch centre as a model for the province
- Integrated all the technology and implemented technology that is unique in the world
- Instituted a system of total management at front line supervisor level

August 2004 - December 2004 ***Interim Director Pre-hospital Services***
Urgences- Sante **Montreal, Quebec**

- Responsible for a staff of 1,200 as well as the goal and vision for the 2005 year

2001 -2004 **Deputy Director of Operations Pre-hospital services**
Urgences- Sante **Montreal, Quebec**

- Responsible for field operations, Communication centre, Scheduling department ($63 million budget)
- Implemented specialized field operations including Tactical intervention medics , bike medics and marine medic programs
- Developed a CBRN protocol, CBRN intervention level 2 teams
- Deployed analysis for first response and advanced care tiered response.

May 2002 – September 2002 ***Interim Director of Pre-hospital services***
Urgences –Sante **Montreal, Quebec**

- Executed mid year evaluation of 2002 performance
- Presented performance progress report to the Minister of Health and Social Services

1999-2001 ***Manager of Inter facilities***
Urgences-Sante **Montreal, Quebec**

- Responsible for inter facility transports
- Development and implementation of individual profiling tools

1990-1999 ***Part Time EMT***
Urgences-Sante **Montreal, Quebec**

EDUCATION

Aspen University; Denver, Colo. 2010
Masters in Business Administration - Summa Cum Laude
Inducted as a life member to the Delta Epsilon Tau Society

Tulane University, Freeman Business School; New Orleans, La.
Masters Certificate in Business Administration 2007
Advance management Strategy certificate 2006
Certificate in Business essentials II 2006
Certificate in Business essentials I 2006

Continuing education; Montreal, Canada 2002
Effective Leadership Training
Group Management seminar
Effective communication skills

Ahunsic College; Montreal, Canada 1996
Prehospital Trauma Life Support (Basic and Advanced)
Emergency crisis management

Concordia University; Montreal, Canada 1990 - 1994
Bachelor of Science, Management of information systems (incomplete)
Minor in Political Science (incomplete)

Ahunsic College; Montreal, Canada 1989-1990
Ambulance Technicien

Dawson College; Montreal, Canada 1987-1989
DEC social science

PROFESSIONAL MEMBERSHIPS

APCO (Association of Public-Safety Communications Officials) International
APCO Canada
APPQ Association Proffessionelle des Paramedics du Quebec

Steven G. Knight, PhD. **2901Williamsburg Terr, Ste G**
Senior Associate, Fitch & Associates **Platte City, Missouri 64079**

SUMMARY Dr. Knight has nearly 25 years of experience and recently retired as the Assistant Fire/EMS Chief for the City of St. Petersburg, Florida. He is a subject matter expert for both the National Fire Academy and the Center for Public Safety Excellence. He has also served as a team leader and assessor for the Commission on Fire Accreditation International and has held multiple faculty appointments in Fire Science and EMS. Dr. Knight previously served the International City and County Management Association (ICMA), as the Senior Manager for Fire and EMS.

CAREER

Present ***Senior Associate***
Fitch & Associates, LLC **Platte City, Mo.**

- Provides consulting and turnkey management services to a wide variety of public safety, healthcare, government, and business organizations.
- Designs and implements programs enhancing effectiveness; improving productivity; and maximizing potential for organizations and individuals.
- Serves as an information resource for the professional associations.
- Conducts the management certification programs for the National Academies of Emergency Dispatch and the American Ambulance Association.

1996-2013 ***Assistant Fire Chief***
St. Petersburg Fire & Rescue **Florida**

- Managed metro-sized emergency service agency including fire suppression, fire prevention, public education, community risk reduction, emergency medical services, training, hazardous materials, technical rescue, urban search and rescue, marine rescue, emergency management, and response to natural and man-made disasters.
- Managed over 300 employees during a continuous 24/7 deployment with a $45 million dollar budget.

1992-1996 **Firefighter/Paramedic**
South Pasadena Fire Department **Florida**

- Responded to requests for emergency service for fire suppression, emergency medical services, and fire prevention activities.

2008 ***Subject Matter Expert***
National Fire Academy

- Planning and Information Management Program

2010-Present **Technical Advisor**
Center for Public Safety Excellence

- Provide consulting services for the accreditation process and assist in the development of agency specific community-based strategic planning while representing the Center for Public Safety Excellence.

2005-Present Team Leader/Peer Assessor

Commission on Fire Accreditation International

- Lead accreditation teams on site-visits for candidate agencies and present findings to the Commission. Participated with the following agencies:
  - Aurora, Colorado
  - Salem, Oregon
  - Charlotte, North Carolina
  - Plano, Texas
  - Montgomery County, Maryland
  - Newport News, Virginia
  - Anchorage, Alaska
  - Cobb County, Georgia
  - Las Vegas, Nevada
  - Henderson, Nevada
  - Honolulu, Hawaii
  - Regina, SK, Canada
  - Overland Park, KS

2012-2014 Senior Manager, Fire & EMS

International City/County Management Association

- Provide project management and consulting services for fire and emergency medical services
  - St. Louis, MO (Fire/EMS)
  - Greenville, NC (Fire/EMS)
  - Johnson City, TN (Fire)
  - Washington County, TN (EMS)
  - Mankato, MN (Combination Fire)
  - Ontario, OR (Combination Fire)
  - Grants Pass, OR (Fire/Law Enforcement)
  - East Brunswick, NJ (EMS/Volunteer Fire Districts)
  - Prescott, AZ (Fire)
  - Long Beach, NY (Combination Fire/EMS)

1998-2013 Adjunct Instructor – Fire Science and Public Safety Administration Program

St. Petersburg College and State College of Florida

- Curriculum development, overall course management, and grading

2006-2007 Program Director – Emergency Medical Services

Manatee Technical Institute

- Developed all curriculum, course structure, schedules, faculty hiring and development, and maintenance of accreditation.

1999-2010 Instructor – Minimum Standards and Continuing Education Training
Pinellas County School Board

- Developed syllabi, overall course structure, and administered all grades.

2013-Present Affiliate Faculty College of Medicine
University of Central Florida College of Medicine

- Mentor medical students conducting research in the pre-hospital environment

2013-Present Faculty for Executive Fire Officer Program – USFA/NFA
National Fire Academy

- Faculty for Executive Leadership and Executive Development

EDUCATION

University of South Florida, Tampa FL 2012
Ph.D. in Curriculum & Instruction in Adult Education
Cognate in Research and Measurement
Dissertation: "An Examination of Self-Directed Learning Readiness in Executive-Level Fire Officers"

Troy State University, Troy, AL 2000
M.P.A. in Public Administration
4.0 GPA

University of Cincinnati, Cincinnati, OH, 1998
B.S. Fire & Safety Engineering Technology
Summa Cum Laude

AWARDS AND PROFESSIONAL RECOGNITIONS

- Outstanding Research Award by the National Fire Academy/United States Fire Administration/Federal Emergency Management Agency – 2007
- Chief Fire Officer Designation (CFO) by the Center for Public Safety Excellence – 2008
- Executive Fire Officer Program (EFO) by the National Fire Academy/United Sates Fire Administration/Federal Emergency Management Agency – 2008
- A. Don Manno Award for Excellence in Research by the National Society for Executive Fire Officers - 2007
- Fire Office of the Year presented by St. Petersburg Fire & Rescue - 2009

PRESENTATIONS

- "Setting Organizational Policy: What drives your fire ground, science or tradition?" Presented at the Firehouse World Expo, San Diego, CA (January 2015)
- "Fire Department Imagery: What are we selling?" Presented at the Firehouse World Expo, San Diego, CA (January 2015)

- "Setting Organizational Policy: What drives your fire ground, science or tradition?" Presented at the Nevada Fire Chiefs Association's Reno Fire Show, Reno, NV (October 2014)
- "Fire Department Imagery: What are we selling?" Presented at the Nevada Fire Chiefs Association's Reno Fire Show, Reno, NV (October 2014)
- "Leading from the Middle" Presented at Nevada Fire Chiefs Association's Reno Fire Show, Reno, NV (October 2014)
- "How the Fire Department Needs to Evolve: Expectations from City/County Government." Presented at the Pinnacle Conference, Scottsdale, AZ (July 2014)
- "Setting Organizational Policy: What drives your fire ground, science or tradition?" Presented at the Texas Fire Chiefs Association's Conference, San Antonio, TX (February 2014)
- "In Search of a Culture of Safety: An Exploration in Decision Making" Presented at the Florida Fire Chiefs Association's Fire Rescue East Conference, Dayton Beach, FL (January 2014)
- "In Search of a Culture of Safety: An Exploration in Decision Making" Presented at the Florida Fire Chiefs Association's Health and Safety Conference, Orlando, FL (October 2013)
- "Leading with Vision and Purpose" Presented at the International Association of Fire Chief's Fire Rescue International Conference, Chicago, IL (August 2013)
- "Setting Organizational Policy: What drives your fire ground, science or tradition?" Presented at the International Association of Fire Chief's Fire Rescue International Conference, Chicago, IL (August 2013)
- "Leading with Vision and Purpose" Presented at the Florida Fire Chief's Association's Executive Development Conference, Key West, FL (July 2013)
- "Setting Organizational Policy: What drives your fire ground, science or tradition?" Presented at the Florida Fire Chief's Association's Executive Development Conference, Key West, FL (July 2013)
- "An Examination of Self-Directed Learning Readiness in Executive-Level Fire Officers" Selected to present at the 2013 International Symposium for Self-Directed Learning, Cocoa Beach, FL (February 2013)
- "Leading with Vision and Purpose: How does agency and personal accreditation assist us?" Presented at the Center for Public Safety Excellence's 2013 Excellence Conference, Henderson, NV (March 2013)
- "Leading from the Middle" Presented at Fire Rescue East Conference, Daytona Beach, FL (January 2013)
- "Fireground Tactics: What Does Science Tell Us About Tradition?" Presented at the Florida Fire Chiefs Associations' Safety & Health Conference, Orlando, FL (December 2012)
- "Leading from the Middle: The 360 Degree Accreditation Manager" Presented at the Center for Public Safety Excellence's Excellence Conference, Las Vegas, NV (March 2012)
- "Rank Leadership" Presented at the Florida Fire Chiefs Association's Executive Development Conference, Marco Island, FL (July 2011)
- "Leading from the Middle: The 360 Degree Accreditation Manager" Presented at the Center for Public Safety Excellence's Conference, Orlando FL (March 2011)
- "Help Me, Help Me Not: A Practical Use of the LAP Instrument" Presented at the International Self-Directed Learning Symposium, Cocoa Beach, FL (February 2010)
- "Sink or Swim: Is St. Petersburg Fire & Rescue Doing Enough to Prevent Drowning" Presented at the National Fire Academy EFO Graduate Symposium, Emmitsburg, MD (May 2008)
- "Socio-Economic and Demographic Factors and the Use of the EMS System" Selected to present at the American Society of Public Administration's Southeastern Conference, Atlanta, GA (circa 2003)

RECENT PROFESSIONAL DEVELOPMENT –

- ICMA's "Asking your Police and Fire Chiefs the Right Questions to Get the Right Answers"
- Leadership Development Program with the Center for Creative Leadership
- Leadership St. Pete
- Executive Fire Officer Program with the National Fire Academy
- Executive Fire Officer's Graduate Symposium
- Florida Fire Chiefs Association's Executive Development Conference
- Center for Public Safety Excellence's Excellence Conference
- National Society of Executive Fire Officer's Polishing the Gold Conference
- International Association of Fire Chief's Fire Rescue International Conference
- Florida Fire Chiefs Association's Health and Safety Conference
- Florida Fire Chiefs Association's Fire Rescue East

COMPUTER PROFICIENCY –

- Microsoft Operating System
- Microsoft Office Suite: Word, PowerPoint, Excel, Outlook
- Learning Management Systems: Blackboard, WebCT, Angel
- PASW (previously SPSS) Statistical Software for Social Sciences
- Survey monkey survey building tool

MEMBERSHIPS –

- America Society of Public Administrators – Council Member for Suncoast Chapter (Emergency Management, Public Administration, and Research sections)
- International Association of Fire Chiefs
- National Society of Executive Fire Officers
- Florida Fire Chiefs Association
- Advisory Board Member for St. Petersburg College's Emergency Management Program
- Florida Association Fire Service Instructors
- Florida Fire Chiefs EMS Chief Section
- Florida Fire Chiefs Executive Fire Officer Section Regional Representative
- Southeastern Association of Fire Chiefs
- Pinellas County Emergency Medical Services Advisory Committee
- International Association of Fire Fighters

Bruce J. Moeller, Ph.D.

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Saint Petersburg, Florida 33701
(727) 580-0279
bmoeller@juncturegroup.com

ACADEMIC DEGREES:

2001 **Doctor of Philosophy**, Florida Atlantic University; College of Architecture, Urban and Public Affairs; School of Public Administration. Major: Public Administration.

1990 **Master of Arts in Public Administration**, Department of Public Administration; Northern Illinois University.

1986 **Bachelor of Arts**, Concentration: Fire Administration, Western Illinois University.

EMPLOYMENT HISTORY:

Professional Experience

2012 to 2015 **Chief of Staff / Assistant County Administrator**
Pinellas County, Florida

- Held a number of leadership positions largely related to public safety before serving as Chief of Staff
- Served as part of the County's Senior Management Team in an urban county of almost 1 million population.
- Primary areas of responsibility include EMS and Fire Administration; Regional 9-1-1; Emergency Management; Ambulance Billing & Financial Services; Animal Services; Justice & Consumer Services; Human Services and Radio & Technology.
- Significant public policy role collaborating with municipal and county leaders.

2008 to 2012 **City Manager**
City of Sunrise, Florida

- Chief Administrative Officer of a culturally diverse, full service community (approx. pop. 90,000) in South Florida. The City of Sunrise operated with a $439 million budget and a workforce of approximately 1,200 employees. Responsible to a five-member Commission for all facets of municipal administration, the city manager is directly responsible for negotiating with employee unions, is the appointing authority for personnel, and prepares the annual budget. Services include: community & economic development, fire, police, public works, utilities (serving a total population of 220,000), purchasing, finance, information technology, emergency management and leisure services.

- Located in western Broward County, the City was the state's second largest tourist attraction, Sawgrass Mills Mall, which drew over 25 million visitors a year. Also making its home in Sunrise is the 20,000+ seat Bank Atlantic Center, home of the NHL's Florida Panthers.
- The City consistently experienced growth in office and commercial development. Many major corporations relocated to the City and the community was a leading destination for economic development in the metropolitan area.

