FITCH
& ASSOCIATES

CONSULTING SERVICES PROPOSAL

City of Leon Valley, Texas

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Tuesday, April 18, 2023

via email transmission

Ms. Lisa Hernandez
Human Resource Director
City of Leon Valley
6400 El Verde Rd
Leon Valley
TX, 78238-2399

Dear Ms. Hernandez

Fitch & Associates (*FITCH*) is pleased to respond to your request for a Standards of Cover and Utilization Study for the City of Leon Valley Texas, Police, Fire/EMT and Public Works Departments. We have reviewed and incorporated your specific needs into this submission and have organized the information requested for clarity. 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 City of Leon Valley. These recommendations will be collaborative, reflect industry standards, and include input from internal and external stakeholders.

Our firm is organized as a Limited Liability Company and is uniquely qualified to submit this response and perform the work required. *FITCH* has designed, developed, and managed some of the world's most innovative emergency services systems. *FITCH* has worked on some of the most complicated geopolitical landscapes in the world. Having worked in every continent in the world on a variety of projects, we understand the complexities that national issues can have on local communities.

On behalf of Fitch & Associates, we appreciate the opportunity to respond to your request for consulting services. Your call is most welcome if there is any additional information I can provide.

Sincerely,

Guillermo Fuentes, MBA

Senior Partner/Chief Operating Officer

ORGANIZATIONAL HISTORY

Fitch & Associates, LLC is a Limited Liability Company initially established as a corporation in 1984. The Firm is located in Platte City, Missouri, a suburb of Kansas City. Our physical mailing address and my contact information are:

FITCH & ASSOCIATES

PO Box 170, 2901 Williamsburg Terrace,
Suite G, Platte City, Missouri 64079

(816) 431-2600

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FITCH has earned credibility for nearly forty years by implementing innovative, customized solutions in the public safety and healthcare arenas. The Firm has consulted with over 1,500 communities in 50 U.S. states, every Canadian Province, and 12 other countries.

Projects have included objective reviews, system assessments, communications system design, consolidations, mergers, strategic partnerships, enhancement studies, and detailed operational, financial, and transition management services.

FITCH's success is attributable to its experience, credibility, and the solid consulting methodologies it develops and applies to reflect individual situations. Our collaborative approach facilitates support for implementation and long-term system stability. Project research outcomes are data-driven and identified within a community-specific, comprehensive, objective, and accurate framework.

QUALIFICATIONS OF THE FITCH TEAM

FITCH's specific strengths for this project are centered on objectively conducting research, managing multiple project priorities, and blending expert and local resources while building support for the outcome(s). Our key strengths include talented and experienced consultants who are leaders in their field, time-tested methods, quality teamwork, timeliness, and the ability to provide tangible results.

Talent

Team members are all subject matter experts and leaders in their fields and have been selected for their particular areas of expertise that match the requirements of this project.

Time-Tested Methodologies

FITCH's experience represents an unparalleled base for the tasks at hand; we have worked with local, state, and federal government agencies, municipal and volunteer fire departments, ambulance services, and hospitals.

Teamwork

FITCH has stayed true to its core values by accomplishing projects using a collaborative approach offering high level involvement for system participants without compromising the independent or objective nature of the project.

Timeliness

FITCH is known for consultant access, responsiveness, producing its work on or before the scheduled completion date and within budget. Timeliness also involves.

Tangibles

FITCH is known for developing innovative solutions to complex issues, and our recommendations and tangible work products have been implemented more frequently than any national public-safety consulting firm.

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

PROJECT CATEGORIES	TEAM MEMBERS
Project Lead	Guillermo Fuentes MBA-Partner
Project Team	Steven Knight, PhD-Partner (Fire/EMS, Public Works) Chief Bruce Moeller, PhD (Fire/EMS Public Works) Chief Melanie Bevan PhD (Police) Gang Wang PhD (Data) Brian McGrath (Geospatial Analysis) Patrick McCauley (Police)

Figure 1: Projects and Team Members

Project Team Members

Guillermo Fuentes – COO/Partner Project Lead. 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 centers 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 Master's Certificate in Management from Tulane University and a Master's in Business Administration from Aspen University.

Chief Steven Knight (Ret.), PhD, Partner Project Oversight - Fire. 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.

Chief Bruce J. Moeller (ret), PhD – Senior Consultant – Fire, Public Works. Dr. Moeller joined the firm in 2017. He most recently served as 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).

Chief Melanie Bevan, EdD. Police Bradenton, Florida PD- Police Lead. Melanie Bevan became the Chief of the Bradenton Police Department in February of 2016. Prior to this, she served the St. Petersburg Police Department for 29 years, retiring at the rank of Assistant Chief at the time of her selection as Chief. She served in a variety of specialized units during her tenure, including Vice and Narcotics Detective, Field Training Officer and Supervisor, SWAT Team Member, Canine Unit Commander, Intelligence Unit Commander, and Street Crimes Unit Commander to name a few.

She is a 2005 graduate of the 219th Session of the Federal Bureau of Investigation National Academy, and a 2006 graduate of the Eckerd College Lasting Leadership Program. In 2012, Chief Bevan was one of 13 law enforcement leaders nationwide chosen to attend the Anti-Defamation League National Counter Terrorism Seminar for Police Executives held in Israel. In 2013, she completed the four-week Cohort of the Naval Postgraduate Center for Homeland Security and Defense, Homeland Security Executive Leaders Program in Monterey, California.

Chief Bevan earned her Bachelor's degree in Criminal Justice from St. Leo University in 1997, her Master's degree in Public Administration from Troy State University in 2001, and her Doctor of Education degree in Organizational Leadership from Argosy

University in 2011. She is an adjunct professor of Homeland Security for State College of Florida. She also performs contract work for the Office of the Commissioner for Major League Baseball.

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.

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.

Patrick McCauley Pat brings with him over 33 years of experience as a police officer with an extensive background of assignments that includes front line, investigative, administrative and leadership duties. His varied experience includes authoring a number of unique police workload assessments. Pat has held a number of leadership positions that have increased progressively in terms of complexity and responsibility. He is a strong proponent of evidence-based policing and developed metrics and reports to effectively evaluate relevant quantitative and qualitative data. Pat is also adept and experienced at managing change, building relationships with stakeholders including police unions, the judiciary, local businesses, community interest groups, local elected representatives, government agencies and private citizens. He is experienced in community consultation and policy writing incorporating legislated standards, case law, and best practice in concise language with clear and transparent quality assurance components. His labor relations experience extends to representing the interests of police leadership at a number of successful mediations and arbitrations and crafting precise and detailed position papers.

SUMMARY OF THE FIRM'S EXPERIENCE

Throughout its almost 40-year history, Fitch & Associates has earned credibility by implementing innovative customized solutions in both the public safety and healthcare arenas. The Firm has consulted with over 1,000 communities in 50 U.S. states and in twelve countries.

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

The Firm specializes in Public Safety consulting. The firm was founded in 1984 and the principals have managed and developed some of the most innovative emergency service systems in the World.

In addition to the two remaining founding partners, *FITCH* has four additional partners, full-time senior associates, IT, research, and support staff members. *FITCH* regularly utilizes more than half a dozen independent consultants that are content and technical experts. Many of our independent contractors have been affiliated with the Firm for a number of years.

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.

Sample Projects:

Holly Springs, North Carolina

Organizational Assessment of the Utilities and Infrastructure Department

Holly Springs, North Carolina retained *FITCH & Associates (FITCH)* to undertake an organizational assessment of the Town's Utilities and Infrastructure Department. Rapid growth in the Greater Raleigh, NC area – and Holly Springs specifically – had placed a significant burden on the current staff capabilities. Typical of most communities that undergo rapid growth, and concurrent change, is the challenge to continue meeting community expectations in service delivery.

The study was to evaluate the services from four perspectives.

