

NORTH CAROLINA

GUILFORD COUNTY

THIS CONTRACT is hereby made, entered into, and effective as of this 22nd day of February, 2016, by and between **GUILFORD COUNTY**, a body politic and corporate of the State of North Carolina, hereinafter referred to as the "**COUNTY**," and **FITCH & ASSOCIATES, LLC**, a limited liability company with a place of business in Platte City, MO, hereinafter referred to as the "**PROVIDER**," and also collectively referred to as the "Parties."

WITNESSETH:

WHEREAS, for the purpose and subject to the terms and conditions hereinafter set forth, the COUNTY hereby contracts for the items, goods, service or services of the PROVIDER and the PROVIDER agrees to provide the items, goods, service or services to the COUNTY in accordance with the terms of this Agreement.

WHEREAS, the COUNTY is in need of a **Fire Master Plan**; and,

WHEREAS, the PROVIDER has submitted a proposal to provide such goods and/or services.

NOW, THEREFORE, in consideration of promises mutually exchanged the Parties agree as follows:

- 1. Goods and/or Services.** PROVIDER will provide the goods and/or services as set forth in the **Specifications (Attachment A)** and **Proposal (Attachment B)**, attached hereto and incorporated herein by reference. All items and/or services shall be provided in a competent, workmanlike and professional manner acceptable to the COUNTY. Should there be any discrepancy between the PROVIDER'S Proposal (Attachment B) and the Specifications (Attachment A) and/or the first three (3) pages of this Contract, the first three (3) pages of this Contract and/or the Specifications (Attachment A) shall prevail and control.
- 2. Pricing.** As full compensation for the PROVIDER'S delivery of the goods and/or services, the COUNTY agrees to pay the amounts for the goods and/or services as set out in Attachment B. Payment will be made by the COUNTY to PROVIDER within thirty (30) days of receipt of a correct invoice and proper documentation that the goods and/or services have been delivered or provided in accordance with this Contract. The maximum financial exposure to the COUNTY under this Contract will not exceed **\$69,950.00**.
- 3. Appropriation.** This Contract is subject to annual appropriation of funds by the GUILFORD COUNTY Board of Commissioners or other funding source, pursuant to N.C.G.S. Chapter §153A-13.
- 4. Term.** This Contract shall be in effect for one (1) year, beginning February 22, 2016, until project completion, with an estimated completion date of February 21, 2017.
- 5. Amendment.** The terms of this Agreement may only be modified or amended with a written Contract Amendment executed by both Parties.
- 6. Termination.** Either Party may terminate this Agreement for any reason and without penalty upon thirty (30) days written notice to the other Party. All goods and/or services provided and accepted as of the date of termination will be paid for; similarly, amounts paid in advance, if any, for which goods and/or services have not been provided and accepted by the COUNTY will be promptly refunded to the COUNTY by the PROVIDER within thirty (30) days of date of termination of this Contract.

GUILFORD COUNTY CONTRACT NO. 113087-02/16-240
FITCH & ASSOCIATES, LLC (PROVIDER)

7. Notices. All notices pursuant to this Agreement shall be in writing and delivered personally or mailed by certified mail, registered mail, postage prepaid, with return receipt requested, at the addresses appearing below, but each Party may change such address by written notice in accordance with this paragraph. Notices delivered personally will be deemed communicated as of actual receipt. Mailed notices will be deemed communicated as of three (3) days after mailing.

Bonnie K. Stellfox, Purchasing Director
GUILFORD COUNTY
P.O. Box 3427 (zip code 27402)
301 West Market Street
Greensboro, NC 27401

Joseph J. Fitch, PhD, President
FITCH & ASSOCIATES, LLC
2901 Williamsburg Terrace, Suite G
P.O. Box 170
Platte City, MO 64079

8. Independent Contractor/Indemnification. PROVIDER shall operate as an independent contractor for all purposes. Nothing in this Agreement shall be interpreted or construed as creating or establishing the relationship of employer and employee between the COUNTY and either the PROVIDER or any employee or agent of PROVIDER. PROVIDER is an independent contractor and not an employee, agent, joint venture or partner of the COUNTY.

The Parties agree to each be solely responsible for their own acts or omissions in the performance of each of their individual duties hereunder, and shall be financially and legally responsible for all liabilities, costs, damages, expenses and attorney fees resulting from, or attributable to any and all of their individual acts or omissions to the extent allowable by law.

9. Assumption. If PROVIDER should undergo merger, acquisition, bankruptcy or any change in their ownership or their name for any reason, PROVIDER must immediately notify GUILFORD COUNTY in writing of these changes and provide the COUNTY with legal documentation supporting these changes, such as an Assumption Agreement, Bill of Sale, Articles of Incorporation, Articles of Amendment, sales contract, merger documents, etc. Further, PROVIDER will submit the name and address of the assuming PROVIDER'S registered agent for service of process and/or all notices required under this Contract.

10. Severability. If any provision of this Contract is held unenforceable, then such provision will be modified to reflect the Parties' intention. All remaining provisions of this Contract shall remain in full force and effect.

11. Force Majeure. Neither Party shall be liable to the other Party for any failure or delay caused by events beyond such Party's control and not due to its own negligence, provided that such Party uses commercially reasonable efforts to resume performance as soon as reasonably practicable. The non-performing Party shall notify the other Party of the force majeure event within twenty-four (24) hours of the onset thereof. In the event that a force majeure event precludes PROVIDER from performing services and/or providing goods for a period of ten (10) consecutive business days, the COUNTY shall have the right to: (a) procure replacement goods and/or services from an alternative source and/or (b) terminate the Contract or portion(s) of Contract upon written notice to PROVIDER.

12. Headings/Titles/Wording. Inclusion of titles of paragraphs or section headings, capitalization of certain words or phrases and/or bold face typestyle of certain words or phrases in this Contract are for convenience purposes only and shall not be used to interpret or construe the provisions of this Agreement. The terms "Contract" and "Agreement" have the same meaning and may be used interchangeably throughout this document. The terms "Attachment", "Exhibit" and "Addendum" have the same meaning and may be used interchangeably throughout this document.

13. Entire Agreement. This Contract, including the Exhibits and/or Attachments, if any, sets forth the entire Agreement between the Parties. All prior conversations or writings between the Parties hereto or

**GUILFORD COUNTY CONTRACT NO. 113087-02/16-240
FITCH & ASSOCIATES, LLC (PROVIDER)**

their representatives are merged within and extinguished. This Contract shall not be modified except by a writing subscribed to by all the Parties.

14. Jurisdiction. The Parties agree that this Contract is subject to the jurisdiction and laws of the State of North Carolina. The CONTRACTOR will comply with bid restrictions, if any, and applicable laws, including N.C.G.S. §143-129(j) regarding E-verify. Any controversies arising out of this Contract shall be governed by and construed in accordance with the laws of the State of North Carolina.

15. Iran Divestment Act of 2015. In accordance with N.C.G.S. §143C-6A-5 and other applicable sections of N.C.G.S. §143C-6A regarding the Iran Divestment Act of 2015, each Party hereby certifies that it is not identified on the State Treasurer's list of persons which the Treasurer has determined engage in investment activities in Iran, including any subcontractors of either Party.

WITNESS the following signatures and seals all pursuant to authority duly granted, effective as of the day and year first above written.

GUILFORD COUNTY

ATTEST:

Marty K. Lawing, Guilford County Manager

Guilford County Clerk to Board

(COUNTY SEAL)

FITCH & ASSOCIATES, LLC

WITNESS/ATTEST:

Joseph J. Fitch, PhD, President

Printed Name & Title:

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act.

Guilford County Finance Director

STATE OF NORTH CAROLINA
COUNTY OF GUILFORD

AFFIDAVIT REGARDING E-VERIFY

I, _____(the individual attesting below), being duly authorized by and on behalf of **Fitch & Associates, LLC** (the entity doing business with Guilford County, hereinafter "Employer") after first being duly sworn hereby swears or affirms as follows:

1. Employer understands that E-Verify is the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law in accordance with NCGS §64-25(5).

2. Employer understands that Employers Must Use E-Verify. Each employer, after hiring an employee to work in the United States, shall verify the work authorization of the employee through E-Verify in accordance with NCGS§64-26(a).

3. Employer is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in this State. Mark "Yes" or "No":

a. YES _____; or,

b. NO _____

4. Employer's subcontractors comply with E-Verify, and if Employer is the winning bidder on this project Employer will ensure compliance with E-Verify by any subcontractors subsequently hired by Employer.

This _____ day of _____, 2016.

Signature of Affiant
Print or Type Name: _____

State of North Carolina - County of Guilford
Signed and sworn to (or affirmed) before me, this the
_____ day of _____, 2016.

My Commission Expires:

_____. _____
Notary Public

(Affix Official/Notarial Seal)



ATTACHMENT B - GUILFORD COUNTY CONTRACT NO. 113087-02/16-240
FITCH & ASSOCIATES, LLC (PROVIDER)

ENGAGEMENT AGREEMENT

This constitutes an agreement to retain *Fitch & Associates, LLC*, 2901 Williamsburg Terrace, Suite G., Platte City, MO 64079-0170 (the "Firm") to provide consulting services for *Guilford County, NC*, 301 West Market Street, Greensboro, NC 27401 (the "Client"). The scope of the work to be performed by the Firm is outlined in the attached proposal dated January 20, 2016.

It is understood that project work will include access to proprietary documents and information. Both parties acknowledge that the Firm represents other medical transportation and related organizations. Fitch & Associates, LLC agrees that confidential information about the Client or its related entities will not be released, except as required by law, without the prior approval of the Client, firm agrees to execute a Business Associate Agreement as required under federal guidelines in accordance with what is commonly referred to as "HIPAA." The Client agrees that it shall not release any of the Firm's materials provided, or utilized during the process, without written permission.

Professional fees to accomplish the engagement shall be \$69,950. These fees shall be paid as follows:

Five percent (\$3,497.50) is due upon the execution of this agreement.

Twenty percent (\$13,990) is due at the completion of the Information Data Request (IDR).

Twenty-five percent (\$17,487.50) is due upon receipt of the Draft Data Report.

Twenty-five percent (\$17,487.50) is due upon receipt of the Draft Geospatial Analyses and Station Location Findings.

Twenty percent (\$13,990) is due upon receipt of the Draft Fire Master Plan Report.

Five-percent (\$3,497.50) is due upon receipt of the Final Fire Master Plan Report.

Usual and customary travel and related expenses including telephone, printing, and postage are included in the professional fees.

Personnel utilized to complete this agreement will be the employees or independent contractors of Fitch & Associates, LLC or its related entities. The Client will be contacted, in advance if possible, should a change of personnel be necessary.