1977 to 2008 **Public Safety Background**
Sunrise, Florida; Broward County, Florida; Naperville, Illinois; Wilmette, Illinois; Lake Forest, Illinois

A strong public safety background spanning several decades. Initially entered public service as a police officer for several years before entering the fire service. Served in entry-level positions in both disciplines prior to advancing in the fire service. Functioned in increasingly responsible roles, both as a line officer and administrative staff. Served for over 15 years as a fire chief, with experience in large, urban metropolitan-sized agencies and suburban departments. Managed fire suppression, fire prevention, paramedic programs, hazardous material responses, search & rescue teams, 9-1-1 communications and a full array of emergency management functions. Specific experience and last working title include:

- Fire Chief - Sunrise Fire Rescue - Sunrise, Florida 1997-2008
- Director / Fire Chief - Broward County – Fort Lauderdale, Florida 1990-1997
- Fire Captain – Naperville Fire Department – Naperville, Illinois 1982-1990
- Firefighter / Paramedic – Wilmette Fire Department – Wilmette, Illinois 1979-1982
- Police Officer – Lake Forest Police Department – Lake Forest, Illinois 1977-1979

University Teaching Experience

2015 **Adjunct Lecturer**
Fire and Emergency Services Program
University of Florida
Gainesville, Florida

2014	**Adjunct Instructor** School of Public Affairs University of South Florida Tampa, Florida
2001 to 2011	**Adjunct Instructor** School of Public Administration Florida Atlantic University Boca Raton, Florida
1998 to 1999	**Adjunct Instructor** Department of Professional Management Saint Thomas University Miami, Florida

Dr. Moeller has taught at both the graduate and undergraduate level. Courses taught include the following:

PAD 4884: Introduction to Terrorism for Emergency Managers (University of Florida)

The goal of this course is to provide students with a general knowledge about terrorism in our world and the methods used for counterterrorism.

PAD 6934 – Performance Management (University of South Florida)

Performance management involves both science (drawn largely from the field of statistics, business and performance *measurement*) and art (derived in part from organizational behavior and theory). While the theoretical underpinnings are important, this course will emphasize performance management in its practical application.

PAD 6807 – Local Government Administration (Florida Atlantic University)

Examines the various dimensions of local government administration, including methods for improved service delivery. Major areas include the purpose and use of performance measurement in local government; establishing organizational priorities through strategic planning; and implementing change in local government by applying techniques of change management.

PAD 4933 – Capstone Seminar in Public Management (Florida Atlantic University)

An integration of theories and skills in the development of practical strategies designed to help address public problems. The course provides an opportunity to integrate and apply prior learning in order to actually improve public organizations.

PAD 4426 – Public Sector Labor Relations (Florida Atlantic University)

An examination of the historical development in labor relations and collective bargaining for the public sector. Examines the impact of public employee unions on public personnel administration.

FES 3003 – Fire and Emergency Services Public Policy (Florida Atlantic University)
Exposes students to the many facets of policy making and implementation issues in fire and emergency services, including the legal foundations from which agencies operate. Emphasis is placed on the politics of administration.

MAN 701 – Organizational Design and Theory (St. Thomas University)
A course that views organizations from a macro perspective including the domestic and global environment. Both size and technology were explored in determining the structure and processes of organizations while providing students with 'diagnostic skills' needed to effectively manage complex organizations.

PUBLICATIONS & PRESENTATIONS

Moeller B. & Knight, S. (2015, Forthcoming). Critical Questions Every Fire/EMS Chief Should Ask Their City/County Manager. Fire Rescue International. Atlanta, GA.

Moeller, B. Knight, S. & Sheridan, T. (2015, Forthcoming) How to Use 'Fire Freakonomics' to Transform Your Department. Pinnacle, Jacksonville, FL.

Moeller, B. (2015). Political Side of Apparatus Purchasing. FDSOA 27th Annual Apparatus Specification & Vehicle Maintenance Symposium. Orlando, FL.

Moeller, B. (2014). Making Fire Departments Think: Organizational Situational Awareness. Fire Rescue International. Dallas, TX.

Fuentes, G., Knight, S., Moeller B., & Sommers, S. (2014). How the Fire Service Needs to Evolve: Expectations from City & County Government. Pinnacle . Scottsdale, AZ.

Fuentes, G. & Moeller, B. (2014). I Don't Have enough Money – Now What? Pinnacle. Scottsdale, AZ

Moeller B. & Paulison R. (2014). Informed Decision-Making in Real Time. Metropolitan Fire Chiefs Conference. Baltimore, MD.

Moeller, B. (2014). Think. In Goldfeder, B. (Ed.) Pass It On. Tulsa, OK. PennWell.

Moeller, B. (2014). The Role of the Emergency Operations Center. FireRescue – February.

Moeller, B. (2013). P4 – Positive Performance for Politicians & Public. Fire Rescue International. Chicago, IL.

Moeller, B. (2012). Leading Agencies During Periods of Economic Decline. Fire Rescue International. Denver, CO.

Moeller, B. & Krakeel, J. (2012) Using EMS Dollars Wisely. Fire-Rescue Med. Las Vegas, NV.

Moeller, B. (2012). Financial Management. In Jennings, C. & Thiel, A. (Eds.), Managing Fire and Rescue Services. Washington, DC: International City County Management Association.

Moeller, B. (2011). Ten Things Your Boss is Talking About – And You Don't Know. Fire-Rescue International. Atlanta, GA

Moeller, B. (2011). Leading Agencies During Periods of Economic Decline. International Association of Chiefs of Police. Chicago, IL.

Moeller, B. & Nagaraj, R. (2011). Meaningful National Fire Service Data. Metropolitan Fire Chiefs Conference. Charlotte, NC.

Moeller, B. (2010). Lions, Tigers and Bears: Following the Political Yellow Brick Road. Fire-Rescue International – 2010. Chicago, IL.

Moeller, B. (2009). Managing the Manager: Getting What You Want By Giving the Manager What They Want. Fire-Rescue International – 2009. Dallas, TX.

Moeller, B.; Thompson, S.; and Dorsett, A. (2009). The Fire Chief's Role in Tough Times. Florida Fire Chiefs Annual Meeting and Development Conference. Fort Lauderdale, Florida.

Moeller, B. (2009). Issues in Emergency Services. Public Management, 91 (1) 12-15.

Moeller, B.; Dickerhoff, K.; Cohen A. and Cole, H. (2008). Vulnerable Population Registry in Broward County. 22nd Annual Governor's Hurricane Conference. Fort Lauderdale, Florida.

Moeller, B. (2008). National Incident Management System (NIMS): Keeping your disaster from becoming a disaster. In Pinkwoski, J. (Ed.), Handbook of Disaster Management. Boca Raton, Florida: Taylor & Francis.

Moeller, B. (2008). Lies, Damn Lies, and Statistics. Fire-Rescue International - 2008. Denver, Colorado.

Moeller, B. (2007). Keeping Your Disaster from Becoming a Disaster: Establishing and Maintaining Situational Awareness. Fire-Rescue International - 2007. Atlanta, Georgia.

Moeller, B. (2007). Are You Prepared for the Politics? Southeastern Association of Fire Chiefs 79th Annual Conference. Daytona Beach, Florida.

Moeller, B. (2007). Implementing Change While Avoiding the Chaos – Essential Ingredients of Leadership. Fire-Rescue Med - 2007. Las Vegas, Nevada.

Moeller, B. (2007). Answering Big Questions in the Fire Service. International Fire Service Journal of Leadership and Management, 1 (2), 11-16.

Moeller, B. and Mikel R. (2006). Strategies for Success: Getting Your Ideas on the Political Agenda. Fire-Rescue International - 2006. Dallas, Texas.

Moeller, B. (2006). Leaders Do Not Stand Still. On Scene. 20 (11), 6.

Moeller, B. (2006). Leading Change: The Process of Leadership. Florida Fire Service, 14 (3), 7.

Moeller, B. (2005). Apples to Apples. Fire Chief, 49 (8), 82 – 90.

Moeller, B. (2004). Strategies for Success: Managing the Chaos of Change. Fire-Rescue International - 2004. New Orleans, Louisiana.

Moeller, B. (2004). Obstacles to Measuring EMS Performance. EMS Management Journal, 1 (2), 8-15.

Moeller, B. (2002). Benchmark Challenge. Fire Chief, 46 (8), 88-90.

Moeller, B. (2002). Research in the Development of Deployment Standards: Why Can't We Answer 'Big Questions' in the Fire Service. IFE Fire Service Deployment Conference. Indianapolis, IN.

Moeller, B. (2001). Problems of Measuring Performance in the Fire Service: Do We Really Want to Improve or Simply Claim We Have? Deccan Conference. San Diego, CA.

Moeller, B. (1985). Medical Effects of Wearing Self-Contained Breathing Apparatus. Fire Engineering, 138 (10), 43-51.

PUBLIC & PROFESSIONAL SERVICE:

Chair, Patient Protection and Affordable Care Act Task Force of the International Association of Fire Chiefs (2013 – 2015)

Member, Editorial Board of FireRescue Magazine (2012-Present).

Member, ICMA Governmental Affairs & Policy Committee (2010-2012)

Member, FCCMA Disaster Preparedness Committee (2010-2012)

Member, Editorial Board of the International Fire Service Journal of Leadership and Management (2008 – Present).

Member, Board of Directors of the International Fire Service Research Center and Policy Institute (2007 – Present).

Member, University of Florida Advisory Board for Fire and Emergency Services Bachelor's Program (2008 – 2009).

Director at Large, EMS Section of the International Association of Fire Chiefs (2006 – 2008)

Member, National Centers Task Force of the International Association of Fire Chiefs (2006 – 2007)

Member, National Fire Protection Association Technical Committee on Incident Management Professional Qualifications (2006 – Present)

Member, Professional Development Committee of the International Association of Fire Chiefs (2002 – 2007)

Member, EMS Workforce Taskforce of the National Registry of Emergency Medical Technicians (2005 – 2006)

Editorial Board for Fundamentals of Fire Fighter Skills. Jones and Bartlett Publishers: Sudbury, MA. (2004).

President, Fire Chiefs Association of Broward County (2002 – 2004).

Member, National Fire Protection Association Subcommittee on Self-Contained Breathing Apparatus. Responsible for NFPA 1981. (1990-1992).

Member, Broward County Regional Emergency Medical Services Council, (1992- 1997)

PROFESSIONAL MEMBERSHIPS AND HONORS:

International City County Management Association
Florida City County Management Association
Meritorious Service Award – IAFC Emergency Medical Services Section
International Association of Chiefs of Police
International Association of Fire Chiefs
National Fire Protection Association
Metropolitan (Metro) Fire Chiefs
Florida Fire Chief's Association
American Society for Public Administration
Pi Alpha Alpha, National Honor Society for Public Affairs and Administration
Chief Fire Officer Designation – Commission on Fire Accreditation International (CFO)
Nationally Registered Emergency Medical Technician – Paramedic (NREMT-P)
Fellow - Institution of Fire Engineers (FIFireE)
Certified Public Pension Trustee – Florida Public Pension Trustees Association (CPPT)

Ian Womack

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Ellenton, FL, 34222 United States
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imwomackent@gmail.com

PROFESSIONAL EXPERIENCE

St. Petersburg Fire & Rescue **St. Petersburg, FL United States**

Division Chief, Rescue *November 2013 - Present*

- Manage EMS operations of a large metro fire department.
- Oversee and manage 13.5 million in budgeted funds.
- Monitor performance measures to ensure best practice.
- Analyze data to determine most efficient and effective use of resources.
- Design and implement cost control measures to ensure sustainable service delivery.
- Primary liaison with EMS Authority, Pinellas Board of County Commissioners.
- Negotiate contracts for EMS service delivery in and around St. Petersburg City limits.
- Lead EMS advisor to St. Petersburg Mayor and City Council.
- Oversee EMS logistics for all operations.
- Development and administration of department policies and procedures.
- Ensure organizational resources and efforts align with strategic plan.
- Monitor compliance with and status of department accreditation.
- Evaluate and administer all personnel issues related to evaluations, performance, and discipline.

Captain, Rescue Division *Feb 2013 – April 2014*

- Manage daily EMS operations of a large metro fire department.
- Department QA manager for clinical excellence and protocol compliance.
- Protocol development and compliance with industry best practice.
- Infectious disease control officer.
- Manage EMS logistics for all operations.
- Responsible for process development to ensure system status.
- Develop and administer training for all EMS providers.
- Manage Paramedic training and development program.

Lieutenant, Safety and Training *Aug 2010 – Feb 2013*

- Research and development of department strategy and tactics.
- Recruitment and processing of firefighter applicants for employment.
- Analyze training needs to develop new training programs; modify and improve existing programs.
- Develop and administer orientation academy and arrange on-the-job training for new hires.
- Train instructors and supervisors in techniques and skills for training and employee relations.
- Develop and organize training manuals, multimedia visual aids, and other educational materials.
- Develop testing and evaluation procedures for tools and equipment.
- Review and evaluate training and apprenticeship programs for compliance with State standards.
- Manage all aspects of the department's JATC program.
- Manage all aspects of the department's PPE to ensure personnel safety and NPFA compliance.
- Development and administration of cutting edge Safety practices.

Lieutenant, Company Officer *Jan 2010 – Aug 2010*

- Assess nature and extent of fire, condition of building, danger to adjacent buildings, and water supply status to determine crew or company requirements.
- Assign firefighters to jobs at strategic locations to facilitate rescue of persons and maximize application of extinguishing agents.
- Provide emergency medical services as required, and perform light to heavy rescue functions at emergencies.
- Instruct and drill fire department personnel in assigned duties, including firefighting, medical care, hazardous materials response, fire prevention, and related subjects.

- Evaluate the performance of assigned firefighting personnel.
- Recommend personnel actions related to disciplinary procedures, performance, commendations, and grievances.
- Evaluate fire station procedures to ensure efficiency and enforcement of departmental regulations.
- Direct firefighters in station maintenance duties, and participate in these duties.

Firefighter/Paramedic *Oct 2002 – Jan 2010*
- Response to and mitigation of emergency calls including; fires, medical emergencies, vehicle accidents, Haz-Mat incidents, and marine rescues.
- Perform emergency diagnostic and ALS treatment procedures on critically ill patients.
- Deliver Public Education programs and Fire Safety Inspections.