1. Analysis of Comparable Communities
2. Community Growth Projections
3. Analysis of Current Organizational Structure, Qualifications, and Staffing
4. Optimized Organizational Design to Meet Future Demands

The report represented a compilation of findings and specific recommendations that were framed around these perspectives. *FITCH* spent time with Town staff to gather direct input on processes and assess qualitatively the existing services. In addition, significant time was spent gathering and analyzing various data sources, many from the Town itself, to quantitatively evaluate the current levels of services and project future population and workload requirements.

Contact for this project is Kendra Parrish, Executive Director of Utilities and Infrastructure. She can be reached at 919-557-3935 or kendra.parrish@hollyspringsnc.gov.

The project demonstrates the firm's experience with quantitative and qualitative analysis of diverse City Departments. To look at several City Departments holistically to enhance public safety and identifying synergistic efficiencies, as well as projecting future demands based on anticipated demand and population growth.

Village of Ashwaubenon Police/Public Safety Department

The village runs all three services, police, fire and EMS, as a singular service. For thirty years there is significant role confusion on which service type deliver the best outcome. The result was over staffing and unsatisfied personnel and unfilled community objectives.

The contact for this project is Allison C. (Swanson) Buckley, Village Manager (retired). Her phone number is 920-562-2602.

Relevance: This is a specific example of assigning the right call to the right resource. In the end operationally for the City of Leon Police, Public Works and Fire Departments it will be the same fundamental challenge getting the right amount of resources to the right place at the right time to meet current and future demands within the context of a specific operational model.

Polk County, FL

Polk County contracted with the firm to assist the agency with an evaluation of fire rescue operations, station locations, and deployment strategies through the development of a Standards of Cover document for the department. *FITCH* completed comprehensive data and GIS analyses that the Department. *FITCH* assisted with recommendations for optimized station locations as well as reviewed multiple sites identified by the County. Ultimately, the County has moved forward with planning for approximately 15 additional fire stations and nearly 30 additional ambulances. The project was completed in the fall of 2018.

Subsequently, the County hired *FITCH* again to complete an Alternative Staffing and Scheduling Study. This project was completed in 2020.

The contact for this project is Fire Chief Anthony Stravino. He can be reached at 954-757-8976 or tony_stravino@icloud.com.

The project demonstrates the firm's experience with Standard of Response Coverage Development, comprehensive quantitative data analyses, station location studies, and GIS analyses that balance local policy with NFPA, CFAI, and ISO guiding documents within the local fiscal and political environment. This study also contemplated optimized staffing strategies within the current staffing matrix.

PROJECT APPROACH

Our project management methodology is a disciplined and structured approach to managing projects. This approach will provide a framework for effective management and completion of this project while providing ample flexibility to meet the unique needs of your organization. Key activities are clearly outlined and logically organized to produce specific deliverables within the period. We will review our progress against our work plan on a regular basis to ensure that we are progressing according to plan. Any deviations will be flagged immediately, and appropriate action is taken, through discussion with you, to address any potential issues.

The following figure graphically illustrates the project approach.

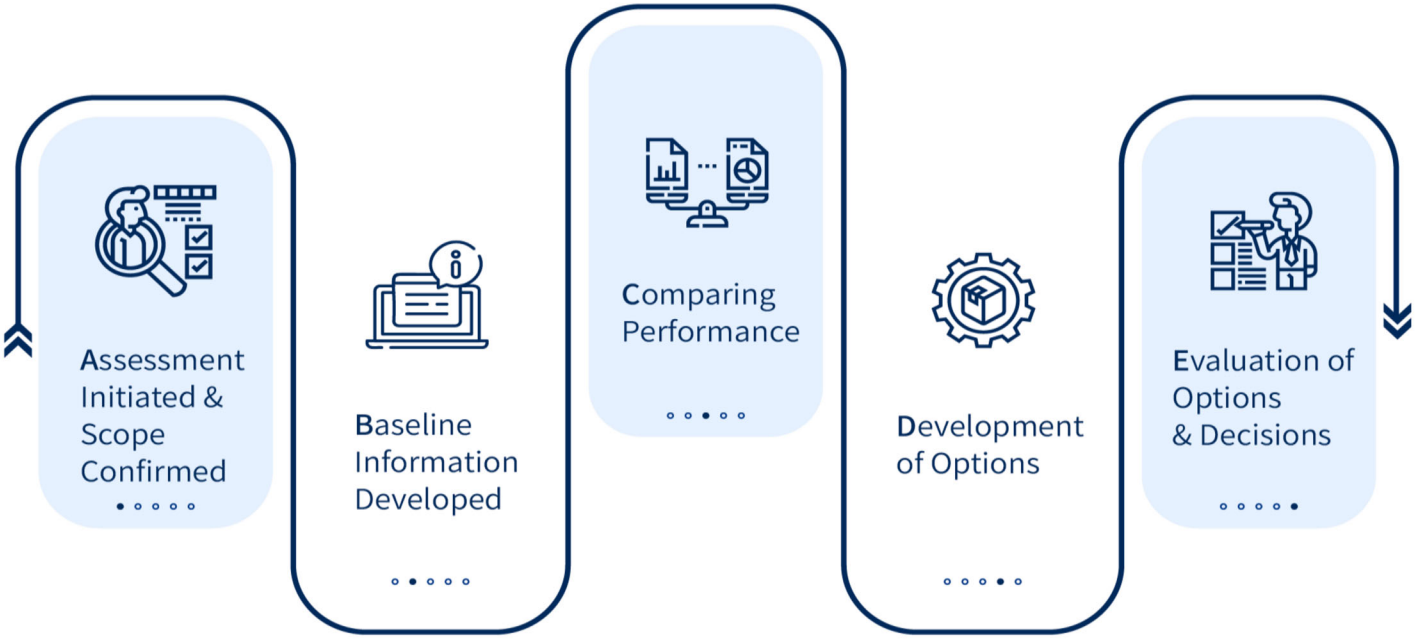

Figure 2 - Project Approach

The phases outlined below include **A**ssessment initiation, **B**aseline information development, **C**omponents and Models, **D**evelopment of responses, and **E**valuation of options and decisions to implement.

A

A kick-off meeting to finalize the work plan and timeline is paramount to a successful study and the ability of *FITCH* to maximize the effectiveness of its team. At the kick-off meeting, an overview of the project's approach will be provided to stakeholders. Any final logistical and scheduling issues will be resolved during this phase.

B

Baseline information is collected and typically includes the following:

- Previous studies and planning documents
- Annual reports and records
- Available response and deployment planning data
- Budgets and expenditure reports
- Relevant performance documentation

Baseline data is collected utilizing an Information and Data Request (IDR) instrument to collect detailed information from the providers, communications center, and stakeholders. This instrument will enable us to access key information about the EMS agency.

C

Comparing Performance to internal and external benchmarks provides a valuable framework for objectively recommending options for improvement.

- Operational Performance & Metrics
- Fiscal Policies and Processes
- Regulatory Environment
- Community Engagement
- Organizational Structure and Effectiveness

D

Development of Options is an iterative process based on reviewing the current situation, organizational capabilities, and the service mandate.

E

Evaluation of Options and Decisions is the stage where the final report is presented in a briefing. This provides a framework to discuss the findings, recommendations, implementation strategies, and timeframes.

Our Approach To Your Requirements

Verification of Data and Development of Reporting Tools

FITCH'S process includes multiple validation and verification checks. For example, when available, the police department's reporting information in their respective Records Management Systems (RMS) will be merged with the raw CAD data from the 911 Center. In this manner, we are able to measure the degree of agreement between local agency records and the 911 Center. Any variability is explored, shared, and discussed with the system stakeholders. If the data cannot be reconciled, we will meet with the client and agree upon which data set has the greatest value. Finally, recommendations for improvement in data collection or record keeping will be offered, if appropriate.

In all cases, draft data will be shared with the system experts for validation and verification at each critical milestone in the study. All geospatial and quantitative analyses will be balanced with information gleaned from onsite work, direct observations, document reviews, and structured interviews.