In the event the Client determines not to proceed with this agreement during its term, the Firm may retain all sums paid by the Client for any expenses incurred and for work actually performed, but unpaid by the Client, an hourly rate of \$300. In this event, the Firm would bill for services in this fashion, and upon full payment, other obligations of either party to this agreement shall terminate

Fitch & Associates' Engagement Agreement

GUILFORD COUNTY CONTRACT NO. 113087-02/16-240

except for the disclosure of information as stated herein and both parties shall be released from other obligations.

The parties agree to mutually hold the other party harmless for any losses and expenses resulting from any and all third party claims or litigation arising out of the performance of this agreement.

Schedules outlined in documents are approximate and may be modified by agreement of the parties. The Firm will not be held liable for schedule compliance should the Client request or require schedule adjustments.

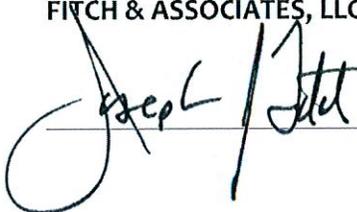
If for any reason any portion of this agreement between the parties is in dispute, both parties will make best efforts to resolve the dispute without resorting to litigation. Should litigation be required to resolve any dispute between the parties, the party not prevailing in the dispute will pay reasonable Attorney's fees as part of any settlement.

This agreement constitutes the complete understanding of the parties and modifications shall be made in writing and acceptable to both parties.

for:
GUILFORD COUNTY, NC

for:
FITCH & ASSOCIATES, LLC

Date


15 February 2016
Date

Printed Name

ATTEST

Robin Keller
Guilford County Clerk To Board

This instrument has been preaudited in the manner required by the Local Government Budget and Fiscal Control Act



N. Reid Baker III
Guilford County Finance Director

3/24/16





Guilford County

STATE of NORTH CAROLINA

Guilford County Purchasing Department Request for Proposals For Fire Master Plan Event #502

General Specifications

General Information and Purpose

Guilford County is soliciting Requests for Proposals from qualified firms to provide a Fire Master Plan to serve the Guilford County Board of Commissioners with short term and long term goals for fire protection in the County, including fiscal analysis for financial independence of the contracted fire services. The County contracted with Emergency Services Consulting International (ESCI) in 2010 and 2011 to develop a fire master plan. That study is available for review by all prospective applicants, and will serve as the basis for this project. The purpose of this event is, therefore, to obtain competitive qualifications in accordance with the North Carolina General Statutes and the Guilford County Purchasing Policies.

The County contracted with Emergency Services Consulting International (ESCI) in 2010 and 2011 to develop a fire master plan. That study is available for review by all prospective applicants, and will serve as the basis for this project.

There will be a Non-Mandatory Pre-Bid Teleconference on Tuesday, January 13, 2016 at 10:00 am EST. The teleconference number is 336-641-4201.

Submission of Proposals

Submittal of your proposal: Hard copy form: one (1) original + 1 digital copy must be sealed, and delivered no later than the close date and time **Wednesday, January 20, 2016 at 2:00 PM**. Guilford County Purchasing Department utilizes the date/time clock stamp machine located at the receptionist desk in the Purchasing Department. Late responses will **not** be accepted or considered. **No** electronic responses will be considered. Deliver your responses to:

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

All qualifications will then be forwarded to the appropriate department for review and consideration.

Responses will **not** be accepted via email or fax.



Guilford County

STATE of NORTH CAROLINA

Neither a bid deposit nor a performance bond will be required for this service.

The Non-Collusion Affidavit must be fully completed, signed and returned with your proposal. The affidavit can be found in the "Attachment Section" of the event in Strategic Sourcing.

Guilford County reserves the right to reject any or all proposals at its sole discretion or to waive any specific irregularities or formalities in order to accept a proposal deemed to be in the best interest of the County.

All questions must be submitted electronically by means of the Q & A feature within RFP Event 502 in Strategic Sourcing. NO QUESTIONS will be answered by telephone, email, written correspondence or other means except as described herein. Answers to electronic questions properly submitted will be sent out electronically by means of the above described Q & A feature to all properly registered suppliers. There shall be no communication with any Guilford County employee other than by means of the Q & A feature – violation of this requirement may invalidate your proposal. All question(s) responses will be answered as an addendum to this Event #502.

Specific Specifications

Supplier(s) may be required to make an oral presentation of their proposal and qualifications to Guilford County after the RFP Event 502 close. Such presentations will provide an opportunity for the supplier(s) to clarify their proposals and to insure a thorough and mutual understanding. A representative from the Guilford County Facility Department will schedule the date, time and location for any/all oral presentations.

Guilford County's selection of a firm and/or individual(s) for the preparation of a Fire Master Plan shall be based upon the demonstrated competence and qualifications of the firm(s) and/or individual(s) to provide the type of service required. Consideration shall also be given to:

Qualifications

- Multi-person project team.... submittals from project teams without at least three members will not be accepted.
- Curriculum Vitae for project team members is required for submission
- Completed a minimum of three studies in calendar year 2015.... must list studies and a point of contact with each entity
- Extensive Fire Service Background to include: Chief Officer, Nonprofit work, GIS, Budget
- Minimum references – 5 including synopsis of studies and contextual reference to the nature of the study
- Extensive public speaking experience to include presentations to Elected Officials
- Must be willing to sign a confidentiality Statement



Guilford County

STATE of NORTH CAROLINA

- Extensive experience in interviewing Fire Department Chief Officers. Questions should be unique to GUILFORD County and based on objectives
- Combination Department experience required, as well as knowledge of NC Fire Protection law
- Preference to NC and County based experience
- Familiarity with NC Fire Ratings system and ISO requirements required
- 911 Communications background, as related to the dispatch of county and city fire resources
- Experience in presentations to Governmental entities and Fire Departments
- Ability to perform GIS analysis of data provided from common data sets generated from Computer Aided Dispatch systems, to include road network analysis for response distances
- The following type of information could be solicited and kept for each firm:
 - Name, address, and telephone number of the firm
 - Types of services for which the firm is qualified
 - Year the firm was established, as well as former firm names
 - Names of principals and key personnel of the firm and their experience and qualifications
 - Size of staff
 - An illustrative list of recent projects completed for purposes of referral

Award: This will be a single award to the most qualified and responsive supplier meeting all the criteria and qualifications of this RFP.



Guilford County's General Terms and Conditions

1. This bid package serves as official notice that GUILFORD COUNTY is soliciting and will receive bids for the item(s) and/or service(s) stated on the event cover page and outlined in the Bid specifications. Bids shall be submitted electronically via the Purchasing Department's Strategic Sourcing website: www.co.guilford.nc.us/sourcing by the event close date and time specified.
2. All addenda to this bid package will be issued electronically. No oral changes by anyone shall affect this bid package.
3. The official bid price, quote, response for RFP, RFQ, or otherwise instructed; shall be signed by a duly authorized person acknowledging full understanding of the bid information and all addenda. The signature shall be witnessed and the Corporate Seal affixed if a corporation. The exact legal name of the corporation or other entity shall be provided
4. Price quotes shall be net, to include all discounts and delivery charges to GUILFORD COUNTY. In cases of difference between unit price and total price, unit price shall prevail unless otherwise noted.
5. Items and services bid are for delivery or completion as soon as possible unless otherwise stated. Delivery or completion dates could therefore be important in making the award.
6. State and local sales taxes are not to be included in quotes, but they are to be added later to all invoices shown as a separate line item for payment. Federal (sales-excise) taxes, where applicable, are to be included in quotes as they are a part of the purchase price.
7. All Formal Bids will be publicly opened and recorded at the date and time specified by and in the Purchasing Department. It is GUILFORD COUNTY's policy to announce the award electronically. All other information, except that specifically noted by the Supplier as being of a Confidential nature, becomes public record in accordance with GS 132 and other applicable North Carolina laws. All interested parties are invited to attend any Formal Bid opening.
8. GUILFORD COUNTY will have a period of thirty (30) days, unless otherwise stated, after opening to analyze and award to lowest responsive and responsible bidder based on service, quality, delivery date, performance data and price. The successful supplier shall promptly enter into a contract acceptable to Guilford County.
9. All Events/Bids in the Formal Range require the final approval of the GUILFORD COUNTY Board of Commissioners who normally meet in open session two times each month, the first and third Thursday at 5:30 PM. Everyone is invited to attend those meetings.
10. A Bid Deposit may be required. If this is the case, it will be clearly stated in the Event specifications for each package. If a bid deposit is required, it should be no less than 5% of the total bid in cash, cashier's check, certified check, or a Bid Bond. The checks shall be drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation; and, the bond shall be a corporate surety licensed under the State of North Carolina. The obligee in either check or bond shall be Guilford County.
11. If Bid Deposit Checks are received, they will be returned to all suppliers when the successful supplier has been selected and the contract awarded by Guilford County. The successful deposit check will be returned when the required contract has been executed.
12. In addition to the bid deposit or bid bond, some supplier's may require a separate

Performance Bond and/or laborers-materials men's bond as provided by law in the amount of the contract by the awarded supplier(s). If this is required, it will be clearly stated in the bid specifications. In place of a bond; cash, cashiers check, certified check or government securities shall be acceptable.

13. Guilford County reserves the right to reject any or all bids if in the best interest of the County.
14. In case of default by the Supplier, Guilford County shall retain the Bid Deposit or call upon the Bid Bond surety unless otherwise provided by Law.
15. Guilford County's policy is normally Net 30 days upon completion and acceptance. In the case of some longer term projects, Guilford County may choose to release partial payments to the supplier each month based on 90% of the estimated value of the work completed. The final payment will be released within thirty (30) days or less after the satisfactory completion of all work, its acceptance by Guilford County and the settlement of all other claims and accounts.
16. In the case of Continuing Service Type Contracts, payment will be made monthly or as otherwise agreed upon.
17. It is Guilford County's Purchasing Policy to conduct all purchasing within the North Carolina Laws and Guilford County Purchasing Policy, to provide each supplier/contractor an equal opportunity to participate, and to award on a best value basis. In order to accomplish our policy, we intend to make every supplier/contractor aware of each purchasing opportunity. Contracts shall be awarded to the lowest responsive and responsible bidder(s) based on quality, performance and the time specified in the proposal for the performance of the contract. Suppliers/contractors should register online at www.co.guilford.nc.us/sourcing.
18. A Material Safety Data Sheet (MSDS) shall be furnished to Guilford County for all products purchased that contain hazardous material and/or components.
19. Any supplier/contractor performing work on GUILFORD COUNTY property is required to have adequate Liability and Workers Compensation Insurance that will fully protect GUILFORD COUNTY from any damages to property and/or persons caused by the supplier/contractor.
20. The successful supplier shall be required (and is responsible) to take Affirmative Action to employ Disabled Veterans and Veterans of the Viet Nam era, including listing vacancies with the North Carolina Employment Security Commission, under 42 US Code 4212 and applicable regulations thereafter.