Center for Public Safety Management, LLC. **Washington D.C. United States**
Exclusive provider of public safety technical assistance for *May 2014 – March 2015*
International City/County Management Association
Consultant
- Provide analysis of performance for public safety agencies and make recommendations for best practice.
- Evaluate fire service resource inventories and fiscal liabilities and make recommendations to maximize deployment.
- Facilitate and develop Standards of Response Coverage for emergency service providers.
- Provide critical tasking analysis for fire ground operations that establish best practice through the application of current research.

North River Fire District **Palmetto, FL United States**
Firefighter/EMT *May 1999 – Oct 2002*
- Respond to fire alarms and other calls for assistance, such as automobile and industrial accidents.
- Inform and educate the public on fire prevention.
- Manage and issue PPE inventory.
- Perform commercial fire inspections for Life Safety Code compliance.

Jade Homes Inc. **Sarasota, FL United States**
Construction Superintendant *Jun 2004 – Nov 2006*
- Plan, organize, or direct activities concerned with the construction of large custom homes.
- Schedule large custom home projects in logical steps and budget time required to meet deadlines.
- Prepare and submit budget estimates, progress reports, or cost tracking reports.
- Select, contract, and oversee subcontractors for all phases on construction.
- Confer with supervisory personnel, owners, contractors, and design professionals to discuss and resolve matters, such as work procedures, complaints, or construction problems.
- Take actions to deal with the results of delays, bad weather, or emergencies at construction site.

PROFESSIONAL ASSOCIATIONS AND MEMBERSHIPS

International Association of Fire Chiefs **Fairfax, Virginia United States**
Member *Jan 2014 – Present*

Florida Fire Chiefs Association **Ormond Beach, Florida United States**
Member *Jun 2013 – Present*

Honeywell First Responder Products Advisory Board **Dayton, Ohio United States**
Board Member *Oct 2012 – Oct 2013*
- Provide insight and evaluation of current firefighter safety products and equipment.
- Provide direction and vision for the development of future firefighter safety products and equipment.

Manatee Technical Institute **Bradenton, FL United States**
EMT / Paramedic Advisory Board Chair *Jan 2010 – present*
- Provide input and advice on EMS program delivery, facilities, and enrollment.
- Serve on admission interview board for paramedic student applicants.

Pinellas County Technical Institute **St. Petersburg, FL United States**
Fire Apprenticeship Instructor *Oct 2009 – Oct 2013*

- Provide fire service training to both apprentice and journeymen firefighters.
- Develop realistic training for all areas of fire service activities.

Pinellas County Emergency Medical Services Advisory Council **St. Petersburg, FL United States**
Member *Feb 2013 – present*

- Advise County EMS authority on issues of system design, resource management, and clinical practices.

Pinellas County Advanced Life Support Committee **FL United States**
Member *Feb 2013 – present*

Sunshine State Training Officers **FL United States**
Member *Aug 2010 – Feb 2013*

Pinellas County Training Officers **FL United States**
Member *Aug 2010 – Feb 2013*

Pinellas County Office of the Medical Director **Clearwater, FL United States**
Protocol Advisory Board Member *Jan 2007 – Dec 2009*

- Actively participated in the review and revision of Pinellas County EMS protocols.
- Initiated the redesign of protocol format and layout, streamlining and simplifying the MOMs manual.

PRESENTATIONS AND PUBLICATIONS

International Association of Fire Chiefs **IL United States**
Presenter *Aug 2013*

- Presented a session on Setting Fireground Policy at the 2013 Fire Rescue International Conference in Chicago, IL.
- Presented a session on Providing Organizational Leadership at the 2013 Fire Rescue International Conference in Chicago, IL.
- Presenting a session on The Future of Fire Service Organizational Policy at the 2015 Fire Rescue International Conference in Atlanta, GA.

Florida Fire Chiefs Association **FL United States**
Presenter *Dec 2012 – Jan 2014*

- Presented a session on Modern Fireground Tactics and Safety at the 2012 Health and Safety Conference in Orlando, FL.
- Presented a session on Providing Organizational Leadership at the 2013 Fire Rescue East Conference in Daytona, FL.
- Presented a session on Modern Fireground Tactics and Safety at the 2013 Executive Development Conference in Key West, FL.
- Presented a session on Providing Organizational Leadership at the 2013 Executive Development Conference in Key West, FL.
- Presented a session on High-level Decision Making at the 2014 Fire Rescue East Conference in Daytona, FL.

Texas Fire Instructors Association **TX United States**
Presenter Feb *2014*

- Presented course on Setting Fireground Policy at the 2014 Texas Fire Instructors Conference in San Antonio, TX.

Louisiana Fire Chiefs Association **LA United States**
Presenter Oct *2014*

- Presented course on Setting Fireground Policy in Baton Rouge, LA
- Presented course on Leadership and Decision-Making in the Fire Service

Nevada Fire Chiefs Association **NV United States**
Presenter Oct *2014*

- Presented course on Setting Fireground Policy at the 2014 FireShowsReno Conference in Reno, NV.
- Presented course on Leading from the Middle at the 2014 FireShowsReno Conference in Reno, NV.
- Presented a course on the Impact of Imagery at the 2014 FireShowsReno Conference in Reno, NV

Cygnus Public Safety Group **CA United States**
Presenter Jan 2015

- Presented course on Setting Fireground Policy at FIREHOUSE WORLD 2015 in San Diego, CA.
- Presented course on the Impact of Imagery at FIREHOUSE WORLD 2015 in San Diego, CA.

Center for Public Safety Excellence **FL United States**
Presenter Mar 2015

- Presented course on Cutting Edge Research; Implications to Critical Tasking and Standards of Cover at the 2015 Excellence Conference in Orlando, FL.

EDUCATION

ST. PETERSBURG COLLEGE **St. Petersburg, FL United States**
Bachelor in Science, Public Safety Administration December 2014

- Graduated Summa Cum Laude

ST. PETERSBURG COLLEGE **St. Petersburg, FL United States**
Associate in Arts May 2014

- Graduated Summa Cum Laude

ST. PETERSBURG COLLEGE **St. Petersburg, FL United States**
Associate in Science, Fire Science Technology December 2011

- Graduated Summa Cum Laude

ST. PETERSBURG CHAMBER OF COMMERCE **St. Petersburg, FL United States**
Leadership St. Pete Class of 2013 June 2013

CENTER FOR CREATIVE LEADERSHIP **St. Petersburg, FL United States**
Leadership Development Program April 2013

NATIONAL FIRE ACADEMY **Emmitsburg, MD United States**
Advanced Principles of Fire and Emergency Services Safety and Survival August 2012

CERTIFICATIONS

- Fire Officer II, Pro Board
- Fire Officer I, State of Florida
- Fire Instructor I, State of Florida
- Live Fire Training Instructor I, State of Florida
- Pump Operator, State of Florida
- Firefighter I,II, State of Florida
- Paramedic, State of Florida

CONTRIBUTIONS

- Served as a delegate to the National Fallen Firefighters Association's TAMPA2 event and collaborated on solutions to reduce firefighter casualty rates.
- Successfully negotiated resolution for SPF&R's EMS funding and service delivery ending a six year dispute with the County EMS Authority.
- Designed and implemented SPF&R's "Standing Orders," providing for increased firefighter safety and a standardized tactical approach to structure fires throughout the department.
- Utilized cutting edge research to develop and enact a tactical approach to modern structure fires that decreased firefighter risk while fully accomplishing the organizational mission.
- Designed and constructed multiple elaborate training props for the SPF&R drill grounds including: A full scale roof prop, safety and survival house, adjustable maze, and forcible entry trainers.
- Developed and delivered the first SPF&R "Truck School" and "Officer Academy" to facilitate a more specialized application of functional unit assignments.

- Championed SPF&R as an industry leader through the development and delivery of cutting edge initiatives at a regional and national level.
- Established SPF&R as an industry authority in the design and use of fire equipment with multiple commercial manufactures and distributors.
- Identified a potential safety concern with the MSA Firehawk-M7 SCBA. Provided a design solution to the manufacturer and compelled them to action resulting in a redesigned product that increased firefighter safety across the nation.
- Reorganized and enriched the SPF&R recruit academy by streamlining and optimizing the use of available time and resources.
- Conceptualized the redesign of SPF&R's JATC curriculum and evaluation process, increasing program quality and effectiveness.
- Identified unknown SPF&R PPE liabilities; formulated and enacted solutions that successfully provided for their fiscal and tangible resolution.
- Overhauled SPF&R's PPE specification increasing firefighter safety and moral while reducing cost of ownership.
- Developed process for SPF&R to ensure full NFPA1851 PPE Care and Maintenance compliance and vendor oversight resulting in a 75% reduction in cost.

GANG WANG, Ph.D. gang.wanggang@gmail.com

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SUMMARY

Studied more than sixty emergency services operations using data-driven techniques to determine the most efficient organizational structures to provide public safety services. Ability to effectively lead teams through complex issues and deliver results to meet project timeline. Excellent and experienced communicator in creating and delivering senior management presentations.

PROFESSIONAL EXPERIENCEF

Fitch & Associates, Senior Associate **2015 – Present**

Primarily responsible for collecting, processing and analyzing data, and writing and presenting findings internally and externally.

Center for Public Safety Management (CPSM), Senior Manager
International City/County Management Association (ICMA), *Senior Manager* **2008 – 2015**

Involved in all phases of projects including initial data collection, on-site interview, large-scale data processing, statistical analysis, creating data reports and final client presentation. Completed more than sixty public safety studies of fire and emergency medical services. The fire and EMS studies focus on analyzing fire department, emergency medical service (EMS) agency, and private ambulance service in terms of workload, deployment, and response time. The results are often used to make major budget decisions and operational process improvements. The studied cities and counties have covered the entire spectrum of size (from population of 10,000 to a million) and location (30 states). The studies face intense public scrutiny and discussion.

Ford Motor Company/Visteon Corporation, *Consultant* **2003 – 2008**

- *Behavior Decision Making and Insights:* Designed and deployed engineering decision making surveys, interviewed Chinese and American automotive engineers to understand the cross-cultural differences in risk preferences, risk perceptions and risk attitudes.
- *Manufacturing Process Improvements:* Assessed manufacturing complexity levels of four Visteon plants. Developed a quantitative system to recommend cost effective methods of handling manufacturing complexity.
- *Product Portfolio Selection:* Investigated U.S. regional differences in customers' vehicle color preferences and developed an optimization model to select the best production portfolio of exterior color mix for any car model.
- *Investment in Focused Factory:* Interviewed key stakeholders and identified cost centers and activities. Developed a simulation based system to estimate the investment cost and associated uncertainty.
- *Supply Chain Sourcing Optimization:* Analyzed hundreds of product and component specifications. Developed web based IT system to implement the product development process and a set covering optimization model to select the most cost effective sourcing portfolio to meet a variety of product requirements.

EDUCATION

Ph.D. (08/08): Industrial Engineering, Wayne State University, Detroit, Michigan
M.E. (08/03): Management Information System, Chongqing University, Chongqing, P.R. China
Dual B.S. (08/00): Management Science, Industrial Design, Chongqing University, P.R. China

PUBLICATIONS

- Wang, G., R. B. Chinnam, I. Dogan, Y. Jia, M. Houston and J. Ockers. 2014. "Focused factories: a Bayesian framework for estimating non-product related investment." *International Journal of Production Research* 53 (13).
- Wang, G., B. Nepal, L. Monplaisir and S. Ponsock. 2011. "Integrated Framework for Component Variety Management: A Case Study." *Integrated Journal of Services and Operations Management* 10 (1) 74-93.
- Chelst, K., G. Wang. 2006. "Good Management: The Missing XYZ Variables of OR Texts." *Perspectives in Operations Research: Papers in Honor of Saul Gass' 80th Birthday*, College Park, Maryland.
- Song, Y., F. Liu, G. Wang and J. Miao. 2004. "A Reference Model of Information Exchange in Networked Manufacturing." *China Mechanical Engineering* 15 (16) 1458-1461.
- Wang, G. and J. Deng. 2002. "Two layered production pattern and its application technologies for mass customization", *Proceedings of the Tenth CUSMA Conference on Manufacturing Automation*, Cheng Du, China,

Dianne G. Wright, MPA

HIGHLIGHTS OF QUALIFICATIONS

- 19 years managing essential public service operations
- Project manager for $60 million, multi-year, homeland security grant
- 16 years as consultant performing financial and operational reviews and providing management assistance to public and private sector organizations

RELEVANT SKILLS, EXPERIENCE & WORK HISTORY

PROFESSIONAL CONSULTING

Fitch & Associates, L.L.C. – Senior Consultant (1998 to Present)

- Consultant team member performing financial reviews and service options development for emergency medical service providers including fire departments, city service providers, hospitals, and for-profit and not-for-profit volunteer agencies. Representative clients include: Brighton Volunteer Ambulance, Inc., Ansonia Rescue Medical Services, Inc., Fort Drum (Jefferson County, NY) Regional Health Planning Organization, Genesee County, MI, Holtz Children's Hospital, Miami, FL, City of Rochester, NY, Chesterfield County, VA, Santa Rosa County, FL, Village of Pinecrest, FL, Volusia County, FL, City of Muscatine, IA, Carle Hospital, IL, Pinellas County, FL.

All Hands Consulting, Inc. — Senior Consultant (2003 to 2009)

- Project Manager for Miami Urban Area Security Initiative (UASI) Homeland Security grant; managed successful emergency reimbursement process, developed procedures for all aspects of grant administration from grant inception to close out.

Consulting Group of South Florida, Inc. – Senior Consultant (2000 to 2009)

- Developed financial basis for the newly incorporated Town of Miami Lakes, FL. Developed Town's first and second year annual operating budgets; wrote budget document narratives that described policy issues and financial impact; transitioned special taxing districts and state shared revenues.
- Created financial basis for newly incorporated Town of Cutler Bay, FL. Performed same services as those completed for the Town of Miami Lakes (above).
- Developed a step-down, cost allocation methodology of direct and indirect costs associated with building, zoning and plans review functions for the City of Coral Gables. Allocated costs were used to modify municipal building and zoning fees.
- Staff to Governor's Financial Oversight Board during the City of Miami's financial crisis. Developed and conducted contract review process during entire five-year State takeover of City financial processes.