Finally, recommendations for reporting tools, methods for capturing targeted data, and intuitive data elements for successful and timely management of system performance and outcomes will be offered.

Marginal Utility Modeling:

One of the key features of the Fitch and Associates methodology is the application of marginal utility modeling to human resource management. This approach contextualizes the relative value of additional resources by considering their impact against their cost. Additional or redeployed resources add extra capacity, but there is a point of diminishing returns where their value is outpaced by their additional cost. Public Service Agencies must always balance service provision with the impact of cost from public funds, the Fitch and Associates methodology provides a defensible rationale for adding/redeploying the optimal amount of resources to maximize service gains. Any resource allocation and organizational review is about putting the right amount of resources in the right place at the right time. The Fitch and Associates time tested and comprehensive approach provides a scientific basis to achieve this goal in the way that is operationally effective, reflects the unique needs of the client agency, and balances supply and demand in a cost-effective way.

Evaluation of Workload

POLICE WORKLOAD

A comprehensive review of police workload can be thought of as encompassing four broad aspects of the work:

- Reactive Activities
- Proactive Activities

- Administrative Details and Designations
- General Patrol

Reactive:

The reactive workload is comprised principally of the calls for service information. Collecting objective data from CAD and other sources is a central element of this phase of the project. The demand for service by type of call and time-of-day, day-of-week, and week-of-year patterns is a key element of this analysis. The frequency and patterns of particular call types and priority levels, as well as the average time on call from when it is received to when it is cleared is all information that will need to be gathered. The resulting data set will provide multifaceted information about the reactive workload including call patterns, call complexity, queue time, officer availability, time on call, need for follow up by investigators etc.

Queue, Travel and Response Time

To obtain a comprehensive picture of the reactive workload it is important to consider how that workload affects response time for priority calls. Even in areas where the reactive calls for service demands are relatively low, it may still be necessary to maintain a certain number of resources to be able to respond to serious calls in a timely manner. Response time to in progress priority calls has long been an important benchmark of adequate staffing. There are three related measures that must be considered.

First is queue time, which measures the amount of time it takes dispatch to receive process or partially process the call information, and then dispatch officer to the call. The second component is the actual travel time that it takes for the officer who received the call to arrive at it. Many factors in the environment, including geographic features and traffic patterns influence travel time. The sum of queue time and travel time is response time. This is the measure from the perspective of the caller that it took for the police to arrive at their call.

Target queue, travel and response times for priority calls will be determined in consultation with the City and Police Department officials to allow the Department to set standards and benchmark performance.

Response time for priority calls serves as an important benchmark metric for police resource allocation studies. Response time compliance is an independent risk value for emergency services. It is predicated on having available vehicles strategically placed throughout the communities so that when an emergency call does occur in that community, the vehicle is available to respond and is close enough to the incident to have a positive outcome. Thus, the notion of emergency response is a sum value of vehicles required to respond to calls and vehicles required to achieve response time compliance.

Total vehicles required for emergency calls = (call volume X average time on task) +vehicles required to achieve response time. To determine where resources need to be positioned to achieve these performance goals, we turn to geospatial analysis.

Geospatial Analysis:

Overlaying call response data with a geographic layer to cross reference call and officer availability information is the next step in the process. The geographic analysis determines the location of incidents in order to identify the most efficient placement of resources for an effective response time, this is crucial for the analysis of deployment efficiency. Geographic analysis uses geography

and mathematics in a combined approach in order to visually and thoroughly achieve analysis that cannot otherwise be accomplished. In specific terms, it allows for call data to be cross-referenced with geography so that some observations/conclusions can be drawn. The geographic analysis assists in depicting the total reactive workload and compares the demand to the way area patrol beats are organized and the available officers are deployed.

Proactive Workload:

In addition to the calls for service information, CAD and other data can also assist in depicting the proactive activities of officers. These can include traffic enforcement, citizen contacts, premise checks, foot patrol or any other self-initiated policing activities that are captured in the CAD system or in other records. Most deployment models will want to have time built in at appropriate times of the day for proactive activities to take place. Department and community expectations of what the role of the officer is in the community, and what the core job functions are, greatly impact the proactive activity workload. Police departments that emphasize community outreach, engagement, and problem solving as part of the core responsibilities of frontline police officers typically have an enhanced need for officers to be available during the times when those community engagement activities characteristically need to occur i.e., 9:00 a.m. to 9:00 p.m. Additionally, as part of the analysis, *FITCH* studies the proactive patrol strategies and community policing approaches and quantifies the effectiveness of each.

General Patrol:

One of the measures of workload and capacity is to have a sense of how many officers are engaged in general patrol (i.e., not assigned to a call, an administrative detail, or proactive self-initiated police activity) at a given time.

Available officers on undirected patrol are poised to respond to priority events, (as described in the response time section of this proposal). In addition to emergency response capacity, general patrol as a consideration in the workload provides visibility which contributes to creating a subjective sense of safety (especially important for City Centers, entertainment districts and tourist areas).

Administrative Time:

There are several realities that take away from police officers being available at work to take calls, patrol and do proactive activities. These include lunches and breaks, vacation, training, sick time, on duty court appearances, on duty injuries, vehicle maintenance, meetings etc. A comprehensive picture of workload must include the impact of these administrative tasks on the deployed staffing to accurately gauge the efficiency of the work shift, and deployment pattern. In some studies it has been discovered that administrative time may take up 30% - 40% of officer availability. When thinking about adding officers to an area or task it is important to factor in lost time in order to have a comprehensive picture of availability. For example, If 2 officers were required full time for a particular task, the administrative time analysis may suggest that it is necessary to assign 3 officers to ensure that 2 are always available.

FIRE DEPARTMENT WORKLOAD

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 raw data, all incidents will be geocoded in GIS to generate heat maps Each major call type will receive a specific analysis (fire, EMS, hazmat, technical rescue, etc.).

In summary, the following elements will be evaluated while completing the review of 5-years of historical system performance for the Department and all mutual/automatic aid responses given or received:

- ***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)
- ***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
- ***Effectiveness / Outcome Measures***
  - Call Type, Program Area

The fire study also includes an evaluation of current human resources, an inventory of apparatus capability and condition, a geospatial analysis of station location(s), and metrics on station performance.

PUBLIC WORKS WORKLOAD:

The process for the public works evaluation will include an evaluation of historical call outs and projects, with the individual work assignments being categorized by type, priority, relevant work department, complexity and if the task is planned or reactive. Typically, Public Works Departments do not have the same level of CAD Data detail compared to Emergency Services. In order to yield a comprehensive picture of the current workload data about call outs and projects will be supplemented by interviews with members of the department themselves to add greater clarity and understanding about job-related tasks and workload.

Service Level Expectations

Public expectations about the scope of services provided by the Fire/EMS, Public Works and Police are a key requirement of the consultancy. The *FITCH* team will evaluate the effectiveness of past efforts using a very resident-centric approach. Input will be

collected using sound social science methods to ensure the data gleaned is representative of the entire population, including adequate representation from all groups that comprise the Leon Valley community. Themes and issues that arise will be clarified and explored using focus groups, facilitated discussions, and carefully crafted questions. The result is an in-depth understanding of the concerns of all the stakeholders, ensuring all of the voices are heard, clarifying, and narrowing issues, and finding common themes for actionable change. This adds the value of including qualitative richness, lived experience, and perception to consider and include as part of recommendations that will resonate with all of the diverse groups in the community.

For the police specifically, the RFP also requires the consultant to evaluate the full range of calls for service to which the police currently are asked to respond. In many instances the police are one of the few municipal services who are available 24 hours a day 7 days a week and so become the public's call of first and last resort to deal with many issues. Often an analysis of call types will reveal certain activities or responsibilities the police have assumed that could be more effectively and/or economically dealt with by another municipal or private service provider. In other instances, the analysis may suggest a hybrid approach where the police could work synergistically with another entity to solve a community issue more thoroughly and permanently than either agency could do in isolation.