The successful supplier shall be required to employ in the workforce only those laborers whose employment is consistent with all applicable State and Federal Laws. The successful supplier, and each subcontractor, shall prior to performance of the work receive clear written evidence from each laborer that said laborer may lawfully be employed. Said evidence shall immediately be submitted to the County. Failure of said Supplier or Subcontractor to receive, retain and/or provide to the County such evidence shall constitute a material breach of the Contract with the County.

21. The Supplier shall take Affirmative Action in complying with all Federal and State requirements concerning fair employment without regard to discrimination by reason of race, color, religion, sex, national origin or physical handicap.
22. The successful Supplier is responsible for compliance with all applicable Local, State and Federal Laws, including all state and local permits, licenses and fees.

23. If the Supplier/Contractor should undergo merger, acquisition or any change in their ownership or their name for any reason, the provider shall immediately notify Guilford County in writing of these changes and provide Guilford County with legal documentation supporting these changes, such as an Assumption Agreement, Bill of Sale, Articles of Incorporation, Articles of Amendment, sales contract, merger documents, etc. Further, the Supplier/Contractor shall submit the name and address of their registered agent for Service of Process and/or all notices required under the contract(s). This contract shall not be assumed or otherwise transferred to another party by the Supplier/Contractor without the express written consent of Guilford County, which said consent will be evidenced by acceptance memo, letter or e-mail from the Guilford County Manager, or designee, to the original Supplier/Contractor under the contract and the assuming Supplier/Contractor.
24. Provider shall operate as an independent contractor for all purposes. The Parties agree to each be solely responsible for their own acts or omissions in the performance of each of their individual duties hereunder, and shall be financially and legally responsible for all liabilities, costs, damages, expenses and attorney fees resulting from, or attributable to any and all of their individual acts or omissions to the extent allowable by law.
25. This contract is governed by the Laws of the State of North Carolina.

Below are the objectives of a comprehensive master plan of the Fire Service in Guilford County. They are organized into priority from RED being a high priority and YELLOW as a medium priority. Also, the County contracted with ESCI for a master plan in 2011 and it is attached for reference. The Goal of the Board of County Commissioners is to assess progress from the previous study and also to look at a comprehensive fiscal analysis of the current operations to create a short term and long term plan for independence of a sustainable, independent county fire system that is integrated with Guilford County government.

HIGH PRIORITY:

Objective No. 1: Risk Management Loss Potential

Elements in the communities of significant risk and affecting suppression capabilities will be reviewed, including but not be limited to:

1. Risk analysis, including relationships between personnel staffing levels (volunteer and paid), fire flows, equipment, training levels, capabilities, and response time
2. Water supply should be specifically evaluated and recommendations made regarding development ordinances and equipment typing (Water supply versus fire demand)
3. Construction trends in the communities, specifically focused on commercial properties, major subdivisions or multiple family dwelling
4. The presence or absence of automatic suppression and extinguishment systems
5. Natural and Man-Made Hazards
6. ISO rating versus insurance rates for commercial and residential coverage and development of an indices based on several carriers

Objective No. 2: Suppression/First Responder Delivery Systems

Review and make recommendations in areas specifically involved in or affecting service levels and performance. Areas to be reviewed shall include, but are not limited to:

1. Facility locations
2. Fire district areas to include current and possible future districts as they relate to response, taxation, insurance and rural protection and service districts.
3. Evaluation of Mutual Aid Agreements, as well as state of automatic and reciprocal aid.
4. Water supplies
5. First Responder
6. Projected community development and growth; Also to evaluate Greensboro, Burlington, Kernersville, and High Point annexation plans
7. Incident control and management
8. Traffic patterns, congestion and calming measures

Objective No. 3: Analysis of Calls for Service

Calls for service shall be documented for each agency for the most recent three calendar years. Key components include but are not limited to:

1. Analysis of the types of calls for service
2. Analysis of call responses within each agency's jurisdiction evaluating number of personnel, appropriate type and quantity of apparatus

3. Response times
4. Establishment of a standards of cover by urban, suburban, and rural as well as response time and manning requirements.
5. Communication/Dispatch delivery (municipal versus county operations)

Objective No. 4: Specialty Technical Rescue Services

1. Evaluation of current capability within the Fire Service for Technical Rescue, HazMat, and Search and Rescue. (NFPA 1006, NFPA 1670 used as standard, as well as compliance with the Guilford County Emergency Operations Plan [GCEOP])
2. Evaluation of current capability of response to WMD incident. (NFPA 1072 used as standard as well as GCEOP)
3. Analysis of the types of calls for service
4. Analysis of call responses within each agency's jurisdiction evaluating number of personnel, appropriate type and quantity of apparatus

Objective No. 5: Staffing (there has been a dramatic shift from volunteer to combination staffing in departments)

Review the career and volunteer staffing levels of the agencies. Areas to be considered include but are not limited to:

1. Administration, Operations and support staff
2. Utilization of career and volunteer company manning.
3. Analysis of personnel numbers within departments as compared to operational roster versus State Fireman's Association roster. (Capture dual rostered personnel)
4. Evaluate training and operational capability relative to certifications (FF1, FF2, MR, EMT, HM Responder Level)
5. Call analysis in relation to response of volunteer versus career.
6. Number of volunteers with interior firefighting credentials versus support personnel.
7. Analysis of volunteers versus retirees, residents/live-ins, paid on call, part time paid and Community College Academy student usage.
8. Responsibilities and activity levels of personnel
9. Volunteer Firefighter requirements (individual department and County-wide)
10. Daily staffing of paid personnel and schedules
11. Cultural diversity

Objective No. 6: Capital Improvement Plans

Identify current and future needs relative to the purchase of necessary capital improvement items including but are not limited to:

1. Definition of capital from budget
2. Fire stations, training facilities and other structures
3. Apparatus (development of a minimum standard by apparatus type to ensure compatibility)
4. Protective equipment (turnout gear, SCBA, etc.)
5. Support equipment
6. Rescue equipment
7. Communications equipment
8. Purchase, maintenance, and ownership of capital equipment

9. Methods of financing capital needs

Objective No. 7: Apparatus and Equipment

Review and make recommendations in areas critical to apparatus and equipment. Items to be contained in the report include but are not be limited to:

1. Age, condition, serviceability and capacity (with a listing that can be imported into WebEOC)
2. Replacement schedule
3. Distribution and deployment
4. Compliance with Regulations/Standards
5. Recommended additions to facilities, apparatus, and equipment
6. Recommended reductions to facilities, apparatus and equipment
7. Maintenance of apparatus
8. Future needs projections.

Objective No. 8: Fiscal Analysis

Review and analyze each department's budgeting process to include revenues, expenditures, reserve funds, and long-term debt ratio to project future financial needs:

1. Review budget
2. Financial controls
3. Identify financial issues of consideration
4. Identify possible areas of short and long-term savings and costs
5. Identify each agency's revenue source(s) and describe impacts of each
6. Identify future financial funding models
 - a. Current funding models
 - b. Stagnation of tax values of county, relative city versus county
 - c. Tax rates relative to current fire service demands
 - d. Sales tax redistribution and future changes
 - e. BOC support for tax rates (Philosophy of incremental increases versus stepwise)
 - f. Capital versus operating
 - g. Capital funding mechanisms
 - h. Debt versus asset ratio
 - i. Radio replacement
7. Methods of consolidation to include but not limited to operational consolidation, administrative consolidation, financial consolidation, and/or merge

Objective No. 9: Planning For Fire Protection and Medical Response

The agencies planning process shall be identified. Key components shall include but are not limited to:

1. Review and evaluate the current planning process
2. Identifying critical issues and analyzing current and future services
3. Recommendations relative to future planning needs
4. GIS overview to include available data sources such as PTRC regional data center, County GIS, County Planning, Municipal GIS and Municipal Planning.

MEDIUM PRIORITY:

Objective No. 10: Organization Overview

An overview of the agencies shall be developed including but not limited to:

1. Responsibilities and lines of authority
2. Organizational structure/Chain of command
3. General description of each fire agency
4. Structure and operational functionality
5. Include the City of Greensboro, City of High Point, City of Burlington and City of Kernersville in relation to their coverage areas within Guilford County.

Objective No. 11: Personnel Management

The personnel management program for career and volunteer personnel shall be reviewed, focusing on:

1. Policies, rules, regulations, and operational guidelines
2. Compensation and benefits
3. Reporting criteria and records management and retention.
4. Analysis of effective fire force for structure fires within the county for host department versus mutual and automatic aid
 - a. Effective manning for:
 - i. Wrecks
 - ii. Med calls
 - iii. Gas leaks
 - iv. HazMat

(NFPA 1710 and 1720 used as standard)

5. Establishment of time frames for effective fire force (Indicate information capture criteria and programs)
6. Disciplinary processes
7. Counseling services
8. Application and recruitment processes
9. Personnel retention programs and issues.
10. Promotional processes to include testing and measuring criteria.
11. Health and Safety programs.

Objective No. 12: Contract Administration

Review and make recommendations relative to contracts with other agencies, to include but not be limited to:

1. Availability, strengths, and weaknesses
2. Compensation (if applicable)
3. Alternatives to the agencies
4. Contract administration and renewal timelines
5. Mutual aid agreements
6. Reciprocal aid (As relates to municipal response into county and county response into municipal)
7. Automatic aid
8. Concurrency of response and calculations of aid given and aid received

9. District area alignment issues. (i.e.: primary response covered by mutual aid)
10. Does mutual aid address current issues

Objective No. 13: Plan for Implementation

A plan of implementation shall be developed as a product of the evaluation. This plan shall include but not be limited to:

1. Major and/or significant projects
2. Responsible parties
3. Schedule for completion
4. Method of evaluating results

Attachments:

- 2011 ESCI Fire Study
- Fire District map with current ratings
- Annexation map
- CIP info from GC Budget
- Equipment and Facility listing from ESCI study.....if separate?
- Proposed Standards of Cover?

GUILFORD COUNTY
HIPAA: BUSINESS ASSOCIATE ADDENDUM

This Business Associate Addendum is hereby made, entered into, and effective as of _____, 2016, by and between GUILFORD COUNTY, ("Covered Entity") and FITCH & ASSOCIATES ("Business Associate"), and collectively referred to as the "Parties."