MIAMI-DADE COUNTY EXECUTIVE

Fire Rescue Department – Assistant Director (1988 to 1998)

- Chief financial officer for 1,200-member, $170 million special tax district entity.
- Led management team in major, contentious change in firefighter recruitment and hiring effort; headed project team for managing and implementing all aspects of process that included working with IAFF labor-management team.
- Achieved substantial increases in 9-1-1 emergency medical transport revenues (from $3.5 million to $10 million annually) through Medicare rate reviews, working with field personnel to improve patient reports and working aggressively to secure a competent billing contractor.

Public Works Department – Division Chief (1984 to 1988)

- Chief financial officer for $150 million operations and capital program.
- Streamlined archaic financial and reporting processes.
- Streamlined and improved accountability of more than 200 special taxing districts for both collections and operational accounting to property owners.

Office of Management and Budget – Budget Analyst (1980 to 1983)

- Oversaw budgets of ten major County departments.

MISCELLANEOUS PROJECTS

Adjunct Professor and Technical Instructor

- Miami-Dade Community College (1996-1998) - Emergency Medial Services seminar series for EMS Management and Fire Science students.
- Eastern New Mexico University (2009) – Financial Management for EMS Managers through School of Business.
- Ambulance Service Managers Certification (2004-2013) – Budgeting and Project Management instruction for EMS/ambulance managers with all levels of experience.

Speaking for Success, Inc. – Speaker and Evaluator (2001 to 2006)

- Taught and coached public speaking and presentation skills.
- Clients included: Concessions International, LLC, Coral Gables Chamber of Commerce, Dade Community Foundation, Inc. Fellows Program, WLRN Educational Programs, Dade County Schools and numerous private clients.

EDUCATION, SPECIALIZED TRAINING & CERTIFICATIONS

- Master, Public Administration, Florida International University, 1980
- BS, Environmental Technology, Florida International University, 1975
- BS, Housing and Design, Florida State University, 1971
- National Fire Academy Executive Management Program (1996, 1997)
- Emergency Medical Technician, State of Florida (1997 through 1999)
- American Ambulance Association, Ambulance Manager Certification, 1993

Brian McGrath
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(905) 646-5172

Summary of Qualifications:

- 20+ years Information Systems management and development in the public safety industry
- 15+ years Business and Systems Analysis in public safety software development
- Exceptional ability at requirements capture, analysis and documentation
- Fully conversant with all aspects of software product development and implementation life-cycle
- Experienced software developer of Public Safety Communications applications
- Excellent communications and interpersonal skills, comfortable at all organizational levels
- Solid base of operational experience in Public Safety Communications

Computer Skills:

- Visual Studio 2010, Visual Studio 2008, Visual Basic 6.0, SQL Server, ADO, RDO, CA-Clipper 5.x, C
- TriTech Software Systems RAPTOR Integration with VisiCAD/InformCAD Product Suite
- GIS Analysis, MS MapPoint integration, MapInfo, MapBasic, ESRI ArcEngine/NetEngine
- TCP/IP, Internet, Networking Administration
- Windows Server/Workstation Administration, Novell Netware
- MS Project, Visio, Word, Access, Excel, Outlook, PowerPoint

Professional Experience:

CAD North Inc. **Sept 2005 - Present**
Co-Founder/President
Providing business analysis, project management and software development services to the Public Safety industry

VB/SQL Systems Development
Develop and market an automatic intelligent E911 pre-alert system (HeadStart911) that integrates seamlessly with VisiCAD, advising the dispatcher of caller location and paging the closest available paramedic unit based on real-time analysis of unit availability and street-level routing calculations. Reduces internal call processing times and dramatically improves emergency response times.

Custom Software Design and Development
Develop custom CAD-integrated solutions based on analysis of client systems and operational needs. Conduct business analysis and functional requirements capture based on Public Safety industry best practices.

Geospatial Analysis and EMS System Design
Provide consulting services and analysis related to High Performance Emergency Medical Services. Develop System Status Plans based on geospatial and temporal analysis of emergency incident data.

Manager, CAD and EMS Infrastructure **June 2005 – June 2007**
Regional Municipality of Niagara
Manage day to day support and ongoing development, testing and implementation for the VisiCAD computer-aided dispatch system at Niagara Ambulance Communication Service. Supervise technical staff of contract programmer and data analyst. Develop new applications and interfaces to support the Communications operations.

Brimac Systems Inc. **1999 – June 2005**
Founder/President
Providing business analysis, project management and software development services to the Public Safety industry

VB/SQL Systems Development
Develop and market a Real-Time Adaptive Training Simulator that interfaces with the VisiCAD Command dispatch system to provide an adaptive and compellingly realistic training environment for initial, recurrent and disaster simulation dispatch training. Simulator integrates with VisiCAD, creating incidents and generating AVL updated vehicle locations based on routing calculations, calculates vehicle status changes and generates audio radio messages based on user-defined scripts and scenarios.

Client: Ontario Ministry of Health
Project Lead – VisiCAD Implementation **2004 – June 2005**
Determine, implement and test optimum VisiCAD configuration for Niagara Ambulance Communication Service. Implementation includes ProQA integration, AVL, mobile data and status reporting, Paging, FirstWatch, Bradshaw MARVLIS Suite. Develop and execute acceptance test plans. Develop and maintain project plan and related project documentation.

Client: University of Toronto, Mechanical and Industrial Engineering
VB/SQL Systems Developer **2002 – 2003**
Develop a custom real-time and historic fleet performance display system integrated with the TriTech VisiCAD Computer Aided Dispatching System. Displays most recent incident performance by priority, monitors performance of ongoing responses, current and historic fleet utilization statistics.

Client: TriTech Software Systems,
Business Analyst **1999 – 2004**
Work closely with TriTech's Police, Fire and EMS clients and Project Managers to define and implement software and interface configurations that meet the Client's expectations of the VisiCAD mission critical resource deployment system capabilities. Determine and document client-specific product enhancement and interface requirements.

- Communicate effectively with all levels of the Client, Prime Contractor and Subcontractors to clearly define and document functional requirements, use cases and test cases.
- Analyze Client's operational model and information requirements and determine optimum system configuration.
- Travel extensively to facilitate on-site requirements capture workshops with domain experts and perform system analysis
- Develop complete functional and technical requirements including User Interface prototypes, use cases, test cases, domain and data models, interfaces to other Vendor systems such as mobile data, radio, automatic vehicle locating (AVL), E911, criminal justice records check, records management systems, automated paging, CAD-to-CAD
- Develop and execute Acceptance Test Plans based on documented business and functional requirements.

Toronto Ambulance Service **1981 – 1999**
Manager, Communications Systems **1995 – 1999**
Lead a team of eight programmers, network administrators and system support specialists as they manage the Computer Aided Dispatch System and Business Information Networks.
Full responsibility for:

- Determining business and system IT requirements for all levels of the department
- Developing functional specifications for new systems and system modifications
- Setting system development priorities and timetables
- Identifying and managing resource needs and critical path issues
- Coordinating with Training and Operations to ensure systems and enhancements are brought online smoothly and on schedule
- Reviewing implementations with client users to determine subsequent refinements
- Administrative and Mission-Critical CAD network administration and security.

Highlights:

- Developed Functional Specification Documents and Request for Proposal document for replacement Computer Aided Dispatch (CAD) system for Toronto Ambulance
- Evaluated bids for replacement CAD system and advised Senior Staff during the selection of preferred vendor
- Reviewed and approved Interface Functional Specification Documents relating to Automatic Vehicle Locating, Paging, E911/ANI/ALI, Hospital Emergency Room Status, Vehicle Status Messaging and the Radio/Telephone System
- Project Manager for the implementation of TriTech Software Systems CAD replacement for Toronto Ambulance Service
- Developed and integrated an AVL Display system with the existing CAD System. Displayed Incident and Unit locations in real time.

Coordinator, Information Applications Group **1990 – 1995**

With a staff of three, developed network access to real-time analysis of CAD information and summary databases.

- Conduct statistical analysis of system performance based on data from CAD system
- Develop real time statistical and decision support applications
- Develop functional specifications for CAD system enhancements
- Project management related to Communications Centre

Highlights:

- Developed a Gateway Server application to mirror CAD active incidents on the administration network to support programs that provided detailed real-time information and analysis without impacting the production CAD system.
- Designed and implemented a real-time Quality Assurance Paging system using mirrored CAD data to provide reporting on operational performance exceptions and monitoring of response time and System Status Plan compliance.
- Designed/developed real-time System Status Plan display system for in-house CAD.
- Planned/managed relocation of the 800+ calls/day Communications Centre to new facilities

Communications Supervisor, Quality Assurance **1985 – 1990**

Monitored operational performance of Dispatchers and operational dispatch processes.

- Review Operational Performance and develop proposals for modifications to procedures to ensure that performance results kept pace with performance goals.
- Develop the functional specifications for CAD system enhancements. Ensure that the CAD software project team clearly understands operational requirements. Oversee the testing and release of new versions of CAD software.

Senior Dispatcher, CAD Training **1984 – 1985**

- Trained dispatchers in the operation of the Computer Aided Dispatch system
- Assisted in the development and presentation of CAD related training material
- Provided technical and operational support for CAD system after go-live

Dispatcher **1981 – 1984**

- Received E911 requests for Ambulance Service from the public in both Emergency and Non-emergency situations
- Triaged emergency calls based on Medical Priority
- Assign and track ambulance resources to emergency and non-emergency incidents
- Managed Fleet deployment to ensure rapid response to all incidents and requests for service

References:

Available upon request

ATTACHMENT B

Non-Collusion Affidavit

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Event Summary

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Event # **502-0** Event Name **Emergency Services Master Plan Study**

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Terms and Conditions

TERMS AND CONDITIONS

General Terms and Conditions for all bidding events.

TERMS AND CONDITIONS (application/pdf)

NON-COLLUSION AFFIDAVIT

My submission of a response to this event certifies that I agree to the non collusion agreement contained below:

1. The submitter of this document is the is acting as an agent for their company who is the respondent that has submitted the attached bid response.

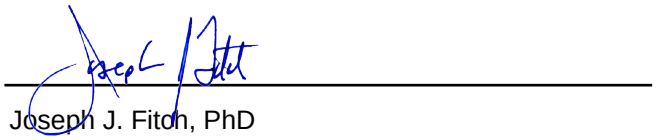
2. The undersigned person is fully informed concerning the preparation and contents of the attached response and of all pertinent circumstances related to it, and is authorized to sign this affidavit. This affidavit is given under penalty of perjury as provided by law.

3.Such bid response is genuine and is not collusive or sham in anyway whatsoever.

4. Neither the person responding nor any of its officers; partners, owners, agents, representatives, employees or parties in interest, including the signer of this affidavit, have in any way colluded, conspired, connived or agreed, directly orindirectly, with any other respondent, firm or person to submit collusive or submit a sham response in connection with the contract for which the attached response has been submitted or to refrain from responding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion orcommunication or conference with any other responder, firm or person to fix the price or prices in the attached response or of any other responder, or, to fix any overhead, profit, or cost to secure through collusion, conspiracy, connivance

or unlawful agreement any advantage against the Board of County Commissioners, Guilford County or any person interested in the proposed contract.

5. The price or prices quoted in the attached response are fair and proper and are not derived by any collusion, conspiracy, connivance or unlawful agreement on the part of the respondent or any of its agents, representatives, owners, employees, or parties in interest.



Joseph J. Fitch, PhD
President
Fitch & Associates, LLC

ATTACHMENT C

Articles

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INSIDE

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EMS IN THE ERA OF HEALTH CARE REFORM

How 3 Local Governments Are Reducing Costs and Improving Care

ADVANCING PROFESSIONAL LOCAL GOVERNMENT MANAGEMENT WORLDWIDE

ICMA

Collaborating to reduce costs and improve care

By Jay Fitch and Steve Knight

EMS IN THE ERA OF HEALTH CARE REFORM

Despite a tremendous diversity in how emergency medical services (EMS) are provided in communities around the country, most U.S. EMS systems remain focused on responding quickly to serious accidents and critical emergencies, even though patients increasingly call 911 for less severe or chronic health problems.

Reimbursement schemes have also failed to adjust, as most EMS agencies receive payment from insurers based largely on transportation to the hospital, rather than the health care services provided.

Simply put, the existing EMS response model has failed to evolve as community needs for emergent and non-emergent health care delivery have changed. Recent efforts in health care to improve quality and reduce costs, including the Affordable Care Act, pose significant challenges to the existing EMS response model.

Health care payers have become increasingly unwilling to reimburse for services that fail to prove their value. As a consequence, EMS agencies will soon be required to demonstrate their worth like never before. At the same time, local governments continue to confront the economic realities of stagnant and even shrinking budgets.

TAKEAWAYS

- A growing percentage of EMS responses are for non-emergent issues that do not require a rapid response or immediate transport to an emergency department.
- EMS agencies must prepare for a shift away from fee-for-service reimbursement toward fee-for-quality and value-based purchasing.
- Changes in the U.S. health care system are providing opportunities for EMS agencies to enter partnerships with public and private members of the health care continuum and provide innovative community health services.

URBAN AND SUBURBAN COMMUNITIES HAVE BEGUN TO EXPERIMENT WITH A NEW TYPE OF COMMUNITY PARAMEDICINE, WHICH SOME ARE NOW CALLING MOBILE INTEGRATED HEALTH CARE.

It's critical for city and county managers to know that despite these challenges, the changing health care landscape also presents opportunities for EMS systems to evolve from a reactive to a proactive model of health care delivery—one that better meets the needs of their communities by preventing unnecessary ambulance transports, reducing emergency department visits, and providing better care at a lower cost.

Health Care Reform

Triple Aim. During the past decade, economists and policymakers have largely abandoned the belief that better health outcomes could only be achieved through increased spending. Instead, changes to the health care system, including some of those created by the Affordable Care Act, are now based on the Institute for Healthcare Improvement's Triple Aim Initiative, which suggests that it is possible to simultaneously improve the patient experience, reduce health care costs, and improve the population's health.[1]

Fee for quality versus fee for service and value-based payments. Currently, most of health care works like a restaurant menu: The more you order, the more you (or your insurer) pay. Unlike a restaurant, however, consumers often don't know whether the services are any good, are often ignorant of the costs, and sometimes aren't aware that other options exist.