The analysis may also indicate that certain roles being performed by fully qualified and trained officers in the department could more efficiently and economically be dealt with by civilian employees, limited-commission officers or reserve officers. This review of call types and responsibilities will assist the City in clarifying and refining their vision for the Police Department and their role in the community at present and into the future.

Best Practices

FITCH will perform a comparative analysis utilizing cities that resemble the size, demography and situational context of Leon Valley. The comparator communities will mirror the unique characteristics of Leon Valley, including the impact of being situated near a larger metropolitan city. The scope of that analysis will include a review of relevant best practices and quantify comparison variables defined in consultation with the client. *FITCH* also provides a robust review of best practices of City Departments as part of their methodology, and the team provides possesses a deep and practical understanding of the opportunities and complexities, standards and advantages, of implementing best practices across a wide variety of public safety and public service disciplines.

Critical Task Analysis

Ensuring public safety is the most important role a municipality can provide for its community and visitors. This consultation will include an evaluation of the most critical safety related duties and functions performed by the Police Fire/Ems and Public Works departments. Knowing that events which have high risk impact and low frequency present the biggest threats for systemic failure, FITCH will examine the frequency and severity of past events and the likelihood of those events recurring in the future in order to prioritize them. Fitch will then break each of these critical tasks down into sub-tasks, looking for potential avenues for a crucial failure in the execution of the subcomponents. As with any process review, the current practice will be examined for compliance with any regulatory statute, municipal practice or bylaw and other guidelines. Process maps will be developed to ensure all procedures and workflows are clearly understood and reflect current practices. During this exercise it is commonplace to also identify areas of policy and/or practice that need to be updated or better explained, that conflict with or contradict another existing

policy, or that provide an opportunity for synergy by combining those functions into a more comprehensive policy. Through consultation with workers and City managers, and a review of the relevant policies/Statements of Procedure, safeguards can then be included in the subprocesses to negate the opportunity for systemic failures during events that threaten public safety. Options for improvement will be made in consultation with the relevant agencies and City Managers, and will reflect best practices.

3rd Party Supports

An efficiency and standards of cover review must necessarily consider services provided by 3rd Party supports to look for efficiencies, opportunities, and sustainability. In terms of Leon Valley the status quo will be evaluated in its current state and also projected three, five and ten years into the future to consider their viability. For the police specifically, this review has been asked to include dispatch, jail and records services.

While the frontline workload analysis is often very data heavy due to CAD systems and the connection to the calls for service, the workload of support agencies and the systems used to track it, are often less well defined and maintained. The quality of the analysis and insights gleaned from it will be a direct reflection of the data quality. New systems and metrics may be identified to enhance future analyses, and to track the effects of any recommendations that the Department elects to enact to improve performance. The data set will be supplemented by direct observation, interviews with members who utilize the third-party service, comparisons with peer departments investigative units, and established best practices.

Recommendations for increased efficiency will be shared and will then be refined with input from the City leadership and final evaluated options will be presented. A key component of these recommendations is the inclusion of quality control and audit strategies to ensure amendments are being complied with, and achieving the desired result supported by objective data. It is important for the Fitch team to also evaluate the interplay between the different policies being evaluated to identify synergies and efficiencies, and opportunities for the Department now and into the future.

Red Light Camera Elimination

Leon Valley is perhaps the sole remaining area in Texas that still has a red-light camera program still in place largely due to a contractual obligation with the vendor through 2039. It is anticipated that at some point in the not-too-distant future either legislative action or some sort of resolution will take place that will effectively eliminate this unpopular program and the associated enforcement in revenue stream it represents the city and the Police Department. The impacts represented by the ending of this program and its effect on enforcement workload, the administrative workload to support it, and the financial impact of the lost revenue are all components that need to be considered while making recommendations for the strategic future of the Police Department.

Strategic Direction

Too often, City Departments grow organically, rather than strategically, in direct response to the day to day, reacting to transient events, or emerging issues. This results in sporadic and haphazard growth with little consideration of the larger picture, the long

term, the opportunity for efficiencies, or consideration of the implications the new unit or initiative will have for the future and how/where it bests fits in the service delivery model. The workload analysis will reveal an in-depth depiction of current demands and predict challenges and opportunities that lay ahead. That workload analysis will be further informed with a clear concept of Critical Task capacity, current resourcing, community expectations, best practices and a clear and relevant set of priorities with re-affirmed, adjusted, or new goals and objectives. Recommendations about department organization and span of control and operations will lay a clear path towards a preferred future and help all employees of the organization know what to focus on when planning operations and new initiatives. Initial recommendations will be shared with City and Department Leadership for further collaboration and discussion and final evaluated options will be presented.

Resource Assessment (Police, Fire/EMS & Public Works)

The analysis of the respective workload requirements for Police, Fire/EMS and Public Works (including emergency response time capacity) collectively determines the demand for services in a very complete and comprehensive way. The next step is the look at how and where the human resources are currently deployed by time of day, day of week, etc., to determine if the supply is capable of meeting the demands of the workload and the community expectations of performance.

An inclusive model can then be determined which will meet the demand for service with a plan that normalizes the ideal amount of employees, with the most efficient deployment of those human resources in terms of home locations and shift schedules. The model will also reflect community expectations about service levels, the impact of recommendations to achieve best practices, the strategic direction and priorities of the City Leadership, and any synergies and efficiencies revealed during the analysis and will be moderated by considering the marginal utility of additional resources and efficiencies now and in the future.

The analysis will indicate times when the respective department may be understaffed to meet the demand, or overstaffed based on the workload, and provide alternatives to reach a better fit by exploring options for operational methodologies, shift patterns, or adding/repositioning staff. The findings may also suggest improvements regarding fire station locations, and opportunities to consolidate stations or equipment to achieve a better Standard of Cover. The police component will look at beat assignments and staffing to achieve better response times, and community safety objectives.

As required by the RFP, the evaluation of the Police Department will also include recommendations concerning the specific shifts being worked by officers to see if there is a more efficient methodology to meet the workload as well as an analysis of the relevant administrative support functions in the supervisory workload in order to ensure that there are enough supports in place to maximize the efficiency of the police department's resources. The workload and resource assessment portions of the workload study will provide a detailed and reliable picture of the current state of supply and historical demand for Police, Fire/EMS, and Public Works resources, and a well-reasoned, defendable plan of action to provide sensible and sustainable public safety for the people of Leon Valley.

Timeline for Completion

	Month 1	Month 2	Month 3	Month 4
Kick-Off Meeting, Refine Work Plan and Scope, and Meet with Stakeholders				
Overview of the Departments and Currently Provided Services				
Gather baseline Information, Data Collection and Analysis				
Analysis of CAD Data, Geographic Analysis				
3rd Party Support Units and processes review				
Assessment of operations versus best practices and industry standards				
Analysis of Current Organization, Structures, Deployment, Staff, Management, and Communications				
Maximizing Efficiencies, and Identifying Opportunities for Improvement				
Development of Draft Report				
Draft Of Final Report				
Proposed Onsite Visits	#1	#2		#3

Figure 3: Project Schedule

ATTACHMENT A:

REQUIRED FORMS

FITCH
& ASSOCIATES

PRICE PROPOSAL FORM

Please include the total price for each Scope of Work. Firms may submit proposals for one or both studies. Each price shall be for a not to exceed amount and shall include reimbursable expenses. The City reserves the right to negotiate proposed amounts with the selected firm(s).

1. **Police Department Standards of Cover and Utilization Study** $ 35,000 **
2. **Fire and EMS Department Standards of Cover and Utilization Study** $ 35,000 **
3. **Public Works Department Standards of Cover and Utilization Study** $ 25,000

** If both the Police and Fire/EMS Standards of Cover and Utilization Studies are awarded, the combined cost of these two will be reduced to $50,000.