Definitions

Terms used, but not otherwise defined, in this Addendum shall have the same meaning as those terms in 45 CFR 160.103 and 164.501.

- A. **Individual.** "Individual" shall have the same meaning as the term "individual" in 45 CFR 164.501 and shall include a person who qualifies as a personal representative in accordance with 45 CFR 164.502(g).
- B. **Privacy Rule.** "Privacy Rule" shall mean the standards for privacy of individual identifiable health information at 45 CFR part 160 and part 164, subparts A and E.
- C. **Protected Health Information.** "Protected Health Information" shall have the same meaning as the term "protected health information" is 45 CFR 164.501, limited to the information created or received by the Business Associate from or on behalf of the Covered Entity.
- D. **Required by Law.** "Required by Law" shall have the same meaning as the term "required by law" in 45 CFR 164.501.
- E. **Secretary.** "Secretary" shall mean the Secretary of the Department of Health and Human Services or his/her designee.
- F. **Data Aggregation.** "Data Aggregation" shall mean, with respect to Protected Health Information created or received by the Business Associate in its capacity as the business associate of the Covered Entity, the combining of such Protected Health Information by the Business Associate with the Protected Health Information received by the Business Associate in its capacity as a business associate of another covered entity, to permit data analyses that relate to the health care operations of the respective covered entities.
- G. **Designated Record Set.** "Designated Record Set" shall mean a group of records maintained by or for the Covered Entity that is (i) the medical records and billing records about individuals maintained by or for the Covered Entity, (ii) the enrollment, payment, claims adjudication, and case or medical management record systems maintained by or for a health plan; or (iii) used, in whole or in part, by or for the Covered Entity to make decisions about individuals. As used herein the term "Record" means any item, collection, or grouping of information that includes Protected Health Information and is maintained, collected, used, or disseminated by or for the Covered Entity.
- H. **Electronic Media.** "Electronic Media" shall mean the mode of electronic transmissions. It includes the Internet, extranet (using Internet technology to link a business with information only accessible to collaborating parties), leased lines, dial-up lines, private networks and those transmissions that are physically moved from one location to another using magnetic tape, disk or compact disk media.

Recitals

- A. The U.S. Department of Health and Human Services has issued regulations on "Privacy Standards for Individually Identifiable Health Information," implementing the Health Insurance Portability and Accountability Act of 1996 (the "Privacy Standards").
- B. Covered Entity is a service provider. The U.S. Department of Health and Human Services has issued final regulations, pursuant to the Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), governing the privacy of Individually Identifiable Health Information obtained, created or maintained by certain entities, including health care providers.
- C. Business Associate either 1) performs certain functions for, or on behalf of the Covered Entity involving the disclosure of Protected Covered Entity Health Information ("PHI") by the Covered Entity to Business Associate, or the creation or receipt of PHI by Business Associate on behalf of the Covered Entity; or 2) provides legal, actuarial, accounting, consulting, data aggregation, management, accreditation, administrative or financial services for the Covered Entity involving the disclosure of Protected Health Information ("PHI") by the Covered Entity or another business associate of the Covered Entity.
- D. The parties of this Addendum agree to enter into this agreement to protect PHI, and to amend any agreements between them, whether oral or written, with the execution of this Addendum.

In consideration of the mutual promises and agreements below and in order to comply with all legal requirements for the protection of this information, the parties agree as follows:

General Provisions

- A. **Effect.** This Addendum supplements, modifies and amends any and all agreements, whether oral or written, between the parties involving the disclosure of PHI by the Covered Entity to Business Associate, or the creation or receipt of PHI by Business Associate on behalf of the Covered Entity. The terms and provisions of the Addendum shall supercede any other conflicting or inconsistent terms and provisions in any agreements between the parties, including all exhibits or other attachments thereto and all documents incorporated therein by reference. Without limitation of the foregoing, any limitation or exclusion of damages provisions shall not be applicable to this Addendum.
- B. **Amendment.** Business Associate and the Covered Entity agree to amend this Addendum to the extent necessary to allow either party to comply with the Privacy Standards, the Standards for Electronic Transactions (45 CFR Parts 160 and 162) and the Security Standards (45 CFR Part 142) (collectively, the "Standards") promulgated or to be promulgated by the Secretary or other regulations or statutes. Business Associate agrees that it will fully comply with all such Standards and that it will agree to amend this Addendum to incorporate any material required by the Standards.

Obligations of Business Associate

- A. **Use and Disclosure of Protected Health Information.** Business Associate may use and disclose Protected Health Information only as required to satisfy its obligations under the Agreement(s), as permitted herein, or required by law, but shall not otherwise use or disclose any Protected Health Information. Business Associate shall not, and shall ensure that its directors, officers, employees, contractors and agents do not, use or disclose Protected Health Information received from the Covered Entity in any manner that would constitute a violation of the Privacy Standards if so used or disclosed by the Covered Entity, except that

Business Associate may use or disclose Protected Health Information (i) for Business Associate's proper management and administrative services, (ii) to carry out the legal responsibilities of Business Associate or (iii) to provide data aggregation services relating to the health care operations of the Covered Entity if required under the Agreement(s). Business Associate hereby acknowledges that, as between Business Associate and the Covered Entity, all Protected Health Information shall be and remain the sole property of the Covered Entity, including any and all forms thereof developed by Business Associate in the course of its fulfillment of its obligations pursuant to this Addendum. Business Associate further represents that, to the extent Business Associate requests that the Covered Entity disclose Protected Health Information to Business Associate, such a request is only for the minimum necessary Protected Health Information for the accomplishment of Business Associate's purpose.

- B. Safeguards Against Misuse of Information.** Business Associate agrees that it will use all appropriate safeguards to prevent the use or disclosure of Protected Health Information other than pursuant to the terms and conditions of this Addendum.
- C. Reporting of Disclosures of Protected Health Information.** Business Associate shall, within thirty (30) business days of becoming aware of any use or disclosure of Protected Health Information in violation of this Addendum by Business Associate, its officers, directors, employees, contractors or agents or by a third party to which Business Associate disclosed Protected Health Information, report any such disclosure to the Covered Entity.
- D. Agreements by Third Parties.** Business Associate shall obtain and maintain an agreement with each agent or subcontractor that has or will have access to Protected Health Information, which is received from, or created or received by Business Associate on behalf of the Covered Entity, pursuant to which agreement such agent or subcontractor agrees to be bound by the same restrictions, terms and conditions that apply to Business Associate pursuant to this Addendum with respect to such Protected Health Information.
- E. Accounting of Disclosures.** Within ten (10) business days of notice by the Covered Entity to Business Associate that it has received a request for an accounting of disclosures of Protected Health Information, other than related to the treatment of the patient, the processing of payments related to such treatment, or the operation of a Covered Entity or its Business Associate and not relating to disclosures made earlier than six (6) years prior to the date on which the accounting was requested, Business Associate shall make available to the Covered Entity such information as is in Business Associate's possession and is required for the Covered Entity to make the accounting required by 45 C.F.R. §164.528. At a minimum, Business Associate shall provide the Covered Entity with the following information: (i) the date of the disclosure, (ii) the name of the entity or person who received the Protected Health Information, and if known, the address of such entity or person, (iii) a brief description of the Protected Health Information disclosed, and (iv) a brief statement of the purpose of such disclosure which includes an explanation of the basis for such disclosure. In the event the request for an accounting is delivered directly to Business Associate, Business Associate shall within ten (10) business days forward such request to the Covered Entity. Business Associate hereby agrees to implement an appropriate record keeping process to enable it to comply with the requirements of this Section.
- F. Availability of Books and Records.** Business Associate hereby agrees to make its internal practices, books and records relating to the use and disclosure of Protected Health Information received from, or created or received by Business Associate on behalf of, the Covered Entity available to the Secretary for purposes of determining the Covered Entity's and Business Associate's compliance with the Privacy Standards.

- G. Indemnification.** Each Party ("the Indemnifying Party") hereby agrees to indemnify and hold the other Party harmless from and against any and all liability and costs, including reasonable attorneys' fees, created by a breach of this Addendum by the Indemnifying Party, its agents or subcontractors, without regard to any limitation or exclusion of damages provision otherwise set forth in the Agreement(s).
- H. Insurance.** Business Associate shall obtain and maintain during the term of this Addendum liability insurance covering claims based on a violation of the Standards or any applicable state law or regulation concerning the privacy of patient information and claims based on its obligations pursuant to this Addendum in an amount not less than \$1,000,000 per claim. Such insurance shall be in the form of occurrence-based coverage. A copy of such policy or a certificate evidencing the policy shall be provided to the other Party upon written request. The Parties acknowledge and agree that Business Associate currently has a Cyber Liability policy with limits of not less than \$1,000,000 per occurrence, and is partially self-insured.
- I. Notice of Request for Data.** Business Associate agrees to notify the Covered Entity within ten (10) business days of Business Associate's receipt of any written request or subpoena for Protected Health Information. To the extent that the Covered Entity decides to assume responsibility for challenging the validity of such request, Business Associate agrees to reasonably cooperate with the Covered Entity in such challenge.
- J. Injunction.** Business Associate hereby agrees that the Covered Entity will suffer irreparable damage upon Business Associate's breach of this Addendum and that such damages shall be difficult to quantify. Business Associate hereby agrees that the Covered Entity may file an action for an injunction to enforce the terms of this Addendum against Business Associate, in addition to any other remedy the Covered Entity may have.

Term and Termination

- A. Term.** This Addendum shall become effective on the Effective Date and, unless otherwise terminated as provided herein, shall have a term that shall run concurrently with that of the last expiration date or termination of the Agreement(s).
- B. Termination Upon Breach of Provisions Applicable to Protected Health Information.** Any other provision of the Agreement(s) notwithstanding, this Addendum and the Agreement(s) may be terminated by either Party upon twenty (20) business days written notice to the other Party in the event that the other Party breaches any provision contained in this Addendum and such breach is not cured within such twenty (20) day period; provided, however, that in the event that termination of this Addendum and the Agreement(s) is not feasible, in the Covered Entity's sole discretion, Business Associate hereby acknowledges that the Covered Entity shall have the right to report the breach to the Secretary, notwithstanding any other provision of this Addendum or any Agreement(s) to the contrary.
- C. Return or Destruction of Protected Health Information upon Termination.** Upon termination of this Addendum, Business Associate shall either return or destroy all Protected Health Information received from the Covered Entity or created or received by Business Associate on behalf of the Covered Entity and which Business Associate still maintains in any form. Business Associate shall not retain any copies of such Protected Health Information. Notwithstanding the foregoing, to the extent that the Covered Entity agrees that it is not feasible to return or destroy such Protected Health Information, the terms and provisions of this Addendum shall survive such termination and such Protected Health Information shall be used or disclosed solely for such purpose or purposes which prevented the return or destruction of such Protected Health Information.