If they are treated but get sick again a few days later, their physician or the hospital treats them a second time and charges for the second visit—in some ways, making more money because their initial efforts were unsuccessful, whether or not that failure was preventable.

In a fee-for-quality model, the goal instead is to reward providers and hospitals who keep patients healthy by treating problems efficiently and effectively. There are different combinations of these two models, but the current health care system still relies heavily on fee for service.

One example of Medicare's attempt to tie reimbursement to quality is the penalties that hospitals face for high rates of readmission for certain conditions. In the past, when a pneumonia patient who was sent home from the hospital returned two weeks later, the hospital could bill in full for treating the patient a second time.

Now, in an effort to encourage hospitals to ensure the patient is able to remain healthy once he or she leaves the building, that return visit will also result in a financial penalty. The hope is that hospitals will now spend more time making sure that patients are prepared to go home, by providing adequate discharge instructions and ensuring such proper follow-up care as doctor's visits, prescription medications, rehab, and home health.

While the impact of these changes on EMS remains unclear, the head of the U.S. Centers for Medicare and Medicaid Services (CMS; CMS.gov) has publicly stated that the goal is to shift the payment system to a largely fee-for-quality model.

That will impact EMS indirectly as hospitals and other health care providers shift their focus from volume to achieving certain metrics, and possibly also directly if CMS adjusts payments for emergency medical services to include quality metrics or value-based purchasing.

Rise of Mobile Integrated Health Care

The concept of community paramedicine—employing EMS providers to provide a broader array of services and focus on prevention and primary care—is not a new one, but it has gained renewed focus in recent years, thanks in large part to the advent of the Triple Aim and the Affordable Care Act.

Community paramedicine was initially developed as a way to provide basic primary care services to rural areas with limited medical resources and to avoid long, expensive trips to distant hospitals for minor problems. Urban and suburban communities have begun to experiment with a new type of community paramedicine, which some are now calling mobile integrated health care.

Mobile integrated health care is broader than community paramedicine in that it contemplates using providers and organizations of all types to provide the best care in both the home and other nonclinical environments.[2] MIH programs often employ EMS providers who receive advanced training on such topics as chronic disease management and mental health issues, but whose technical and medical scope of practice remains unchanged.

Among some EMS leaders, there is a concern that EMS agencies are diving headfirst into mobile integrated health care without a clear path to sustainability—even while there is also growing agreement that the current EMS response and funding model is not sustainable.

As with any service delivery, local governments should assess community needs; available resources; and the financial, political, and regulatory climate before deciding which type of mobile integrated health care services, if any, are appropriate for their particular communities—and also who should provide those services. In any case, mobile integrated health care programs will not eliminate the need for emergency medical response or the use of EMS as a safety net by some members of a community.

Here are three local government examples of how three different types of EMS systems have implemented integrated health care programs.

Fort Worth, Texas

In 2013, MedStar EMS, the sole provider of nonemergency and emergency ambulance services in Fort Worth and 14 other surrounding cities changed its name to MedStar Mobile Healthcare. The new moniker reflected a realization in the EMS community that 911 calls do not always result in emergency medical care so much as unscheduled health care.

The provider has been one of the most aggressive innovators in the realm of mobile integrated health. As a public utility system, it has a government-mandated monopoly of EMS services in the community but also the flexibility to adapt.

The provider also has launched several community health programs in recent years, which highlight the importance of establishing partnerships to ensure both positive patient outcomes and fiscal sustainability. The programs include:

- Nurse triage of low-acuity 911 calls to avoid ambulance transports to the emergency department when not medically necessary.
- An EMS loyalty program to reduce EMS and emergency department use by frequent users.
- Readmission avoidance to prevent return visits to the hospital within 30 days of discharge.
- Hospice revocation avoidance to prevent unnecessary hospital visits for hospice patients.
- Home health partnership to provide after-hours care.

Specially trained mobile health paramedics who use vehicles that are not equipped to respond to emergencies perform in-home visits with enrollees in the high-utilizer program. As a provider can't bill Medicare and Medicaid service centers (or most other insurers) for these programs, it has partnered with local hospitals, physician groups, and hospice and home-health agencies, each of which has a financial interest in keeping their patients out of the hospital whenever possible.[3]

The provider, who launched the first of these programs in 2009, has reported that in the first several years:

- Patients in the High Utilizer Group who graduated the program had an 84 percent reduction in use of 911.
- Readmission rates for patients in the program were reduced by more than 90 percent.
- 911 calls referred to the nurse triage line resulted in alternatives to ambulance transport to the emergency department more than 40 percent of the time.

Mesa, Arizona

The Mesa Fire Department recently acknowledged the shifting priorities of the fire service by changing its name to the Mesa Fire and Medical Department. The department also received a $12.5 million Center for Medicare and Medicaid Innovation (CMMI) award to expand its Community Care Units program.

This program partners paramedics with other health care providers to provide appropriate care to patients at the scene, keeping other department resources available to respond to emergency calls. The innovation awards were established by the Affordable Care Act to fund programs that would test innovative ways to provide better care and reduce costs.

The department's Community Care Units look like typical ambulances, but are staffed with a combination of senior paramedics and midlevel practitioners in a public-private partnership between the city and a local hospital.[4] One unit partners the paramedic with a nurse practitioner or physician assistant, who is employed by Mountain Vista Medical Center.

That midlevel practitioner can often handle low-acuity emergencies by prescribing a medication, treating someone's pain, or even suturing a wound in the field, preventing an unnecessary ambulance ride and emergency department visit.

A second unit partners a paramedic with a crisis counselor to respond to behavioral emergencies and determine if a patient might be better served at a psychiatric facility rather than the emergency room. Partnering with these other health care providers has allowed the department to expand the scope of services it can provide in the field.

Although Mesa's program has only recently expanded, the department reports that in 2014, emergency department transports have been avoided for more than half of the low-acuity patients seen by a Community Care Unit.

Wake County, North Carolina

In Wake County, North Carolina, the county EMS agency that provides 911 EMS response and transport added a new level of provider: the advanced practice paramedic. These paramedics receive additional training and supplement the emergency medical response system, ensuring the presence of an additional, experienced paramedic on critical incidents.

But the main success of the program has been the use of the paramedics to conduct in-home visits with frequent callers and patients who are referred by other EMS providers when they determine that a patient needs additional services other than emergency transport.

Wake's advanced practice paramedics are also able to medically clear intoxicated patients so they can be taken directly to a detox facility, preventing the use of both an ambulance and emergency

HEALTH CARE IS EVOLVING AT A RAPID PACE, AND EMS AGENCIES CAN PLAY A SIGNIFICANT ROLE IN IMPROVING THE HEALTH OF THEIR COMMUNITIES AND REDUCING COSTS.

department bed for a person without a medical need for either.

Similarly, they can evaluate psychiatric patients in the field in order to determine the most appropriate transport destination and arrange the services they need in a more timely and cost-effective manner, often avoiding ambulance transports in favor of police escorts to a psychiatric facility.

Unlike Mesa and Fort Worth, Wake County funds the advanced practice paramedic program through the agency's budgeted funds and not with agreements with hospitals or other payers. The aim of the program is to avoid unnecessary ambulance transports, which may certainly help patients but also increases the efficiency of the EMS system.

Wake County's advanced practice paramedics now divert more than 300 patients per year to alternative destinations. They reported that in a nine-month period in 2013, of the 171 patients diverted to one mental health and addiction recovery facility, only 24 were subsequently seen in the emergency department, and none suffered any adverse consequences from the diversion.[5]

Lessons for Managers

These local government examples of how EMS systems are adjusting to the changing health care landscape offer these insights:

1. Changes in health care financing will impact EMS. Already, it is clear that changes in how the Centers for Medicare and Medicaid Services reimburses hospitals have had significant impacts on the health care system. Hospitals now want to avoid having certain patients show up in the emergency department.

While the future remains unclear, the Centers for Medicare and Medicaid Services has made no secret of the fact that it wants less fee-for-service and more value-based purchasing. This will create opportunities for EMS to help other health care providers meet this mandate, but it also means that EMS must itself be prepared to demonstrate value in order to survive.

2. EMS must develop relationships with other health care partners. Successful community paramedic and mobile integrated health care programs rely on public-private partnerships with hospitals, physicians, payers, and other members of the health care community. No longer can an EMS agency see itself as independent from the rest of the health care system.

3. Not all mobile integrated health care programs should look the same. Since the passage of the Affordable Care Act, EMS agencies across the country have rushed to start MIH programs. While some have been successful, their long-term sustainability is still unclear.

Each community should conduct an assessment to determine its needs, available resources, and what role EMS can play in improving the health of the community.

4. Not every EMS call needs the same response. What mobile integrated health care programs are doing, essentially, is recognizing that EMS providers can provide (and patients require) services other than immediate transport to the ED.

In order to truly serve the community, both by providing patient-centered care and fiscally responsible service, leaders should examine whether the services they currently provide match the demands and expectations of those they serve.

Health care is evolving at a rapid pace, and EMS agencies can play a significant role in improving the health of their communities and reducing costs. Although the long-term value and sustainability of new programs is still unclear, with so much change occurring, managers and elected officials need to ensure that local EMS services are preparing for the new health care world in a way that meets the needs of their communities. PM

ENDNOTES AND RESOURCES

1 For more information on the IHI Triple Aim Initiative, visit http://www.ihi.org/Engage/Initiatives/TripleAim/pages/default.aspx.

2 Learn more about MIH at http://mihpresources.com.

3 More on MedStar mobile health care programs can be found at http://www.medstar911.org/community-health-program.

4 For a presentation on the Mesa, Arizona, program, visit http://www.mesaaz.gov/fire/PDF/FireHouse_World_2014_Presentation.pdf.

5 Wake County, North Carolina, described its results in an article found at http://www.emsworld.com/article/11289649/advanced-practice-paramedics-and-alternative-destinations.


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For a more in-depth look at the future of EMS in the era of health care reform, read ICMA's *InFocus* report "The New EMS Imperative: Demonstrating Value." Single-copy online issues are $12.95 (ICMA members) and $19.95 (nonmembers) at http://icma.org/en/press/digital.

Making Smart Choices about Fire and Emergency Medical Services in a Difficult Economy

InFocus
STRATEGIES AND SOLUTIONS FOR LOCAL GOVERNMENT MANAGERS

VOLUME 42/NUMBER 5 2010

Despite encouraging indicators in some sectors, city and county leaders are still facing tough choices about supplying core services, including police, fire and emergency medical services (EMS). These core public safety services typically represent the largest slice of the budget pie, and thus are an understandable target for cost reductions. But savings cannot come at the cost of lost lives. What evidence and benchmarks exist to help decide what's appropriate? How does a public official tell the difference between facts and opinions? This report frames the challenges facing local government and offers guidance on effectively assessing fire and EMS, implementing changes safely and, ultimately, effectively communicating these changes to key stakeholders.

ICMA PRESS

Economic reality

The picture for state and local governments is clear: The current economic problems that took years to evolve will require many years to fix. Even as the economy begins to rebound, tax revenues will continue to lag, forcing communities to struggle to meet expanding demand for emergency services. U.S. Fire Administration officials estimate that once the recovery begins, it will take one to three years for cities to see signs of increasing revenue, with fire agencies experiencing a three- to five-year lag.[1]

In many communities, public safety funding comes from general revenue sources that may rely heavily on property taxes, and many fire and ambulance districts are funded exclusively through property tax assessments. Those agencies have been especially affected by climbing foreclosure rates, falling home prices, and reassessments that reduce property tax revenues.

Impact of municipal budget cuts on public safety

Many communities are dealing with budget deficits by instituting across-the-board cuts or incremental expense reductions. In such a scenario, every department, from wastewater to roads and bridges, might be instructed to cut 5 percent from its budget, with limited assessment of the impact—and without considering whether some departments may be better able than others to reduce their budget. Additionally, in many cases, department heads are told to do this with limited guidance or direction. What appear to be straightforward changes can have significant unintended consequences.

This is true for a number of fire agencies that are using the "brownout" method to address long-term budget problems. A brownout involves taking stations or response crews out of service periodically to reduce the cost of providing core services. This approach is often used with little or no data to logically and systematically justify brownout choices.

Brownouts are a form of rotating across-the-board cuts. They are often implemented with the belief that everyone should "feel the pain" equally. Besides being rooted in a sense of fairness, across-the-board–style cuts are a convenient way to avoid making tough decisions. In truth, determining the best long-term solutions requires serious policy discussions that take into account what a community really values (and the sometimes-unintended consequences of funding reduction decisions), as well as thorough data analysis to understand the demand on equipment and personnel.

If applying responsible operational cuts is challenging, addressing the large expense of public safety personnel can be even more difficult. Our experience has shown that public safety services (i.e., 911, fire, EMS, and police, exclusive of corrections and jails) represent nearly two-thirds of a typical municipal expense budget. Although a number of cities generate some revenue through billing for EMS and fire services, severe reductions in revenue ultimately must be addressed through equally severe reductions in spending. The majority of fire and EMS agency costs are typically associated with the labor or staff.

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If you're considering putting your ambulance service out to bid...

This is a complicated but potentially rewarding process, if done correctly. In the professional experience of this report's authors in working with municipalities, there are four key considerations to take into account:

- **System design** – Underlying legal and organizational structure, financing strategy, business and medical oversight structure, and system safeguards
- **Politics** – Lobbying by special interest groups; expected, but can be diminished if you steer the conversation to a discussion of public policy
- **Economy** – Economies of scale, socioeconomic trends, system revenue sources, and payer mix
- **Medical standards** – The standard of care as defined by the medical authority, including response time standards, priority dispatch protocols, medical protocols, destination protocols, equipment standards, and personnel certification requirements.

A structured procurement process takes each of these factors into account in a comprehensive, step-by-step approach that helps ensure a robust response. The essential question for city managers is: Should we focus our energies on making government a better producer of EMS, or a better buyer of EMS?

To read a comprehensive white paper, "Going Out to Bid: Why a Structured Procurement is Better," see fitchassoc.com/icma. A special chart on the balanced decision process—highlighting each of the steps and the key questions that government leaders should answer when considering changes to their EMS system—is also available.

It is common to find 80 to 90 percent of a fire department's budget attached to personnel compensation and benefits. The inescapable fact is that any real reduction requires cuts in current and future expenses for personnel.