The individual signing this certifies that he/she is a legal agent of the Company, authorized to submit on behalf of the Company, and is legally responsible for the decisions as to the supporting documentation provided.

COMPANY

Name: Fitch & Associates LLC

Authorized Representative

Printed Name: Roxanne Peek

Title: Partner/CAO

Email Address: rpeek@emprize.net

Phone Number: 816-431-2600

Signature: Roxanne Peek

Date: May 3, 2023

CERTIFICATE OF INTERESTED PARTIES

FORM 1295

Complete Nos. 1 - 4 and 6 if there are interested parties.
Complete Nos. 1, 2, 3, 5, and 6 if there are no interested parties.

OFFICE USE ONLY
CERTIFICATION OF FILING

Certificate Number:
2023-1014909

Date Filed:
05/02/2023

Date Acknowledged:

1 Name of business entity filing form, and the city, state and country of the business entity's place of business.
Fitch & Associates LLC
Platte City, MO United States

2 Name of governmental entity or state agency that is a party to the contract for which the form is being filed.
City of Leon Valley

3 Provide the identification number used by the governmental entity or state agency to track or identify the contract, and provide a description of the services, goods, or other property to be provided under the contract.
12345
Staffing Utilization Study

4 Name of Interested Party	City, State, Country (place of business)	Nature of interest (check applicable)	
		Controlling	Intermediary
Knight, Steve	Platte City, MO United States	X	
Fitch & Associates LLC	Platte City, MO United States	X	
Peek, Roxanne	Platte City, MO United States	X	
Minge, Anthony	Platte City, MO United States	X	

5 Check only if there is NO Interested Party. ☐

6 UNSWORN DECLARATION

My name is Roxanne Peek, and my date of birth is March 17, 1970.

My address is 2901 Williamsburg Terr Ste G; PO Box 170 (street) Platte City (city), MO (state), 64079 (zip code), USA (country).

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Platte County, State of Missouri, on the 2nd day of May (month), 20 23 (year).

Roxanne Peek

Signature of authorized agent of contracting business entity
(Declarant)

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/23/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Mary Busch
Alliant Insurance Services, Inc 32 Old Slip New York NY 10005	PHONE (A/C, No, Ext): FAX (A/C, No):
	E-MAIL ADDRESS: Mary.Busch@alliant.com
License#: 0C36861	INSURER(S) AFFORDING COVERAGE / NAIC #
	INSURER A : Federal Insurance Company — 20281
INSURED	INSURER B : Hartford Insurance Company of — 37478
Fitch & Associates LLC Emprize Group LLC PO Box 170 Platte City MO 64079	INSURER C :
	INSURER D :
	INSURER E :
	INSURER F :

COVERAGES **CERTIFICATE NUMBER:** 2041386487 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			35996881	2/12/2023	2/12/2024	EACH OCCURRENCE	$ 1,000,000
	[ ] CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	X POLICY [ ] PRO-JECT [ ] LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	[ ] OTHER:							$
A	AUTOMOBILE LIABILITY			(23)7358-31-42	2/12/2023	2/12/2024	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	[ ] ANY AUTO						BODILY INJURY (Per person)	$
	[ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	X UMBRELLA LIAB X OCCUR			7988-91-98	2/12/2023	2/12/2024	EACH OCCURRENCE	$ 8,000,000
	[ ] EXCESS LIAB [ ] CLAIMS-MADE						AGGREGATE	$ 8,000,000
	[ ] DED X RETENTION $ 0							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A		10WECIO6094	2/12/2023	2/12/2024	X PER STATUTE [ ] OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Evidence Of Insurance

CERTIFICATE HOLDER

Evidence Of Insurance

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/23/2023

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PRODUCER Alliant Insurance Services, Inc. 32 Old Slip New York NY 10005	**CONTACT NAME:** James DeLauro **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:** James.DeLauro@alliant.com
	INSURER(S) AFFORDING COVERAGE — **NAIC #**
	INSURER A : Allied World Surplus Lines Ins — 24319
INSURED EMPRGRO-01 Fitch & Associates, LLC Emprize Group, LLC PO Box 170 Platte City MO 64079	**INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 854490854 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liability			03137106	2/12/2023	2/12/2024	Limit of Liability	$3,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

To Whom it May concern

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 2/23/2023

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PRODUCER Alliant Insurance Services, Inc. 32 Old Slip New York NY 10005	**CONTACT NAME:** James M. DeLauro **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:** James.DeLauro@alliant.com
INSURED EMPRGRO-01 Fitch & Associates, LLC Emprize Group, LLC PO Box 170 Platte City MO 64079	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** Arch Specialty Insurance Compa / 21199 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 1881150605 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	☐ CLAIMS-MADE ☐ OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
							PERSONAL & ADV INJURY	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$
	☐ POLICY ☐ PRO-JECT ☐ LOC						PRODUCTS - COMP/OP AGG	$
	☐ OTHER:							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ONLY ☐ NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						☐ PER STATUTE ☐ OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**	N / A					E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Cyber Liability			C4LPX253129CYBER2023	2/12/2023	2/12/2024	Limit of Liability	$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

To Whom it May concern

CANCELLATION

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AUTHORIZED REPRESENTATIVE

ATTACHMENT B:

SAMPLE REPORTS

FITCH

& ASSOCIATES

October 2021

DRAFT
Long-Range Master Plan

Burleson Fire Department
Burleson, TX

Prepared by:

FITCH & ASSOCIATES, LLC
2901 Williamsburg Terrace #G ▪ Platte City ▪ Missouri ▪ 64079
816.431.2600 ▪ www.fitchassoc.com

CONSULTANT REPORT

BURLESON FIRE DEPARTMENT
Long-Range Master Plan

TABLE of CONTENTS

EXECUTIVE SUMMARY

The City of Burleson Fire Department (BFD) engaged Fitch & Associates (*FITCH*) to undertake the development of a Master Plan for the department. The objective was to evaluate the department against industry best practices, National Fire Protection Association (NFPA) standards, and other applicable laws and regulations. To meet this intent, three basic questions were asked: 1) Where is the organization today?; 2) What demands for service can be anticipated based on future growth?; and 3) How can the department best prepare for the future?

The City of Burleson's Fire Department currently provides fire and emergency medical services (EMS) is an effective and efficient manner. The organization is staffed with a motivated workforce who expressed continued desire to enhance the agency's capabilities, while ensuring an efficient operation. A number of organizational and administrative recommendations are made in this review, however, two major themes emerged. The first major theme that emerged related to EMS and the provision of ambulance transport services. The city currently provides timely EMS first response at the paramedic level, with MedStar providing the ambulance transport component when required. Analyses demonstrate that the city could provide ambulance transport services in a significantly improved response time. In addition, the existing requirement to transfer 911 calls to MedStar creates a further delay not captured in the data presented here.

From a policy perspective, with the city's current investment in EMS, existing timelier response times, capability to directly provide all 911 services for EMS, and capacity to ensure continuity of care, the city is well-positioned to directly define and operate the desired level of EMS services for Burleson's residents, businesses, and visitors. Therefore, the major recommendation is for BFD to begin the assumption of ambulance transport services while achieving that goal in a fiscally responsible manner.

The second major recommendation is associated with managing growth for the future and specifically the justification for a fourth-fire station in the Chisolm development area. As population growth, development, and community demands continue to expand, the city will need to objectively assess the department's performance on an ongoing basis. As community demand increases, additional investments in capital (fire stations and apparatus) and recurring needs (e.g., personnel), will allow the City Council to rapidly adjust to ensure performance and effectiveness continue to meet or exceed community expectations. A system of "triggers" or thresholds were provided to help guide policy for when to make system adjustments.