- D. The Covered Entity's Right of Cure.** At the expense of Business Associate, the Covered Entity shall have the right to cure any breach of Business Associate's obligations under this Addendum. The Covered Entity shall give Business Associate notice of its election to cure any such breach and Business Associate shall cooperate fully in the efforts by the Covered Entity to cure Business Associate's breach. All requests for payment for such services of the Covered Entity shall be paid within thirty (30) days.
- E. Transition Assistance.** Following the termination of this Addendum and the Agreement(s) for any reason, Business Associate agrees to provide reasonable transition services for the benefit of the Covered Entity.

(The remainder of this page has been intentionally left blank.
This Agreement continues with signatures on the following page.)

Intending to be legally bound, the Parties hereto have caused this Addendum to be executed by their duly authorized representatives.

COVERED ENTITY:

BUSINESS ASSOCIATE:

GUILFORD COUNTY,

FITCH & ASSOCIATES, LLC

By: _____
Marty K. Lawing, Guilford County Manager

By: _____
Printed Name & Title:

ATTEST:

WITNESS/ATTEST:

Guilford County Clerk to Board
(COUNTY SEAL)

Printed Name & Title:

(CORPORATE SEAL)

(The remainder of this page is intentionally left blank.)

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:



2901 Williamsburg Terrace #G ■ Platte City ■ Missouri ■ 64079

P: 816.431.2600 ■ F: 816.431.2653

www.fitassoc.com

CONSULTANT PROPOSAL



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,

A handwritten signature in black ink, appearing to read "Joseph Fitch".

Joseph (Jay) Fitch, PhD
Founding Partner

FIRE MASTER PLAN STUDY GUILFORD COUNTY, NC

TABLE OF CONTENTS

LETTER OF INTEREST	1
EXECUTIVE SUMMARY	1
Our Understanding of Your Objectives	1
BACKGROUND AND EXPERIENCE	2
Description of Fitch & Associates	2
Organizational History	2
Firm Experience & References	4
Pinellas County, Florida	4
City of Burnsville, MN	5
Dallas Fire Department, City of Dallas Texas	5
Contra Costa County, California	6
City of Vancouver Fire Department, Vancouver, WA	6
Lacey Fire Protection District Three, Lacey, Washington	6
Richmond Fire and Rescue Service, City of Richmond, Virginia	7
Hong Kong Fire Service Department	7
Project Team & Success Factors	9
Project Team Members	10
Project Objectivity and Neutrality	13
Published Articles, Lectures, and Presentations	13
PROJECT APPROACH	15
Introduction	15
Fitch & Associates' Methodology	17
Project Initiation and Development of Work Plan	17
Acquisition and Review of Background Information	18
Stakeholders Input	19
Objective 1: Risk Management and Loss Potential	20
Objective 1.1, 1.3, 1.4, 1.5: Community Risk Assessment	20
Objective 1.2: Evaluation of Water Supply	25
Objective 1.6: Evaluation of ISO Ratings versus Actual Premium Experiences	26
Objective 2: Suppression/First Responder Delivery Systems	27
Objective 2.1 and 2.8: Facility Locations	27
Objective 2.2: Fire District Areas	33
Objective 2.3: Evaluation of Mutual, Auto, and Reciprocal Aid Agreements	33
Objective 2.4: Water Supplies	33

Objective 2.5: First Responder _____	33
Objective 2.6: Projected Community Development and Growth _____	34
Objective 2.7: Incident Control and Management _____	34
Objective 3: Analysis of Calls for Service _____	35
Objectives 3.1 and 3.2 _____	35
Objectives 3.3 and 3.4 _____	40
Objective 3.5: Evaluation of Emergency Communications and Dispatch Delivery _____	44
Objective 4: Specialty Technical Rescue Services _____	44
Objectives 4.1 and 4.2 _____	44
Objectives 4.3 and 4.4 _____	45
Objective 5: Staffing _____	45
Objective 5.1: Administration, Operations, and Support Staff _____	45
Objective 5.2, 5.7, 5.8, and 5.10 _____	46
Objective 5.3, 5.4, 5.6, and 5.9 _____	46
Objective 5.5: Call Analysis in Relation to Response of Volunteer versus Career _____	47
Objective 5.11: Cultural Diversity _____	48
Objective 6: Capital Improvement Plans _____	48
Objective 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, and 6.8 _____	48
Objective 6.9: Methods of Financing Capital Needs _____	49
Objective 7: Apparatus and Equipment _____	49
Objective 8: Fiscal Analysis _____	50
Objective 8.1, 8.2, 8.3, 8.4, 8.5, and 8.6: Fiscal Analysis _____	50
Objective 8.7: Methods of Consolidation _____	50
Objective 9: Planning for Fire Protection and Medical Response _____	51
Objective 10: Organization Review _____	52
Objective 11: Personnel Management _____	52
Objectives 11.1, 11.2, 11.6, 11.7, 11.8, 11.9, 11.10, and 11.11 _____	52
Objectives 11.4 and 11.5 _____	52
Objective 12: Contract Administration _____	53
Objectives 12.1, 12.2, and 12.4 _____	53
Objectives 12.5, 12.6, 12.7, 12.8, and 12.9 _____	53
Objectives 12.3, and 12.10 _____	53
Objective 13: Plan for Implementation _____	53
Progress Report from 2001 Fire Master Plan _____	54
Development and Review of Draft Project Report _____	54
Delivery and Presentation of the Final Report _____	54
Project Management and Interaction with Guilford County _____	54
Work Plan and Timetable _____	55
PROPOSED FEES, EXPENSES, AND DELIVERABLES _____	56

FIGURE 1: FITCH CLIENT LOCATIONS	3
FIGURE 2: REVIEW COMPONENTS	17
FIGURE 3: MODERATE RISK OCCUPANCY SITES BY STATION TERRITORY	24
FIGURE 4: EXAMPLE OF PROBABILITY/CONSEQUENCE MATRIX	25
FIGURE 5: ILLUSTRATION OF OVERLAPPING STATION RESPONSE CAPABILITIES	29
FIGURE 6: EXAMPLE OF NEED FOR ADDITIONAL STATIONS AND OPTIMIZED LOCATIONS	31
FIGURE 7: EXAMPLE OF CONSOLIDATED STATIONS	32
FIGURE 8: EXAMPLE OF UNIT HOUR UTILIZATION ANALYSIS	36
FIGURE 9: EXAMPLE OF DEPARTMENT WORKLOAD BY STATION AREA	37
FIGURE 10: EXAMPLE OF AVERAGE CALLS PER DAY BY HOUR OF DAY	38
FIGURE 11: EXAMPLE OF HISTORICAL CALL LOCATION HEAT MAP FOR FIRE INCIDENTS	39
FIGURE 12: EXAMPLE OF STATION RELIABILITY ANALYSIS	43
FIGURE 13: EXAMPLE OF PROBABILITY OF OVERLAPPING OR SIMULTANEOUS CALLS BY STATION AREA	43
FIGURE 14: TURNOUT TIME PERFORMANCE BY STATION AT THE 90TH PERCENTILE	49
FIGURE 15: SHARED SERVICES MODEL - PILLARS FOR SUCCESS	51
TABLE 1: SAMPLE OF STUDIES FROM 2015	8
TABLE 2: PROJECTS AND TEAM MEMBERS	10
TABLE 3: EXAMPLE OF OCCUPANCY LEVEL RISK SEVERITY MATRIX	22
TABLE 4: EXAMPLE OF STATION FIRE RESPONSE AREA RISK CONCENTRATION MATRIX	23
TABLE 5: MARGINAL UTILITY AND OPTIMIZATION OF FIRE STATION LOCATIONS	28
TABLE 6: EXAMPLE OF OVERALL WORKLOAD BY STATION	35
TABLE 7: EXAMPLE OF NUMBER OF RESPONSES BY STATION AREA AND CALL TYPE	37
TABLE 8: EXAMPLE OF RESPONSE TIME CONTINUUM BY STATION AND UNIT	42
TABLE 9: PROPOSED TIMELINE	55
TABLE 10: PROPOSED FEES AND EXPENSES	56

Attachments:

- A – Curriculum Vitae’s
- B – Non-Collusion Affidavit
- C – Articles

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

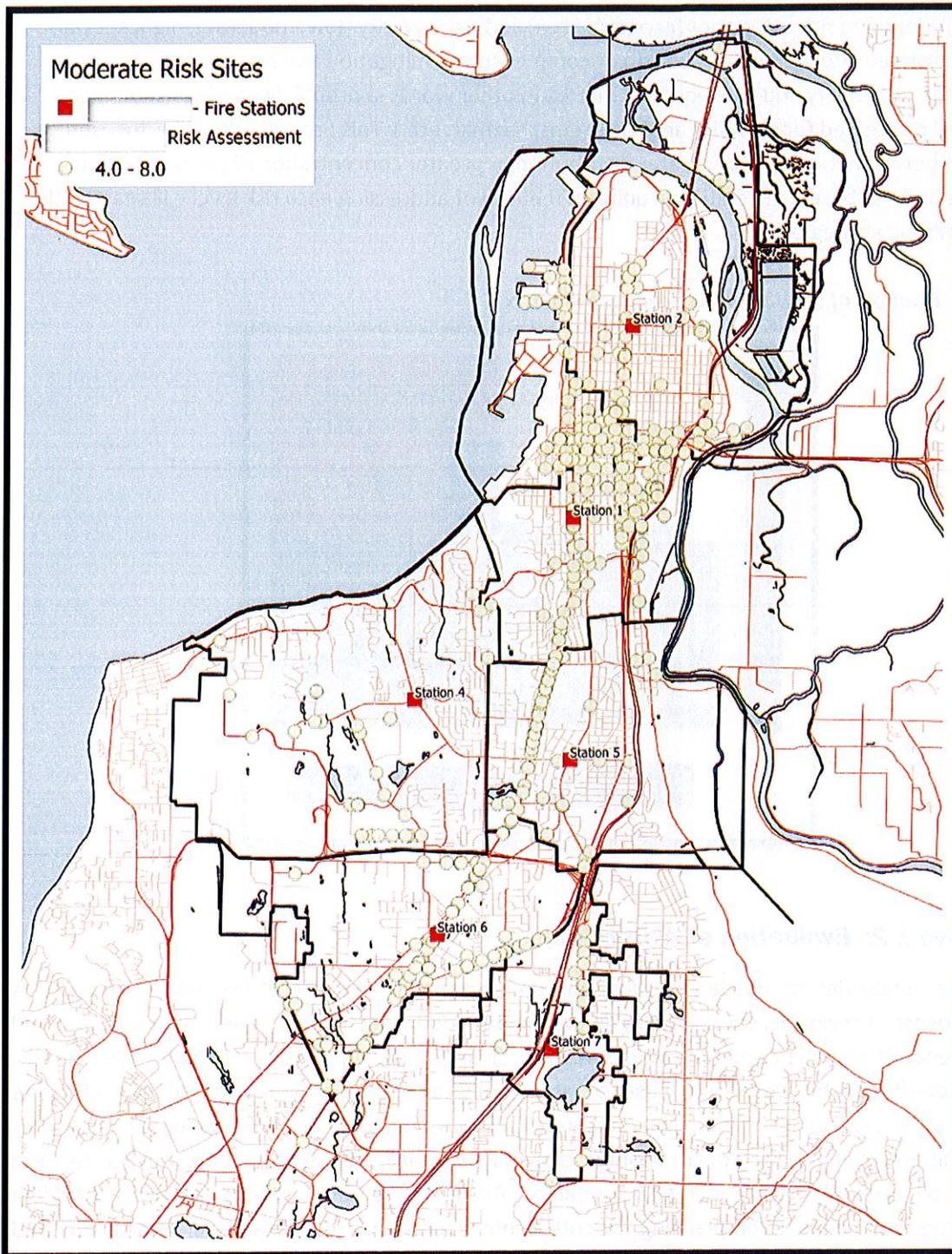
The combination of the prospective risk as defined (in this example) will generate risks that are mapped by station demand zone and quantitatively analyzed within the context of a station level risk matrix. An example of a station level risk matrix that incorporates both the historical demand (risk) 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 (mi ²)		Moderate Risk Occupancies		High Risk Occupancies		Critical Infrastructure Occupancies		Workload (availability)		Total Risk Score
	Value	Scale (mi ²)	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.