Compounding the direct wage-and-benefit expense are the costs associated with public retirement systems across the country. The mayor of the City of Los Angeles, when warning of potential layoffs in 2010, said that soaring pension costs now eat up two of every ten dollars the city spends from its general fund.[2] To address the problem, some communities are migrating away from defined-benefit programs to defined-contribution programs similar to a 401(k) plan; others have negotiated more favorable terms via tiered systems that offer less to new public employees or have increased employee contributions.

The need to reduce costs in operational budgets and wages has put some local elected officials in an undesirable position. Traditionally, they have sought endorsements from labor groups such as the International Association of Fire Fighters (IAFF), but they are now encountering a double-edged sword: The public's negative reaction to what is perceived as overly generous salaries and benefit packages in a period of high unemployment is making officials more cautious. The current economic crunch is encouraging fresh discussions about expanded roles and alternative approaches to service delivery.

The challenge of fire service overtime

As cities and counties grapple with budget cuts and public employee unions work to retain pay and benefits, firefighters have recently found themselves in the eye of the storm. National news reports have drawn attention to the high salaries of some firefighters, mostly as a result of generous overtime and sick leave policies. The Orange County, Calif., Fire Authority paid $28 million in overtime pay in 2008, a 55 percent increase since 2003, according to a recent report in the *Orange County Register*. In 2008, the median pay for an Orange County firefighter was nearly $138,000, of which $36,000 was overtime.

At the Los Angeles City Fire Department, overtime pay rose by 60 percent from 1998 to 2008, according to an analysis by the *Los Angeles Daily News*. In 2008, more than fifty firefighters earned more than $100,000 in overtime pay alone—with one person bringing in more than half a million dollars in overtime over three years.

In Clark County, Nev., budget woes and the threat of layoffs have pitted the firefighters' union against some elected officials and members of the community. In 2009, Clark County firefighters earned an average of $187,000 in total compensation, including benefits and overtime pay, according to the *Las Vegas Review-Journal*.

These statistics make some wonder why overtime is paid routinely instead of being reserved for special circumstances. Firefighters, however, see things differently—though even some quietly admit there can be, in individual cases, abuses. A typical schedule for a firefighter is to work ten 24-hour shifts per month. That means firefighters are actually on the job about 56 hours a week—more than the typical 40 hour work week—making hourly pay rates lower than they at first might appear, said Gary Ludwig, deputy fire chief in Memphis, Tenn., and chair of the International Association of Fire Chiefs Emergency Medical Services Section.

Add to that the inherent physical dangers, and "I believe the job that we do, the effort we put out, and the sacrifices we make [are] worth the compensation that our firefighters receive," Ludwig said. In addition, he said, in many cases it's cheaper to pay overtime than to hire, train, and pay not just the salary but the pension and benefits for new workers. A rule of thumb is that if the cost of hiring and the benefits package exceeds 50 percent of pay, it costs less to pay time-and-a-half to existing workers.

Memphis pays relatively little in overtime: about $3 million of an annual budget of about $162 million. "When we crunched the numbers, we found it was cheaper to hire new employees than to pay overtime," Ludwig said. To make sure his department is prepared to fill vacancies due to scheduled retirements, they hire and put new hires through firefighter training six months prior to when the position comes open.

Keeping open communications between the fire chief and the city or county manager is critical, Ludwig said. If municipalities want to stop paying overtime, they can do so by hiring new workers.

Source: Jenifer Goodwin.

A variety of delivery approaches

The history of fire services and EMS in the United States tells a story of incremental change, versus a well-considered, objectively planned process for designing public safety services to meet the needs of customers. From community to community, a diversity of agencies vary in performance and funding from highly sophisticated and reliable to rudimentary and unsustainable.

Fire suppression and prevention

Fire suppression and prevention services are typically provided by municipal departments

in urban and suburban areas and by volunteers in less densely populated areas. There are four common models for the organization of fire services in the United States.

Municipal/county In densely populated areas, it is most common to have municipal or county fire department funded primarily by general revenue or property taxes. The departments typically have 24-hour staffing by either fully paid firefighters or a combination of paid and volunteer or on-call firefighters.

Volunteer In less densely populated and rural areas and even some urban and suburban communities, volunteer organizations provide fire suppression. Volunteer departments may staff personnel at the station on an unpaid or paid-per-call basis, or volunteer firefighters may respond from home.

For-profit A less common method of providing fire suppression is through for-profit companies. A limited number of for-profit fire agencies have existed since the 1950s and currently can be found in unincorporated communities in Tennessee and Arizona.

Industrial/airport In addition to fire services for residences and businesses, specialized fire service units exist at airports and large industrial sites. Municipal fire departments or private contractors may provide aviation fire services. Large industrial sites may provide their own fire suppression personnel or a private contractor.

Traditionally, the fire service limited its activity to fire prevention and suppression and "heavy rescue"–related services. Over the past thirty years, however, the mission of most fire departments evolved to include out-of-hospital emergency medical response care, and in some communities, ambulance transport.

Emergency medical services

The fire service has always had some level of involvement in medical emergencies. Over the past thirty years, however, the mission of most fire departments has evolved to include out-of-hospital emergency medical response and care in a more integrated way. This may range from offering basic medical first response and to providing full EMS and medical transportation.

Six common provider types delivering EMS are fire service, public utility model, third government service, private for-profit agency, community-based or volunteer nonprofit agency, and hospital-based service. (See Table 1 for a description and the advantages and disadvantages of each.) Ambulance transport services have existed in some form for more than a century. Hospitals, funeral homes, private ambulance companies, and fire departments all played a role, but it wasn't until the late 1960s that EMS systems evolved into organized community programs. This was the result of a major federal report in 1966 on accidental death on U.S. highways and clinical research showing that early intervention in sudden cardiac arrest outside the hospital could save lives.[3,4] The report resulted in national demonstration projects and the infusion of millions of tax dollars into EMS system development, which lasted until the early 1980s. The fire service was one of the many entities engaged in medical response as a part of this initiative.

Fire departments as medical first responders–and associated challenges

Today the fire service is one of the leading providers of EMS response and transport in the United States. Fire departments are the primary medical first responder organization in most communities due to short response times, skilled manpower, and ability to bring

time-sensitive, life-saving interventions to a patient quickly. For example, a fire engine company that can get to a scene in four minutes, initiate CPR, and deliver electric shocks using an automated external defibrillator can dramatically improve out-of-hospital cardiac arrest survival in a community.[5]

The fire service's role as a medical first responder is rarely challenged. What is often debated is the expense of getting the right resources to the right place in the right amount of time. Citizens are understandably puzzled when a fire engine with four firefighters, a rescue truck, a police vehicle, and an ambulance all arrive at the scene of what appears to be a routine call. Isn't that a waste of resources? Not necessarily, but it

Table 1 Service delivery approaches

Description	Advantages	Disadvantages
Fire service Typically, fire and EMS agencies are described as either single role—when ambulance personnel operate as a separate (civilian) division within the fire department—or dual role—when the same personnel provide both fire and transport coverage.	• Public confidence in the fire department • Integrated command and control • Public officials' direct control of day-to-day operations; utilization of capacity currently available within the fire department, particularly when cross training and dual role personnel are utilized.	• Primary use of 24-hour shifts, which limits the ability to match resources with demand • Complexity, lack of flexibility, and required impact bargaining of labor agreements • Traditionally higher labor costs • Level of effort (number of stations/units), rather than performance-based requirements.
Public utility model This approach uses a separate governance structure whose members are appointed by, and funding levels approved by, elected officials. Public utility systems use a highly defined business structure in which a public agency provides oversight and either directly provides or contracts with a private service provider for day-to-day operations.	• Performance-based contracts • Public ownership of essential assets • Transparent transfer from one contactor to another during a bid cycle • Flexibility to involve other jurisdictions and services in a regional approach.	• Complexity of the business relationship • Possible reluctance of local elected officials to develop the redundancy of a separate entity for oversight • Employees may be required to change employers at end of contract cycles • A limited number of qualified bidders.
Third government service This type of service is considered a uniformed public safety service, like police and fire, but typically employs civilians in a separate department or ambulance district. Finance, purchasing, vehicle maintenance, and other support functions are either directly provided or separately contracted by the parent governmental agency.	• Increased schedule flexibility and lower personnel cost structure (as a result of utilizing the civilian workforce) • Single-mission delivery focus • Direct control of day-to-day operation by local government • Public sector ownership.	• Cost containment is dependent on the parent entity's budgetary and managerial process for expenditure control • Generally no operational performance-based requirements • May be relegated to a position of less importance than other municipal public safety departments.

continued on page 7

continued from page 6

Description	Advantages	Disadvantages
Private for-profit Service is provided using an exclusive or non-exclusive franchise or contract with the local government. It may or may not include rights to provide non-emergency services. Contracts may be level-of-effort or performance-based. Clinical performance, assets, capitalization, and day-to-day operations are managed wholly in the private sector.	• Limited day-to-day involvement for the local government, including public labor unions or public employees • Performance contracts generally define services provided • Labor cost structures are generally lower than nearly all public sector providers • A local government's system design and ongoing oversight costs may be recovered through franchise or user fees.	• Accountability and transparency issues associated with private firms • Little financial oversight; financial oversight must be built into agreements, otherwise it is limited • Agreements must be carefully developed to optimize competition and eliminate "free for all" unregulated competition • Fewer career development opportunities, so personnel turnover may be higher • Sudden service withdrawal could create crisis.
Community-based or volunteer nonprofit agency Service is provided by volunteers, paid personnel, or a combination of the two. Organizational governance comes from within the organization. Service may be supported by donations, user fees, or government subsidies. Assets, while often donated by the community, are typically under the control of the agency board.	• Lower cost structure • Little day-to-day involvement by local government • Service demands generally determine staffing model (use of paid personnel in addition to volunteer workforce).	• Difficulty recruiting volunteers • Resistance to accountability and transparency issues • Leadership, clinical competencies, and tenure vary widely based on individual member commitment • Frequently undercapitalized and require additional public funding to stay solvent.
Hospital-based service Service is provided by a local hospital or stand-alone entity owned or controlled by a hospital. Contracts may be level-of-effort or performance based. These services are frequently nonprofit and draw on the hospital's clinical and administrative resources.	• Public confidence in the health care institution providing service • Robust opportunities for clinical enhancements and positive career paths • Capital usually provided by the hospital • Limited day-to-day involvement by local government.	• Can be a low priority within the hospital's financial and operational structures • EMS revenue recovery overshadowed by hospital revenue recovery efforts • May require some local tax funding.

does raise legitimate concerns. While cities report that half of all calls are responded to using advanced life support (paramedic) resources, only a fraction of those are actually life-threatening.[6] Research shows that paramedic-level care is beneficial in a handful of critical instances.[7] However, the Institutes of Medicine have called for more study to better understand how EMS can most effectively improve patient outcomes.[8]

In the meantime, is it sound public policy for fire agencies to provide a lights-and-sirens response to every 911 request for service, or for personnel on every apparatus to be paramedics? With the previously discussed data in mind and for safety purposes, many communities limit the fire department's first response to only those requests prioritized as life-threatening emergencies, in accordance with strict medical dispatch protocols.[9]

Fire departments facing budget constraints are exploring alternative strategies for meeting demand. Several have successfully implemented approaches to accomplish that goal. For example, in suburban Portland, Ore., Tualatin Valley Fire and Rescue deploys peak-demand engine companies or rescue response vehicles to match demand. During times of peak requests for service, response times can be maintained to the benefit of patients in need. To reduce the service-level impacts associated with shutting down fire companies, the San Jose Fire Department is using an innovative resource management strategy they devised called *dynamic deployment*. It requires an additional investment in resource-management software tools, communication center personnel, and ongoing data gathering and analysis, but it is anticipated to reduce service-level impacts to the most critical calls.[10]

Several communities—including Louisville, Ken.; Richmond, Va.; and Cleveland, Ohio—are experimenting with protocol-based triaging of non-emergency calls at the 911 dispatch level, providing callers with alternatives such as a nurse-assist line or an appointment and transportation to a clinic. This approach reduces responses to non-life-threatening calls, lowering costs and enabling scarce resources to remain ready for priority calls.[11]

The role of fire departments and private ambulance services

The fire service and the private ambulance industry are the two largest providers of emergency ambulance service in the United States,[12] but they view EMS delivery from contrasting perspectives. The fire service views its role as an "all hazards" department, with EMS as an extension of its public safety mission. Its involvement in EMS stems from many sources. In some communities, the fire service adopted EMS when a private provider proved unreliable or abandoned the market. In other cases, many departments saw EMS (beyond first response) as a natural growth opportunity. For others, EMS was an opportunity for the fire service to increase revenue and maintain jobs as fire calls diminished. This wasn't always the case in every department, but today's fire service is almost universally passionate and committed to being involved in EMS delivery. An example of this interest was recently evident when fire service stakeholder groups aligned to create the Fire-Based EMS Advocates Group and developed an informational campaign to promote the fire service as the ideal provider for EMS.[13]

In contrast, the private sector views its own role as a health care and medical transportation provider delivering services in a public safety environment. Private providers often have a close connection with the communities in which they operate, but unlike fire departments, are typically contractual in nature. Ambulance contracts vary widely, from level-of-effort agreements (e.g., a company will base an agreed-on number of ambulances in a community 24 hours a day, 7 days a week) to comprehensive, performance-based contracts clearly delineating requirements and expectations. Private services are frequently focused on medical response and transport alone and typically do not expand into services unrelated to the core mission. The American Ambulance Association, a private sector advocacy group, has published a reference guide for community leaders considering procuring emergency ambulance services.[14]

Fire departments and private ambulance companies both lobby local officials for the right to deliver emergency ambulance service. While each group promotes its model as

the better option, no published research supports one model over another in terms of patient outcomes or efficiencies, and there is no indication that the diversity of providers will cease in the future. Local governments may benefit from adopting procurement principles, regardless of their current service delivery model—and whether or not they intend to conduct formal ambulance procurement.

Current fire/EMS reimbursement issues, future trends, and health care reform

The fire service has traditionally relied on tax revenue for funding. During the past decade, many fire agencies have added user fees to supplement this source. If a fire department provides emergency ambulance service, it is also possible for the agency to be partially reimbursed a fee-for-service through the billing of individual patients and insurance carriers. Rarely does the fee charged cover the full cost of providing the response and transportation service, and fire agencies commonly charge less than non-governmental providers and are not typically required to recoup the full cost of services because they receive community tax support.