COMMUNITY & CITY CHARACTERISTICS

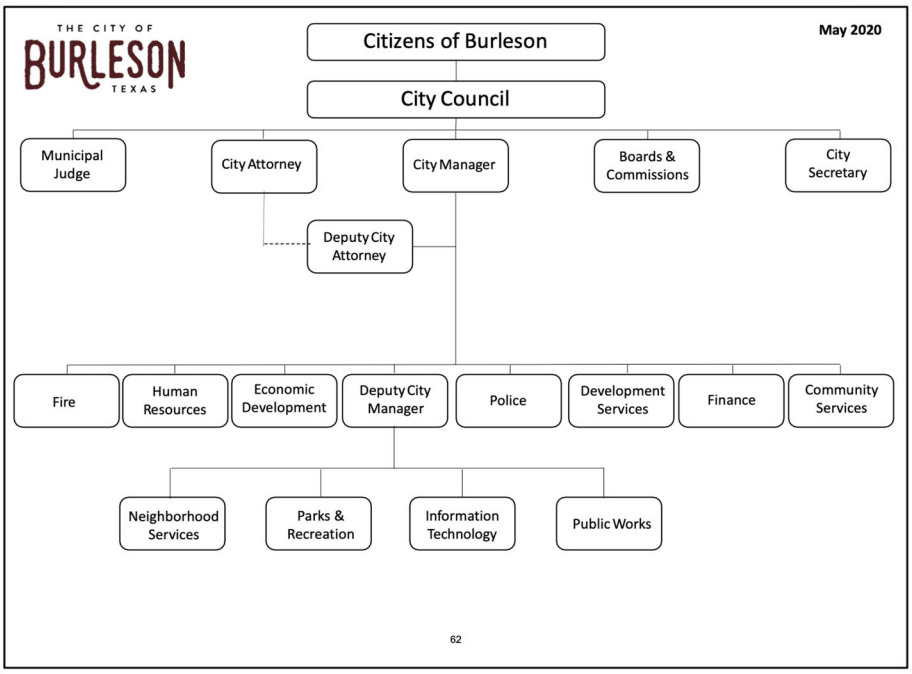
OBSERVATION: The City is a fiscally sound community, serving a growing and educated population, with a high set of community expectations for municipal services.

Burleson, Texas is located within the greater Dallas/Fort Worth metropolitan area with a population of 48,225 (July 2019 estimate) encompassing a land area of 28.8 square miles.[1] The extraterritorial jurisdiction (ETJ) is estimated at an additional 26 square miles. Compared to the State of Texas and the United States overall, Burleson is slightly younger, makes greater use of technology, and has a higher household income.[2] The city is well situated for future growth, both residential and commercial/institutional, based on its prime location along the I-35W. The city has experienced a 2% to 4% annualized population growth over the past decade, and inclusive of its ETJ, the anticipated population is expected to approach between 70,000 to 80,000 within the next 20 to 30 years. Discussions with City Planning personnel reflect projects that will focus on residential development along with supporting commercial and medical facilities. Overall, this type of development and anticipated value suggests positive growth, essentially with a heavy focus on family-friendly development serving the needs of a largely commuter population. It is worth noting that this type of development, with a younger, more affluent, and educated population, typically has less demand on public safety services, but with a concurrent set of higher expectations for municipal services.

The city operates under a council/manager form of government and provides the full spectrum of community services including fire, police, and 911. The fiscal year (FY) 2021 budget is nearly $145 million, of which the General Fund is $43.9 million. While the General Fund increased by 7%, the actual tax rate dipped slightly to its lowest level in the past five years. Overall, the city appears to be on a solid fiscal trajectory.

[1] U.S. Census Bureau Quick Facts. Accessed at https://www.census.gov/quickfacts/fact/table/burlesoncitytexas,TX,US/PST045219 on August 8, 2021.
[2] Ibid

Figure 1: Burleson, Texas Organizational Chart



Three specific areas of responsibility fall under the direction of the Fire Chief. The fire/EMS budget is $7,367,863 for the current fiscal year with an authorized strength of 49. The Fire Marshal's Office has a budget of $781,163 with four FTEs, and Emergency Management has a single FTE with a budget of $233,322.[3]

[3] City of Burleson, Texas Adopted Annual Budget for FY 2020-2021. Accessed at https://www.burlesontx.com/DocumentCenter/View/21877/GFOA-FY-2020-2021-Adopted-Budget-Book on August 8, 2021

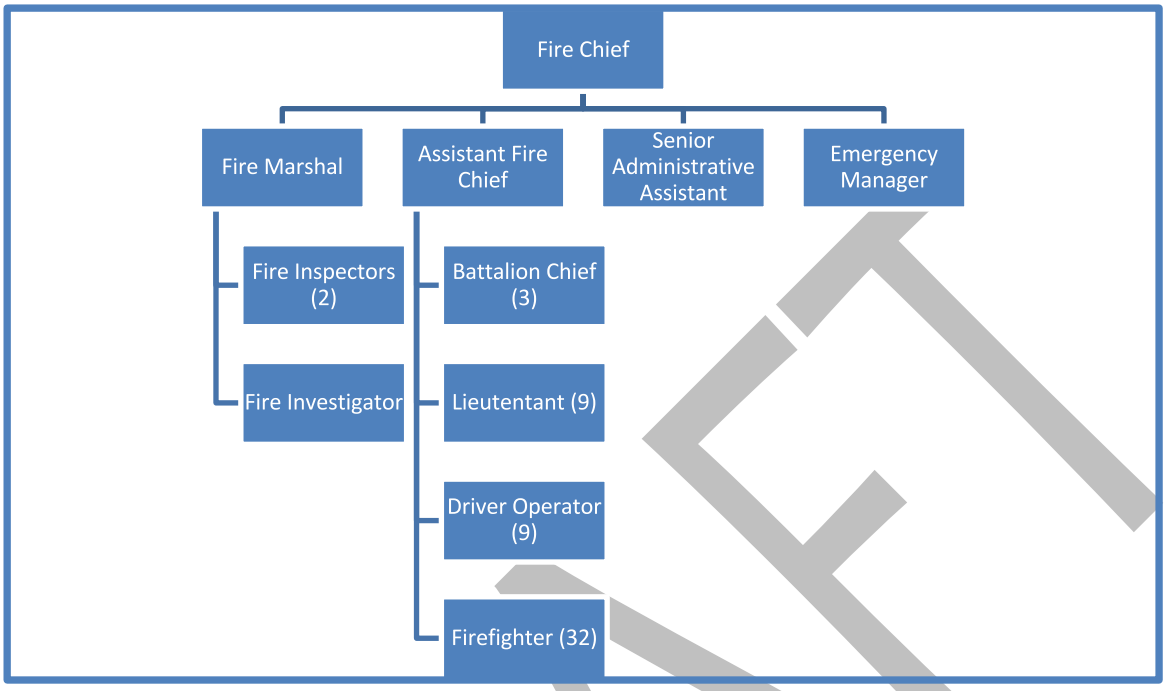
AGENCY STRUCTURE & OPERATIONS

OBSERVATION: The Burleson Fire Department provides the full range of modern fire rescue services, except for EMS transport. The department is currently staffed and funded appropriately, though planning for additional resources in the near and mid-term time horizon will be required.

OBSERVATION: Recommendations are made that will enhance the City's emergency management capabilities; realign fire prevention services to improve 'customer service' to city businesses and developers; and improve the Fire Department's administrative oversight to address growing community demands.

BFD's organizational structure is reflected below. Based on the current mission and budgeted FTEs, this framework appears consistent with a lean and functional organization. Responsibilities that may often be assigned to 40-hour staff have, by necessity, been taken on by shift personnel. For example, there is no dedicated training position, thereby relying on shift personnel to develop and deliver hands-on training, as contrasted with the use of Target Solutions for most of their didactic training. Quality assurance reviews of EMS and fire calls is also handled by shift personnel. These responsibilities, in addition to the public education and fire inspection duties, reflect a push for efficiency that shift personnel expressed pride in accomplishing. Simultaneously, this reliance on shift personnel also causes concerns that this additional workload may have an unintended negative impact operational readiness and inhibits planning for future demands related to increased population and call workload.