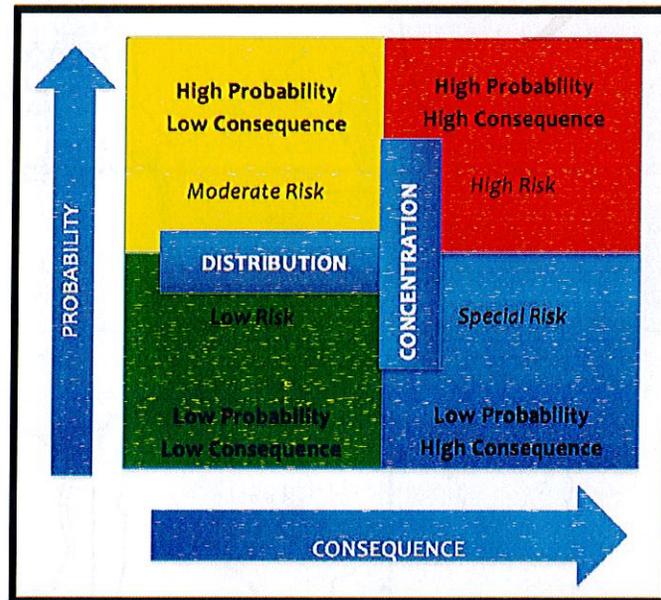
Figure 3: Moderate Risk Occupancy Sites by Station Territory



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.

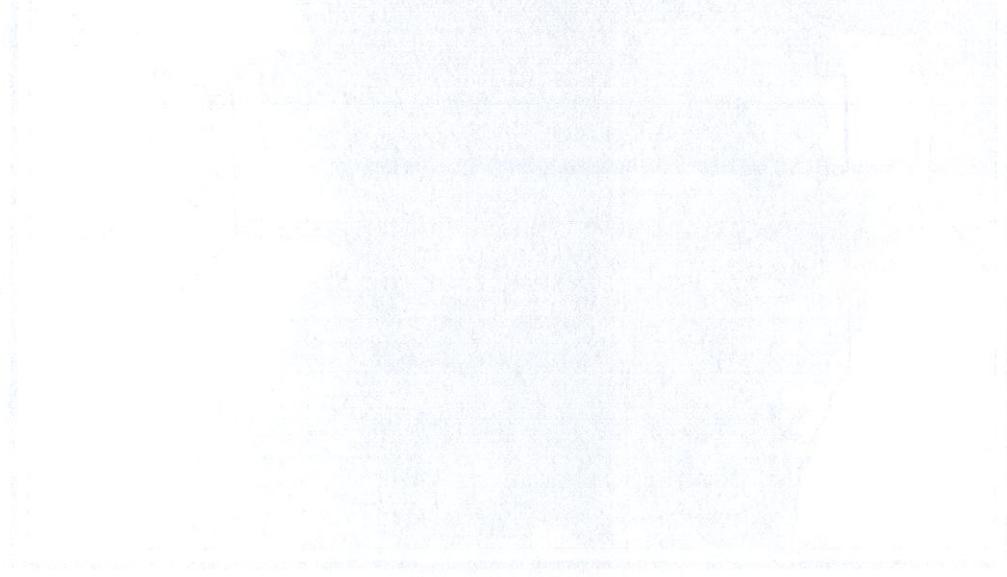
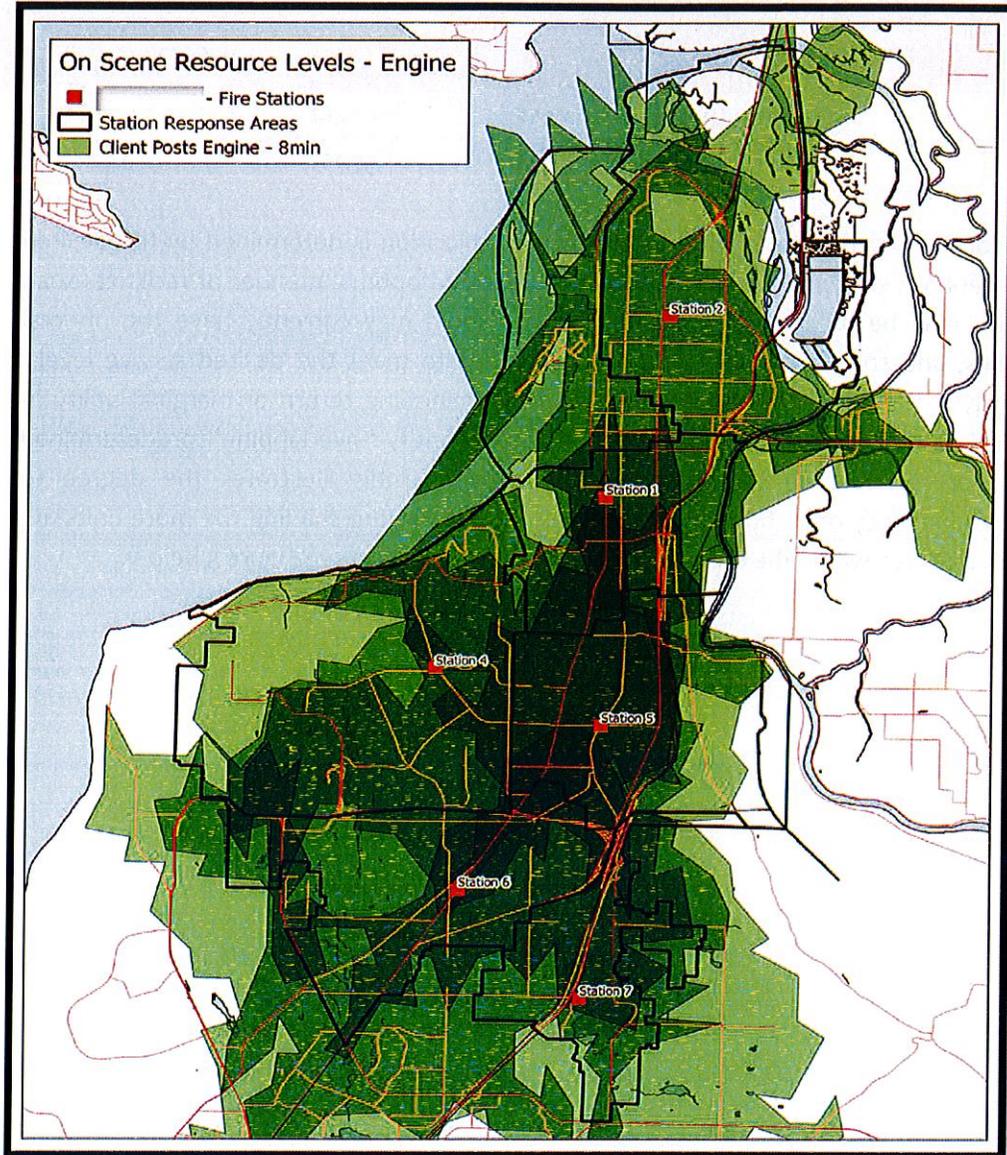