Confusion often results when comparing transport-fee collection statistics among communities and entities. In our experience, nonprofits, government-based entities, and private companies use differing methods to calculate collection percentages. This makes benchmarking difficult and can result in one entity quoting higher collection performance than another, when the real difference lies in how the collection rates are calculated and how each entity accounts for contractual allowances (the amount that must be written off from Medicare and Medicaid charges due to federal requirements) and bad debt. The most reliable indicator of collection percentages is calculated by using the actual cash collected compared to the total amount billed.

Regardless of delivery model, EMS providers—like other health care providers—serve patients covered by a variety of insurance plans, as well as those who are underinsured or who have no health coverage. Because agencies do not receive full reimbursement for the services delivered, they must build unreimbursed services into their rate structure, thereby shifting the burden to private insurers (i.e., cost of service + unreimbursed services = retail cost). This may change with introduction of health care reform, but the impact on EMS reimbursements is not yet clear. Almost half of EMS patients are Medicare and Medicaid patients. If states begin to cover the uninsured and better support the underinsured, increased revenue from fees could result. It's not clear whether this will change the payment levels of other insurance payers.

Health care is moving away from level-of-effort reimbursement (i.e., payment for delivering a service regardless of if it was appropriate or delivered without error) to paying for only evidence-based care that is delivered safely. Today, EMS is funded for transports only (i.e., agencies typically receive reimbursement only when a patient is transported, as opposed to, say, when a patient is treated at the scene but refuses transport). This is true regardless of whether the care was appropriate or correctly delivered. As the reimbursement model evolves, EMS may be reimbursed for the care delivered, but at the same time could be required to focus on patient safety and to deliver the right evidence-based care. In our experience, most EMS provider organizations are not prepared for such a change, due to a lack of performance measurement and reliable process design. EMS providers of every variety need to begin now to develop reliable patient care systems, based on current evidence-based guidelines. EMS systems need to incorporate a series of outcome, process, and balancing measures that can be viewed over time to aid in process improvement and reduction in variability.

Compounding issues

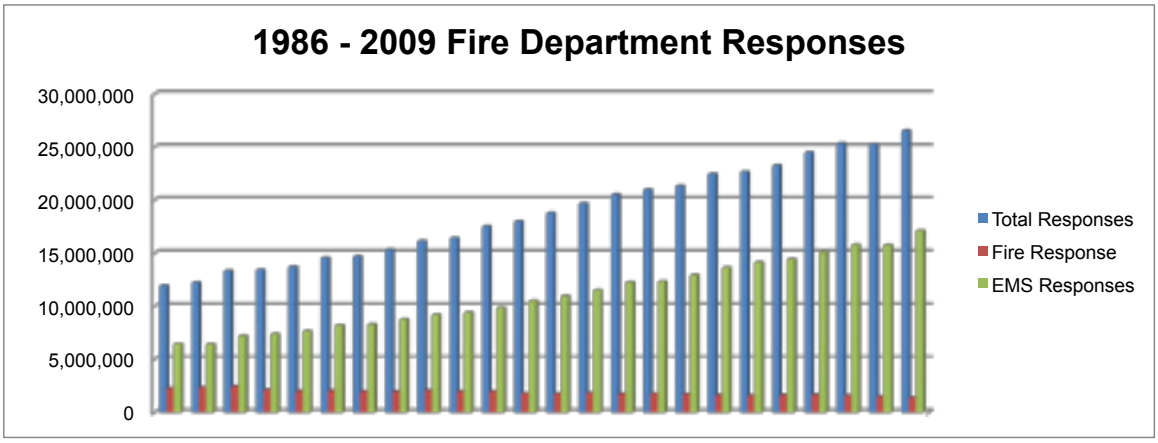
Fire and EMS agencies have become a social safety net for many people: Calling 911 brings a response, no matter the caller's ability to pay, immigration status, or station in life. But when uninsured patients use 911 and the emergency department as a way to get primary health care, the cost to the system is far more expensive than if they had accessed care at a clinic or a doctor's office.

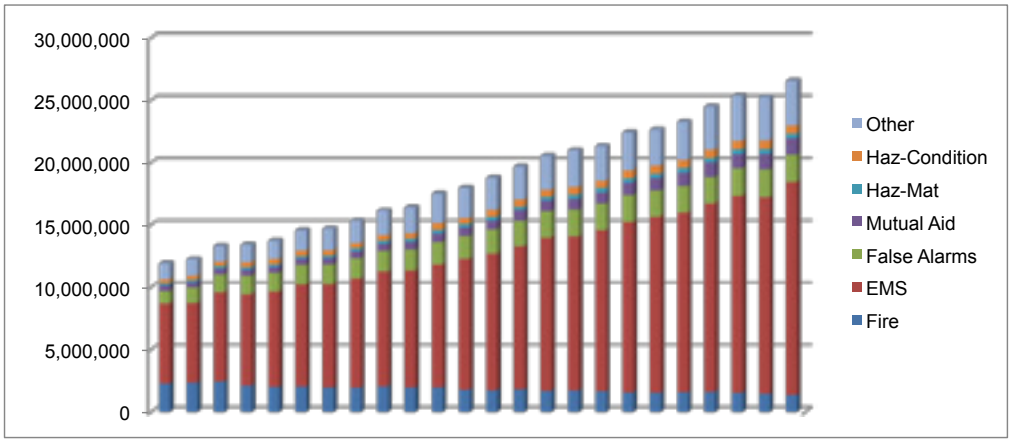
In addition, the fire service faces several compounding issues, including:

- Expanded fire service missions
- Fewer fire calls
- Post-9/11 assignments and disaster readiness
- Decline in volunteers and expansion of career personnel
- Response time issues
- Public expectations
- Brownouts and similar cost-reducing tactics
- Effect on mutual aid.

The following sections discuss each of these issues.

Figure 1 Distribution of U.S. fire service call volume, 1986–2009





Expanded fire service missions

Similar to the role it plays as a social safety net, the fire service's embrace of an all-hazards mission has led to mission creep and added expense, as departments take on specialized tasks such as swift-water rescue, confined space rescue, and hazardous materials response. These expanded roles require new skills, specialized equipment, and ongoing training. At the time, the decision to add additional responsibilities was based on good intentions—but now, many departments are struggling to maintain the staffing and skill levels required to safely provide these high-risk services.

Fewer fire calls

A critical development in the past twenty years is the dramatic reduction in fire-related responses, structure fires, and fire-related deaths. Between 1986 and 2008, the number of actual fire responses decreased by more than one-third.[15] During that same period, total fire department call volume more than doubled, to more than 25 million requests for service in 2008.[16] Much of that increase has come from additional calls for medical assistance. Figure 1 shows the distribution and growth of fire service calls.

Although residential fires still account for 84 percent of all structure fires in the United States, between 1986 and 2008, responses to residential fires declined more than 30 percent. In the same period, deaths in residential fires declined 42 percent.[17] Fire prevention, improved building codes—including requirements for automatic sprinkler systems—early detection systems, and new firefighting technologies have resulted in this stunning reduction.

Post-9/11 assignments and disaster readiness

In the post-9/11 era, most fire departments have increasingly been tasked with additional assignments, such as preparing for events related to weapons of mass destruction, formalizing incident command, conducting urban search and rescue, and addressing pandemic flu and active-shooter scenarios. The true cost of readiness is frequently misunderstood. Constant readiness for infrequent events—or events that may never happen but would have catastrophic consequences for an unprepared community—is expensive. The cost of readiness shows up in training, disaster drills, special equipment, and reserve forces.

Decline in volunteers and expansion of career personnel

Volunteers have always played an important role in America's fire service, but volunteerism is waning. Individuals now work in distant communities and have less free time, even as training requirements increase and liability concerns grow. While the number of volunteer firefighters has decreased since 1983, career firefighters increased by nearly 34 percent during the same period.[18]

Community officials often want to know if their fire service staffing levels are on par with those in other places. One informal yardstick sometimes used is the number of firefighters per thousand population, used to compare one community to another to bolster support for increased staff. But communities are so variable—and departments' missions, risk profiles and scope can be so different—that these comparisons must be taken with a grain of salt. We know of no reliable evidence that supports an optimal number of firefighters per thousand population.

Response time issues

With budget cuts, longer response times have attracted the attention of the press in a variety of communities. Fire companies have been shuttered without changing the deployment strategy, resulting in units that are farther away being the first to arrive at the scene of fires or medical emergencies. This delayed response allows additional time for fires to become larger in size and complexity, and in true medical emergencies, such as choking or sudden cardiac arrest, it may make a difference between life and death.

According to the 2000 U.S. Census data, 79 percent of the U.S. population lives in an urban area.[19] In a recent survey of the emergency services in the 200 largest U.S. cities, only 63 percent of first responders reported measuring response times in accordance with National Fire Protection Association (NFPA) Standard 1710, which requires the crew to arrive at the scene of an emergency within six minutes.[20,21] NFPA Standard 1710 allows for 60 seconds of dispatch time, 60 seconds of crew mobilization time, and 240 seconds of drive time (6 total minutes). Although the evidence supporting the time standard is limited and often contested, it remains the only nationally accepted standard communities can use to benchmark performance.

More troubling in the survey is the fact that only 28 percent of the departments using the NFPA standard report being in compliance. Currently no national study or reporting requirement is in place to measure all communities throughout the country. Meanwhile, objective response time measurements are sporadic to nonexistent in most places, in our experience.

During tough economic times, many communities experience an increased demand for EMS, as residents have fewer health care options. Job losses and resulting losses of insurance benefits affect access to family physicians. Calling 911 and going to an emergency department (ED) become substitutes for primary care. This sets up a daunting challenge: As the demand for both ED and ambulance services expands, wait times in the ED increase, causing both service delays and reduced productivity for ambulance crews. With many EMS systems already coping with previous cutbacks, the result is even greater difficulty in providing timely services—or even maintaining critical services.

As noted, tax revenues are not likely to improve in the near term. We believe that many communities will face fundamental changes in the provision of fire and EMS. The key question for them is: Will your community safely and systematically plan for change, or will it be reactive and subject to the whim of special interests?

Public expectations

Most taxpayers are not aware of the actual cost to operate their fire services and EMS. Most also do not know if their fire department provides effective service or represents good value when compared to other similar agencies. Sensationalized media coverage and dramatic portrayals of emergency services often distort public and elected officials' understanding of fire and EMS departments and the actual work they do. Furthermore, smaller communities can be strongly invested in having their own hometown fire departments. While consolidating a variety of small agencies into one can make real economic sense, it can be hard for a community to give up the perceived control and community identity they have become used to. Regions facing true hardship may find consolidation as the only alternative.

Many fire and EMS agencies facing cutbacks are ill-equipped to make sound decisions regarding station closures or reduction and elimination of programs. This is mostly due to the lack of meaningful data. The fire service collects run-volume statistics, but data is not typically outcome oriented. In other words, it's difficult to show a direct correlation between cost-reduction strategies and patient outcomes or structure fire losses.

Brownouts and similar cost-reducing tactics

The news media are filled with regular reports of communities "browning out" fire stations on a rotating basis. Brownouts occur when staff is reduced on each engine or truck company, often on a rolling basis, as an alternative to closing specific stations or taking certain pieces of equipment out of service. But, in truth, such practices do little but give the impression that the agency is acting to address the underlying problem. Without clearly measuring the pre- and post-reduction results, the department cannot know the real effect on the safety of citizens or employees.

Dramatic changes in resources should never be executed without a detailed understanding of the likely outcomes and risks involved—including strategies to mitigate those risks. Without this understanding, a fire agency is rolling the dice with the public's health and welfare. For example, say a community with six fire stations has decided to rotate the closure of one station per day. Each station, depending on its location, has different risks associated with its specific response area, and it responds to a different number of calls each day. Some stations are very busy; some are not. Some serve high-risk, industrial areas or densely populated areas, while others may serve neighborhoods with relatively low fire risk. If the downtown station runs an average of ten calls per day and a slower station only runs an average of one call per day, the risk to an individual living downtown for delayed care or fire response is exponentially greater when that station is closed for the day.

Policymakers must understand the consequences of station closures before making changes. Better data and information provide greater ability to minimize the risk. Furthermore, any failure to quantify the impact and mitigate potential risks will only fuel critics when there is a significant degradation in the response to a major event, such as a fatal house fire or serious vehicle crash.

Reducing expenses associated with transporting EMS patients is another strategy being considered. Several large cities are exploring the pros and cons of privatizing their systems' EMS transport component. The stated goal is a reduction in full-time fire department employees and resulting cuts in personnel costs. However, the "soft" or downstream effects must also be taken into consideration for an honest comparison. Before privatizing, community leaders should consider the impact on the effective fire force and the collection of third-party revenues.

Effect on mutual aid

Reducing the number of firefighters may also mean increasing dependence on mutual aid from surrounding areas. Communities that were once self-sufficient for basic fire response now routinely find themselves needing support from other fire agencies. In fact, mutual-aid requests increased more than 400 percent from 1986 to 2008, with more than half of the fire agencies in the United States routinely relying on mutual aid for first alarm (initial) assignments.[22,23] As communities further reduce costs and response capacity, mutual-aid requests will likely increase. Stretched to the breaking point, some fire agencies are questioning their ability to provide surrounding communities with mutual aid if they can't provide reliable service to their own citizens. How would the community react if a response to a critical event were delayed or insufficient because units were deployed elsewhere?