Figure 2: Fire Department Current Organizational Chart



Administration

The current level of demands on fire department administration is significant. With anticipation of continued growth, and desire to maintain and enhance community programs, there is a need for administrative capabilities to expand to meet growing demands. The department received tentative approval for a new administrative Lieutenant in the upcoming budget. In the mid-term, the department should also consider an additional administrative position to support the overall departmental needs.

> ***RECOMMENDATION: The city should consider an additional administrative assistant position within the next few budget cycles to address demands currently handled by operational staff.***

Shift-Assignment Staffing Analysis

To evaluate the currently funded operational staffing levels, three years of payroll data were reviewed which summarized total non-worked time by employee job classification. The following evaluates current usage of time-off / non-work time by fire department shift personnel and assess if budgeted positions to maintain minimum staffing levels are sufficient.

Non-work time includes vacation, sick, FMLA, and any other payroll codes reflecting that the employee was not available to be on shift. Based on a shift schedule of 24 hours on/48 hours off, the total anticipated scheduled hours are 2,912 hours annually. This information is summarized in the two tables below. From a shift perspective, and based on current minimum staffing requirements, the allocated number of FTEs represents the optimal and most efficient use of budgetary resources, without any excess capacity. Accordingly, as the need for additional shift staffing may increase, these needs will require additional budgetary resources.

Table 1: Average Non-Worked Hours by Position

Position Title	Annual Average	Position Count	Average / Position
Firefighter	6,969.08	30	290.4
Apparatus Operator	3,130.00	9	347.8
Lieutenant	3,542.83	9	393.6
Battalion Chief	1,180.17	3	393.4
TOTAL	**15,653.75**	**51**	**347.9**

The staffing multiplier analysis below assumes an optimized scenario where non-work hours are efficiently distributed. In the real world, this frequently does not happen. The city should recognize a certain level of overtime, at the existing level of funded positions, will still be required to ensure shift staffing minimums can be maintained more efficiently than adding additional FTEs. The department currently employs the best practice of allocating greater relief personnel at the lowest rank (firefighter) and utilizing personnel in an acting position when required, and then hiring at lowest appropriate level for overtime. Overall, the fire department is optimally staffed based on budgeted positions and the daily minimum staffing for shift-assigned personnel.

Table 2: Staffing Multiplier & Required FTEs

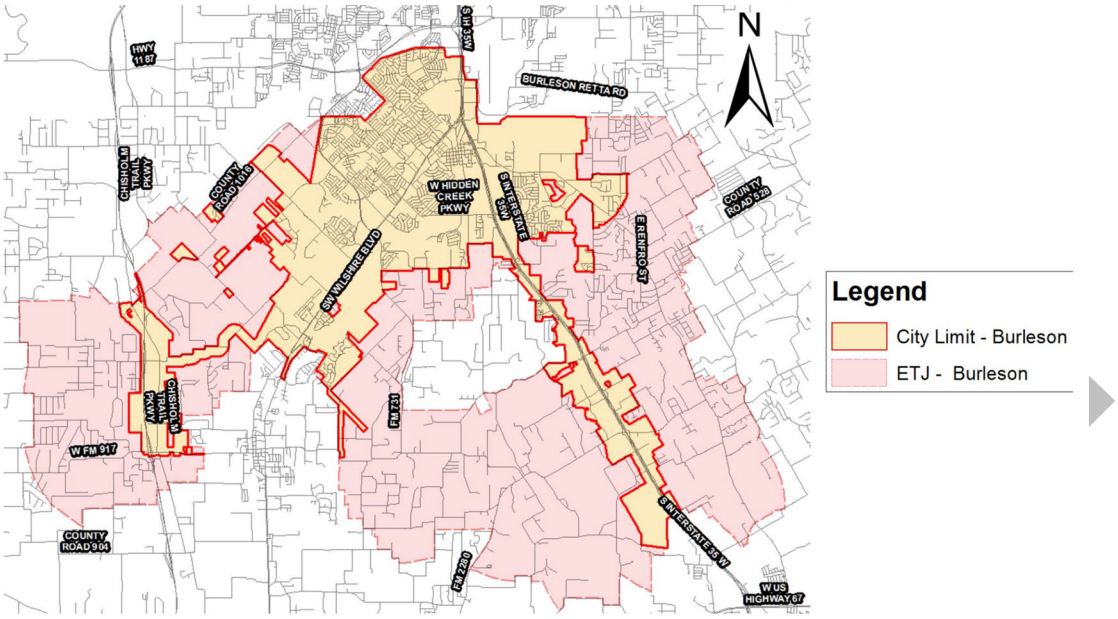
Position Title	Scheduled	Non-Work Hours	Available Hours	Total Hours per Year	Staffing Multiplier	Minimum Staffing / Shift	Required FTEs
Firefighter	2912	290.4	2,621.6	8,760	3.34	8	26.72
Apparatus Operator	2912	347.8	2,564.2	8,760	3.42	3	10.25
Lieutenant	2912	393.6	2,518.4	8,760	3.48	3	10.44
Battalion Chief	2912	393.4	2,518.6	8,760	3.48	1	3.48
TOTAL	**2912**	**347.9**	**2,564.1**	**8,760**	**3.42**	**15**	**50.89**

Fire & EMS Operations

The department provides traditional fire protection and Advanced Life Support (ALS) level first responder services. EMS transport services are provided by MedStar. The city currently has three fire stations and is aware that long-term annexation of additional properties into the city will likely

require additional resources. The city's current land area and potential long-term annexation opportunities are reflected in the figure below.

Figure 3: Map of Burleson, Texas



The city has recently completed construction of a replacement facility to Station #2, to be re-named as Station #16. Stations have minimum staffing requirements for 24 hours per day as noted in the table below. The city has plans for new development in the western portion of the city. One of the development agreements includes a provision for the donation of land for an additional fire station when demand generates the need.

As reflected above, the total number of FTEs assigned to operations is 51, with the current minimum staffing levels per shift reflected in the table below. The department has received approval for seven new positions in the recently adopted budget, including six for the deployment of a second ALS squad at Station #16.

Table 3: Fire Stations, Units, and Minimum Staffing

Station	Staffed Units	Minimum Staffing
1	Engine 1, Squad 1, Battalion Chief	6
2 / 16	Quint 2 / 16, Squad 16	6
3	Engine 3	3
		15

The squad is ALS and responds to all incidents within Station #1's primary area, as well as the highest priority (Priority 1) incidents city-wide. Additional resources within the department are cross-staffed as needed. This includes a technical rescue unit at Station #1 and brush trucks located at both Station #2 / 16 and Station #3

Fire Marshal

The Fire Marshal's responsibility is largely focused on the enforcement of fire prevention codes and fire safety education for the public. This is accomplished by conducting new development site plan reviews, building construction plan reviews, performing inspections of schools, businesses, and other public assembly venues within the city, delivering fire safety programs, and investigating fire-related criminal acts. However, building plan reviews for fire alarm and fire protection sprinkler systems must be reviewed by outside consultants.

> ***RECOMMENDATION: Reconfigure the provision of fire sprinkler and fire alarm plan reviews and make it a city responsibility. The department should either develop the capacity in-house, or identify and contract with an external provider of these services to ensure a seamless service to the developer community.***

The Fire Marshal is assisted by two full-time fire inspectors and a certified law enforcement fire investigator. During 2020, approximately 1,300 inspections were completed out of 1,700 inspectable properties within the city. Many of the annual inspections are conducted by operations personnel. All fire officers and many of the driver operators have the required certifications. Inspections are assigned by shift and station to be completed within the year. The remainder of specialized inspections are completed by the dedicated inspectors from the Fire Marshal's program area.