Figure 5: Illustration of Overlapping Station Response Capabilities



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

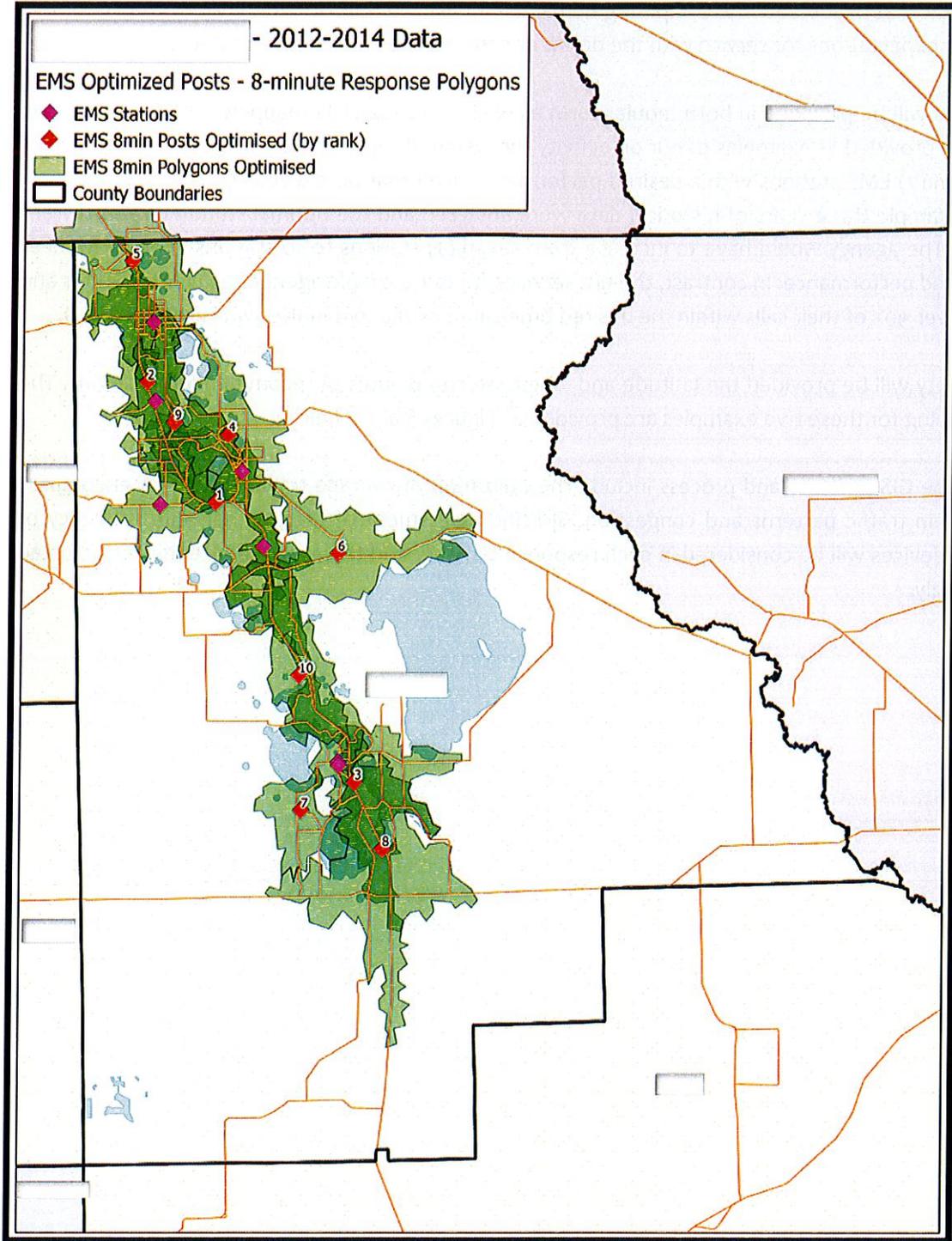
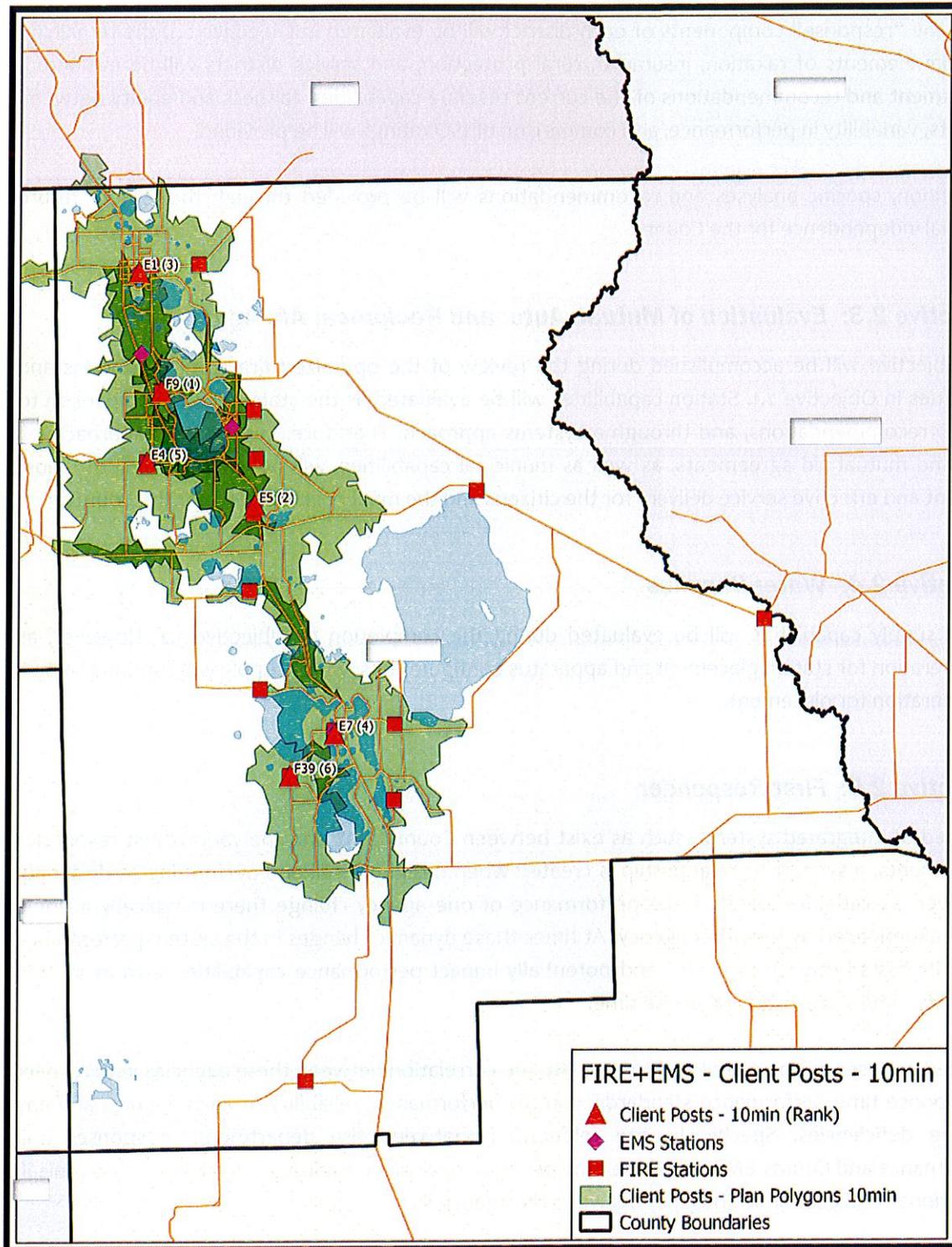


Figure 7: Example of Consolidated Stations



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

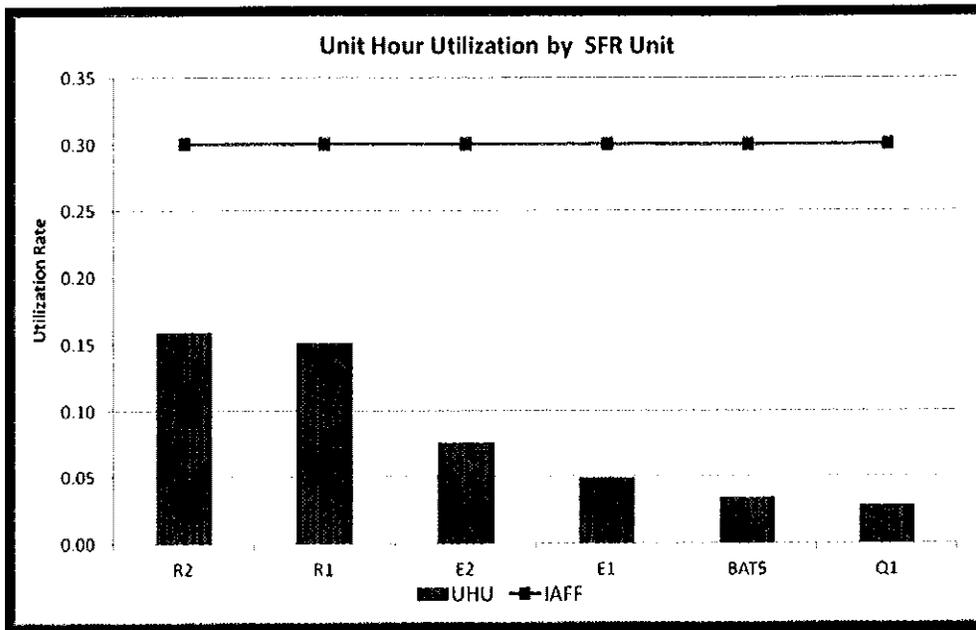
Objectives 3.1 and 3.2

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



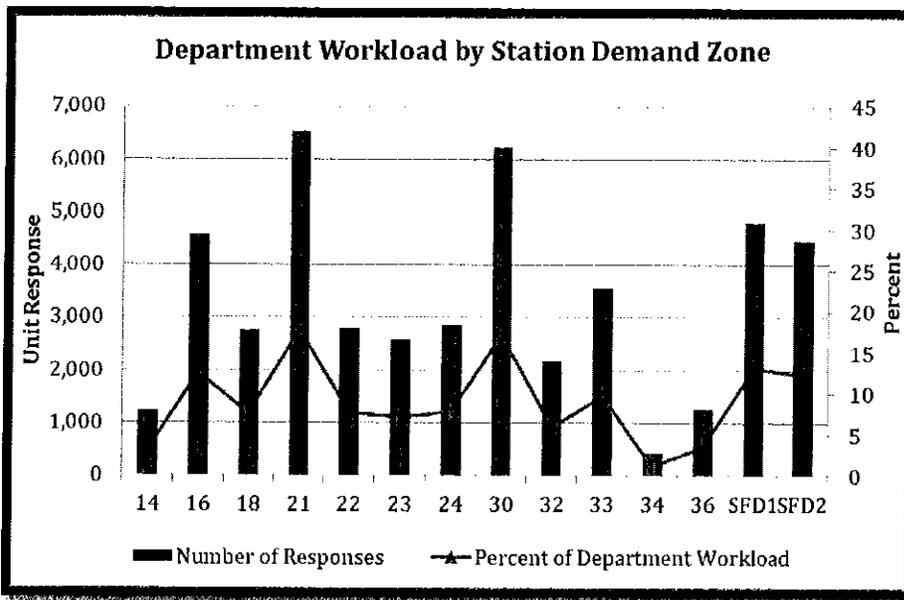
In addition, the type of historical demands for service are examined by each station response area in an effort to validate that the appropriate resources are provided to handle the unique risk profile of the fire station response area. The outcome of these analyses will inform the appropriate staffing,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