20 questions to discuss with your fire chief

1. How does the performance and cost of our program objectively benchmark against others with similar volumes and demographics, and where can we get the data to answer questions?
2. Are stations in the right locations to optimize our response capabilities and resources?
3. How many response resources is the "right" amount for fire calls? For medical calls? What tells us that this is correct?
4. What is an acceptable productivity level to expect from EMS personnel?
5. What is an evidence-based and legally defensible response-time goal for our community, and how often do we reach critical response levels (i.e., too few units)?
6. Many communities use a 90th-percentile response time as a standard for first arriving units. What is our response time standard?
7. Do we need to send a fire apparatus to calls, including all medical requests from 911?
8. Do units need to respond with lights and sirens to all 911 calls, despite the nature of the complaint?
9. How much down time do our fire and EMS personnel have while waiting for calls? How do we evaluate the "right" number and schedules for staffing?
10. How does our department treat the standards that are published by the National Fire Protection Association (NFPA) and the Insurance Services Office (ISO)—as requirements or as guidelines?
11. Fire-related responses are declining significantly. When are the numbers low enough to consider consolidating or contracting with another community? Are there other alternatives to having our own fire department?
12. Some communities are selectively closing stations (i.e., enacting rolling brownouts) to reduce costs. What are the benefits and risks of this strategy?
13. In addition to providing medical first response service, should our fire department get into or out of the business of transporting patients?
14. Should we consider getting into the business of non-emergency transports (interfacility and scheduled transports) and the extra revenue that might bring?
15. Regardless of what others are doing, is *our* fire department better positioned to provide EMS transportation in our community than other organizations? What factors should be considered?
16. Besides privatization, what strategies could be used to improve efficiency of our service?
17. Can service levels be enhanced without changing the governance structure or making significant additional investments?
18. How can we be assured that the processes, procedures, and protocols utilized in managing our emergency service agencies reflect current best practice? Where are we getting our information?
19. Fire and EMS are dangerous occupations and generate significant internal and external litigation. How should our fire and EMS system evaluate and mitigate both safety and legal risks associated with providing these services?
20. Emergency services represent a large percentage of our community's budget. How do we show the taxpayers we are getting the best value for the dollars we spend?

Tough choices in fire and EMS

Fire service leaders face difficult decisions, many on an unprecedented scale. Strategies that worked in the past may not be effective today. Traditionally, reducing expenses meant reducing training and travel, eliminating civilian positions, cutting back on the quality and quantity of office supplies and other nonessential materials, or delaying a new cadet academy or new stations. What happens now, when those tactics don't come close to closing the budget gap? How do fire service and civic leaders make the right choices not just to meet this year's budget, but for the long-term health and benefit of their department and the community? For a list of tough questions that city and county managers should be ready to ask their fire chief, see the "20 questions" sidebar.

Define the core mission

The process for making decisions may not be as complicated as it seems. First, departments must refocus on core services. A detailed understanding of what fire departments are called on to do by their constituents will aid in clarifying their core mission. As Figure 1 shows, in the vast majority of departments, response to medical emergencies is the number-one activity based on need, followed by motor vehicle collisions and fire-related calls—but each department needs to establish its own set of priorities based on community needs and values.

Focus on priority services

Once core priorities are established, the department can focus on ensuring that those priorities get proper attention. Establishing core priorities enables critical decision making about where to invest time, cut costs, or consider service elimination. For example, imagine a budget meeting where a decision needs to be made between buying new automated external defibrillators (AED), which could save dozens of lives each year, and purchasing new wetsuits for the dive rescue team to recover the remains of drowned swimmers. Historically, this could be a tough decision, decided by passionate debate between the responsible chiefs as to why one should receive funding priority. However, when the leadership team starts the discussion by clarifying its core mission, identifies the frequency of specific calls, and conducts a risk assessment, the decision becomes much easier. In this example, medical emergencies make up the majority of the call volume, and AEDs have been proven to save lives. They become the priority for purchase.

Use data to drive decisions

In addition to making key decisions based on the core mission, departments need to embrace data to drive decisions and focus on what results they are striving to achieve. For example, fire departments, like other public safety organizations, need to consider two foundational elements when matching resources to service needs: (1) provide geographical coverage so that appropriate resources may respond in an evidence-based time frame for medical and fire calls and (2) supply those resources in adequate numbers to meet fluctuations in call demand.[24]

Police and EMS agencies have been experimenting with these concepts, but the fire service has limited experience with them. The key is to focus on what you're trying to achieve. For example, research shows that the ideal number of firefighters to safely enable entry into a house is four.[25] To achieve that goal, fire departments have focused on putting four personnel on every apparatus versus creatively looking at achieving the result of four personnel at the scene. The difference may be subtle, but it could mean that two pieces of apparatus cover a wider area with two or three people, so that the

system is designed for the ideal number to arrive on the scene together. Focusing on the outcome or the result helps you to define the "what" and hopefully not get anchored by the "who" or "how."

The key in these examples is obtaining clarity on the goal and using data and information to drive the decision. With a clear aim and good data, it's not only easier to make sound decisions but also easier to communicate those decisions to staff and the public in a way that is clear, factual, logical, and free of the traditional selling that comes with decisions that are not made methodically. The process can still be difficult, but when stakeholders and decision makers are able to see the data and understand the reasoning, change initiatives can be implemented more quickly and with less resistance.

Use technology in decision making

Most departments have a wealth of data at their disposal. Valuable information about calls (including when, where, and type of call) is first recorded in 911 call centers. Agencies use computer-aided dispatch, geographic information systems, and record management systems to capture, profile, and analyze data. Unfortunately, without understanding the underlying processes that need to be managed, many departments have purchased either systems that provide only a single non-integrated solution or a "one size fits all" computer system that promises to do many things, but does none well. Effective data systems, once considered novel, are now among survival attributes for agencies. Additional attention is required to capture data that will inform key process and management decisions.

Specific information about calls is also available though patient care reports that are increasingly done electronically. New federal health initiatives are encouraging integrated pre-hospital and hospital record systems that will allow study and improvement of patient outcomes. A variety of software programs assist in the analysis of data, providing guidance in the deployment of resources and monitoring of operational performance indicators, such as response time and time units spend idle at emergency departments. We've seen an increasing number of communities employing technology to help them better understand where to build new fire stations—and which ones to close.

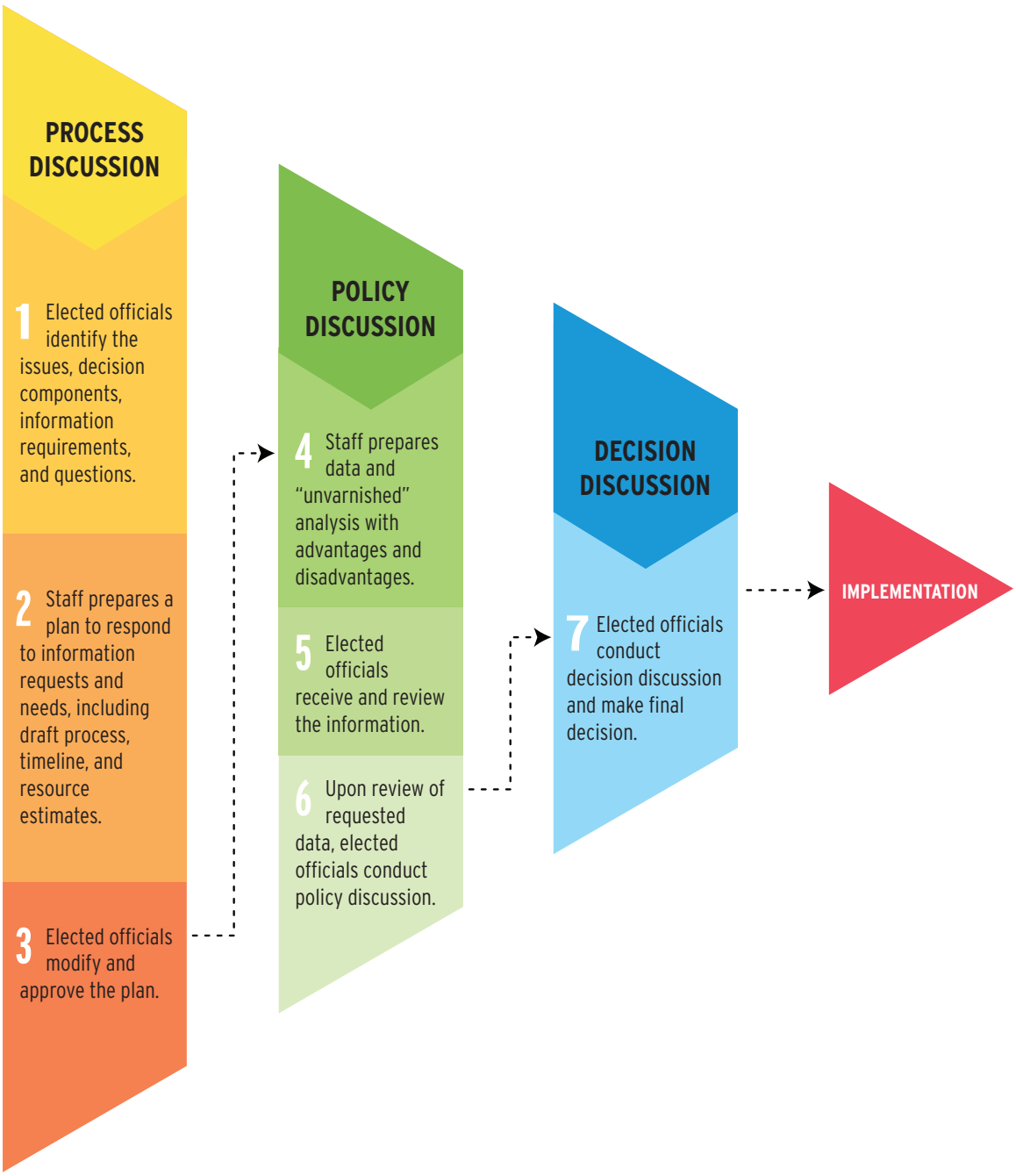
A process for making tough decisions

Decisions to close stations; reduce staffing; and change schedules, work rules, and other mechanisms to control costs are often complex and always controversial. Making a difficult decision in such an emotionally charged environment requires special attention to the process of *making the decision* in a disciplined manner and then *implementing the decision* with positive action.

The balanced decision process developed by the City of Cedar Rapids, Iowa, is a solid guide that other communities can adapt. This process has three distinct phases and seven steps recommended for making difficult public safety decisions, as illustrated in Figure 2.

Process, policy, and decision discussions are clearly separated in this approach. In a "real world" example, a suburban community has invested heavily in infrastructure and has limited reserves. It is grappling with an explosive housing boom that has suddenly stopped. Multiple poor decisions were previously made, now creating a severe revenue shortfall that is expected to continue for a number of budget cycles. Cuts are being made across the community, and it's been suggested that two of nine fire stations be closed.

Figure 2 Balanced decision process



Courtesy of the City of Cedar Rapids, Iowa.

Process discussion

In the first phase (process discussion), the decision elements and informational elements are identified, timelines are developed, and the entire process is agreed on. Questions at this stage may include:

- What are the appropriate decision points?
- What questions need to be answered?
- What information and data are needed to answer those questions?

These question help ensure that the process is intentional and that council members' needs are anticipated early, rather than allowing the process to evolve haphazardly. Using the station-closing example, key elements in this phase are the determination of (1) what statistics and fiscal and operational analysis may be needed, (2) what those will cost, (3) what committees will address specific components of the issue, and (4) how the public will be engaged in the process.

Policy discussion

In the second phase (policy discussion), information is developed, reviewed, analyzed, and discussed to ensure that a thorough understanding of specific advantages and disadvantages and the public policy implications for each option are clear. In our station-closing example, an independent analysis was commissioned during process discussion to review risks, identify potential mitigation strategies, and identify multiple future-state options for the fire department. In the policy discussion phase, information is presented, various stakeholder groups' views and public input are considered, and council policy discussions focus on vigorous debate of the advantages and disadvantages of various options—not on support of particular positions.

Decision discussion

In the third phase (decision discussion), a final decision is reached after vigorous but principled debate occurs. Focus is placed on the discussion of positions and the rationale for those positions so consensus can be reached.

This approach recognizes that public health and safety issues are often emotionally laden. Transparency and the open disclosure of the advantages and disadvantages of each option being considered enhance the public confidence in the ultimate decision reached.

Questions to be prepared to answer when seeking change

- What are we trying to accomplish?
- What's wrong with the old way of doing things?
- What specifically will change?
- How does this affect me? (resident, visitor, employee)
- When and how will this be implemented?
- What can I do about it?
- How will this impact performance or outcomes?
- How will I know a change is an improvement?
- What is leadership doing about this?

Source: Adapted from Daryl R. Conner, *Managing at the Speed of Change*, Villard Books/Random House, 1992.

Communicating with stakeholders

Once a decision is made, how you communicate it is one of the most important elements of the change process. Laying groundwork with important stakeholder groups is essential, along with developing a communications plan that addresses the informational needs of key constituents. Your communication plan articulates your key messages and takes into account all of the ways you want to express those messages—through traditional and alternative media, your own website, town hall meetings, and every other way people in your community will get information and develop perceptions.

Your key constituents include the agency's staff, public employees and union leadership, neighborhood groups, local business and chamber of commerce groups, and the media. For each of these groups, the following four questions must be answered.

- **How will each group be affected by the change?** Changes will not have the same effect on every group, and in the case of bargaining units, impact bargaining must be part of the process. It is important to know what evidence supports the assessment impact to be able to move from voicing opinions to sharing objective data. One of the tasks is to determine how to effectively target the message to different groups.
- **What are the groups' most likely points of resistance?** Answers to this question flow directly from the first question. You must ask them to identify concerns and help them articulate the "iceberg" issues that may be looming large beneath the surface. Anticipate that not all members or groups can fully articulate their concerns, and try to harvest the dissent to be able to respond thoughtfully.
- **Who are the champions?** Champions are important out in the trenches, where change takes place. Influence is not distributed equally. Often the viability of the change process rests with the reactions of key opinion leaders. Identifying the champions in each group and developing tactics to influence these individuals should not be overlooked. It's just as important to understand that some groups will not be influenced and will remain in opposition to change.
- **How will the information be communicated?** A variety of channels should be utilized to communicate about the impending change. Remember the "rule of seven": Communication experts cite research that shows that leaders must repeat the message at least seven times before most people will understand it. Repetition is not only okay; it's a must. Make sure the leadership team has solid information early so that the communications can be consistently cascaded throughout the organization and community.

In addition to the fundamental legal and human resource requirements of implementing changes that may impact the future livelihood or employment status of staff members, the messaging needs to be focused on the organization's mission and how the decision and the implementation process move the organization toward accomplishing its larger mission.

Summary

Even as the U.S. economy slowly recovers from recession, communities are expected to face tight budgets for years to come—and in some cases, unprecedented cuts will have to occur. While across-the-board reductions may seem fair, public safety agencies, and in particular fire and EMS, have special considerations to take into account. The core mission of fire departments has changed dramatically in the past fifty years, as medical-related calls have far outstripped fire suppression, yet fire suppression requires more personnel on scene. Some communities have used the budget crisis to fundamentally rethink their approach to fire and EMS. To do so effectively requires access to data and a systematic approach to engaging key stakeholders with a frank discussion of implementation options and policy choices.

Notes

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