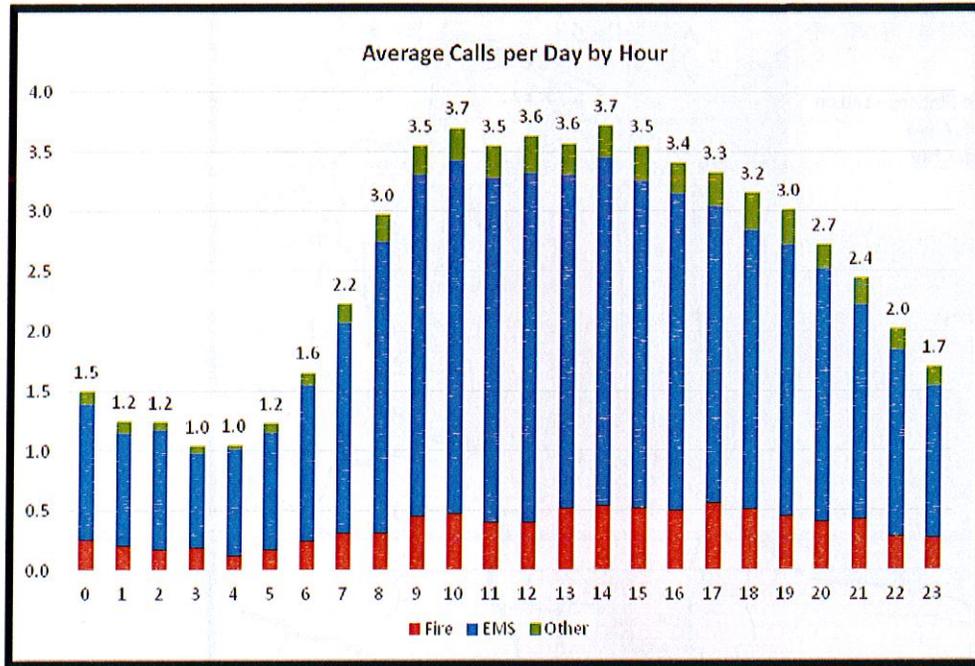
First Due Station	EMS	Fire	Rescue	Hazmat	Mutual aid	Canceled	Total
14	851	283	7	14	0	70	1,225
16	3,679	625	0	27	9	237	4,577
18	2,056	455	3	50	9	177	2,750
21	4,834	1,177	7	43	10	459	6,530
22	1,898	569	0	21	9	306	2,803
23	1,952	428	0	17	33	162	2,592
24	1,840	542	0	40	262	187	2,871
30	4,893	700	0	33	79	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



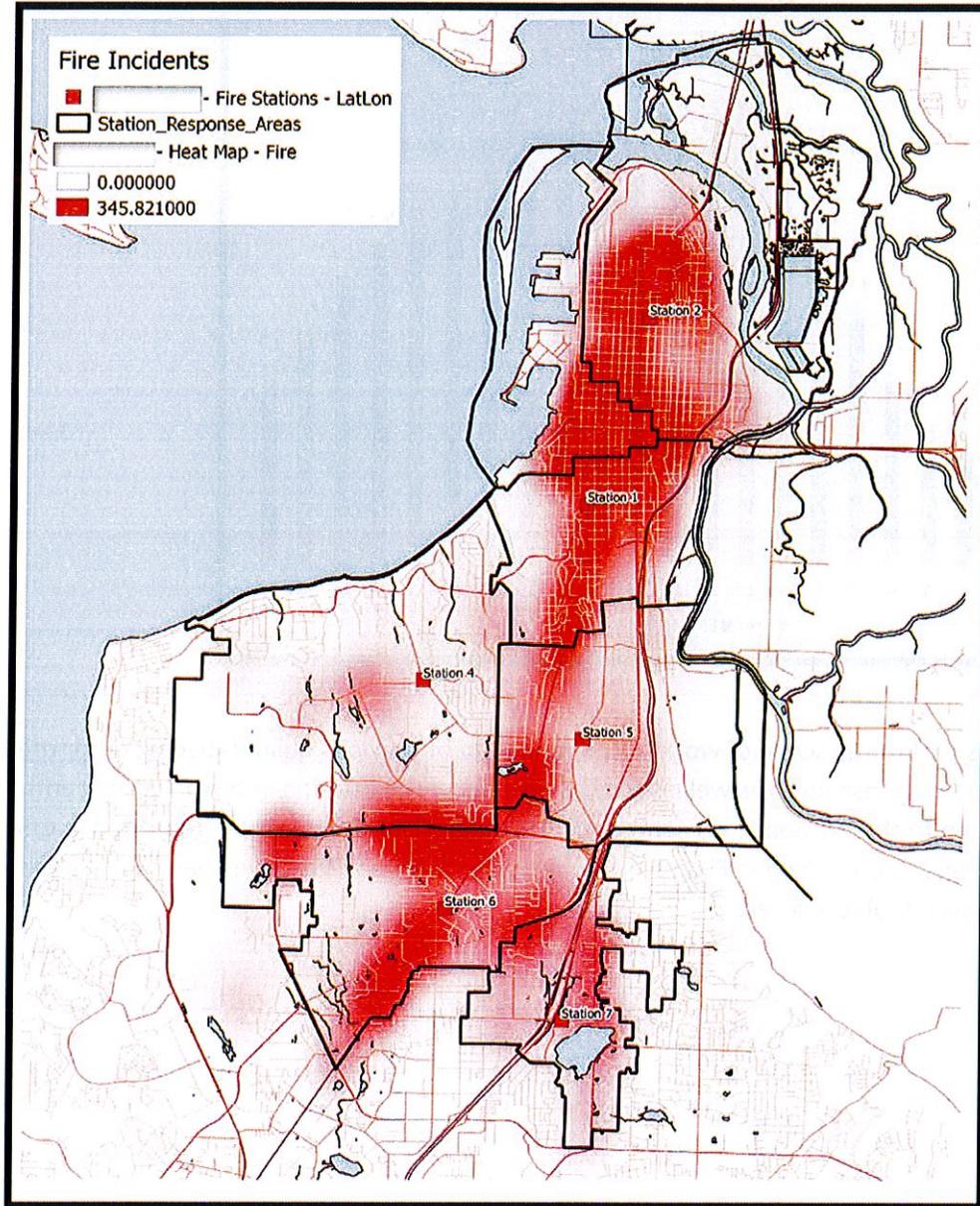
In addition, workload is analyzed by temporal distribution and mapped by station area utilizing GIS. Examples are provided as Figures 10 and 11, respectively.

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.

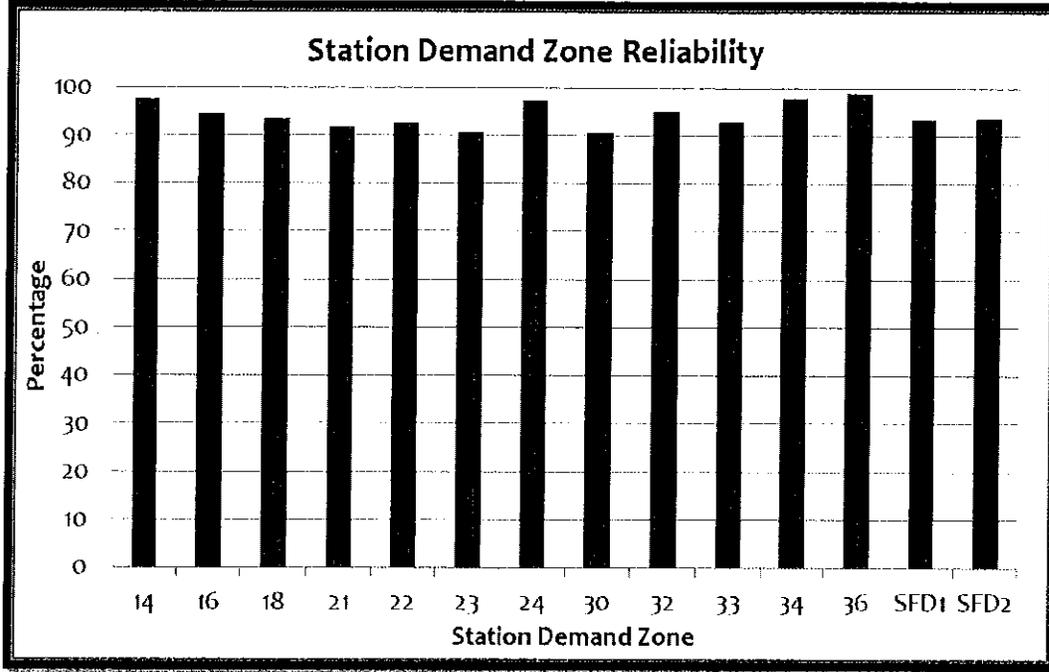
Table 8: Example of Response Time Continuum by Station and Unit

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.

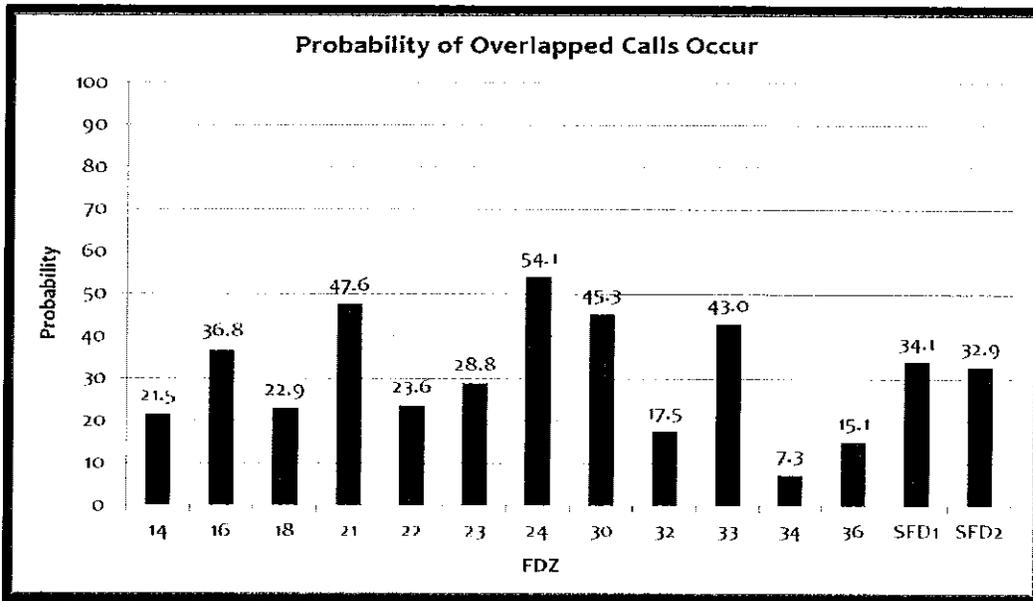
Collectively, these analyses, in conjunction with the GIS analyses previously discussed, will provide a robust assessment of the current station configurations, response areas, unit resource allocation, and the appropriate staffing for each fire station based on objective data specific to the community.

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/EMT) 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.