Public education programs related to fire safety are coordinated by the Fire Marshal's office with direct delivery often including operations personnel. Programs include:

- Patches & Pumper - an animated robotic Dalmatian dog and a fire engine robot
- Fire safety house
- Fire station visits
- Drowning prevention
- Falls prevention
- Hot car safety
- Car seats
- Stop the bleed
- CPR

- Active shooter
- Annual safety fair
- Life jackets
- Bike rodeo
- Helmets

The Fire Marshal's webpage also contains information on fire safety for children, including a fire safety storybook app, and links to various other sites for fire safety information, including the US Fire Administration.

> ***RECOMMENDATION: Re-align reporting responsibilities of the Fire Marshal's Office as a direct report to the Assistant Fire Chief. This will better align reporting structures of those conducting the majority of annual inspections and delivery of public education activities and place the Fire Marshal's Office under a single command officer.***

Emergency Management

As noted elsewhere, the city's emergency management function is a component of the fire department. A single employee manages day-to-day responsibilities in this area. The city recently built a new emergency operation center (EOC) as part of the newly constructed Station #16. This enhanced facility will provide city staff with a purpose-built location from which to handle multi-departmental/significant incidents.

Consistent with recommendations for all local governments, the city utilizes the federal incident command system (ICS) and national incident management system (NIMS) as the framework for handling all hazards events. Emergency management has provided the G-402 course for elected officials and recommended that all department heads complete ICS-100, 200, 700, and 800 training. Staff indicated that prior to the COVID-19 pandemic, the city would conduct three tabletop exercises and one full-scale exercise on an annual basis. With the opening of the new EOC, the fire department anticipates resuming that schedule in the near future.

A robust emergency operations plan would ensure that key staff city-wide and from all departments understand their roles during a potential major incident. This necessitates that all appropriate personnel have been trained in ICS and NIMS, and periodically exercise the roles they may assume during a disaster. While many of these components are in place within the City of Burleson, the program would be strengthened by ensuring all essential personnel with emergency operations center (EOC) responsibilities have been identified and minimally trained.

RECOMMENDATION: The fire department should recommend to the City Manager that all city employees having a role during activation of the EOC be required to complete the necessary baseline and additional ICS/NIMS courses recommended by emergency management.

Through its emergency management operation, the fire department makes use of an outdoor warning system for tornado and severe warning events, as well as employing Everbridge's mass notification system that permits residents to be notified of any significant incidents in the city.

The Johnson County Hazard Mitigation Action Plan[4], which was completed in 2013, identifies the following hazards within the City of Burleson:

- Drought
- Extreme Heat
- Flooding
- Hail
- High Winds
- Tornados
- Wildland Fires
- Winter Storms
- Dam Failure
- Lightning

Action items for the City of Burleson outlined in the hazard mitigation action plan included the following items:

- Develop and implement a comprehensive public education program for natural hazards
- Purchase NOAA weather radios for distribution to residents
- Purchase and install CASA WX weather radar
- Implement individual tornado safe room rebate program
- Purchase and install outdoor warning sirens to encompass new developments and populations
- Develop an annual program for inspection, prevention, and trimming of tree limbs near high-voltage powerlines
- Require underground high voltage power lines in new developments

[4] Johnson County Hazard Mitigation Action Plan (2013). Accessed at https://www.burlesontx.com/DocumentCenter/View/11779/Johnson-County-HazMAP----APA?bidId= on August 10,2021

- Adopt, implement, and enforce debris management and flood abatement ordinances to prevent build-up of debris and materials that could cause flooding
- Identify and implement capital improvements to municipal utility distribution system
- Hire a consultant to complete inundations studies of all high-hazard and moderate-hazard dams that threaten the city
- Increase conservation of water by developing and implementing drought contingency plan

Some of the items from 2013 outlined above appear to have been implemented/completed by the department. For example, the city's emergency management webpage reflects that the tornado safe room and outdoor warning system are existing programs. Other items, such as a comprehensive public education program, are not evident on the website and, therefore, are not readily accessible by the public.

RECOMMENDATION: The department should undertake a status review of the 2013 action items, while simultaneously beginning an update to the relevant sections of the 2013 Hazard Mitigation Action Plan.

AGENCY WORKLOAD & PERFORMANCE

OBSERVATION: The Fire Department's workload is 73.1% EMS related, similar to comparable communities across the U.S. This EMS centric community demand will continue to grow in the mid to long-term.

OBSERVATION: The Fire Department's time to travel to an emergency incident is 4.5 minutes on average, and 7.1 minutes for 90 out of 100 events. This aligns well with comparable communities, and well within expectations.

OBSERVATION: Current fire department resources are sufficient to handle existing demands and will be able to absorb additional workload in the short-term. However, to maintain response times to an expanding geographic area, additional fire stations will be required in the mid to long-term.

FITCH received several years of data from several different sources. The following overview highlights the department's workload and performance for calendar year 2020. For more detailed analysis, including overall trends in demand, see the separate Data Report.

Like most communities across the U.S., EMS is the majority need within the community. EMS services represented 73.1% of all requests for service in 2020. With the recent decision by the department to no longer respond to lower-priority incidents, it is anticipated that EMS demand would be a larger percentage if the department responded to every request for EMS, including those incidents assessed as the lowest priority. Fire related activity was 22.8% of total demand, with reported structure fires accounting for less than 1% of overall community demand. The tables below reflect these major categories overall, as well as detailed incident types for fire and EMS.

Community Demand

Table 4: Number of Incidents by Call Category – CAD Data File

Jurisdiction	Call Category[1]	Number of Calls	Average Calls per Day	Call Percentage
All	**Automatic Aid Total**	**178**	**0.5**	**3.3**
	Cardiac and Stroke	150	0.4	2.8
	Citizen Assist	418	1.1	7.7
	Death	9	< 0.1	0.2
	Difficulty Breathing	193	0.5	3.6
	Fall	204	0.6	3.8
	Injury	127	0.3	2.3
	Medical	2,427	6.6	44.7
	MVA	429	1.2	7.9
	Transfer	9	< 0.1	0.2
	EMS Total	**3,966**	**10.8**	**73.1**
	Agency Assist	42	0.1	0.8
	Aircraft Crash	2	< 0.1	< 0.1
	Citizen Assist	2	< 0.1	< 0.1
	Fire Alarm	431	1.2	7.9
	Fire Other	621	1.7	11.4
	Outside Fire	56	0.2	1.0
	Structure Fire	45	0.1	0.8
	Vehicle Fire	37	0.1	0.7
	Fire Total	**1,236**	**3.4**	**22.8**
	Hazmat Total	**9**	**< 0.1**	**0.2**
	Mutual Aid Total	**36**	**0.1**	**0.7**
	Rescue Total	**1**	**< 0.1**	**< 0.1**
	Total	**5,426**	**14.8**	**100.0**

[1]Classifications of incident types from the data file into call category are presented in the Appendix of the Data Report.

Fire related requests accounted for 22.8% of the total requests for service during 2020 and averaged 3.4 requests per day. Fire related incidents are an aggregated category of the various incident types available in the CAD data file.

Table 5: Total Fire Related Calls by Nature of Call

Nature of Call[1]	Number of Calls	Percentage of Total Fire Service Demands
FIRE ALARM	431	34.9
FIRE TRANSFER	307	24.8
HAZARDOUS CONDITIONS	250	20.2
GRASS FIRE	54	4.4
STRUCTURE FIRE	45	3.6
PD ASSIST	39	3.2
VEHICLE FIRE	37	3.0
UNKNOWN 32	32	2.6
CONTROLLED BURN	17	1.4
FIREWORKS FD	8	0.6
OTHER	6	0.5
FD ASSIST	3	0.2
AIRCRAFT CRASH	2	0.2
DUMPSTER TRASH FIRE	2	0.2
LOCK OUT	2	0.2
POWER LINE	1	0.1
Total	**1,236**	**100.0**

[1]Entries are presented verbatim from the data file.

EMS related requests accounted for 73.1% of the total requests for service during 2020 and averaged 10.8 requests per day. EMS related incidents are an aggregated category of the various incident types available in the CAD data file.

Table 6: Total EMS Related Calls by Nature of Call

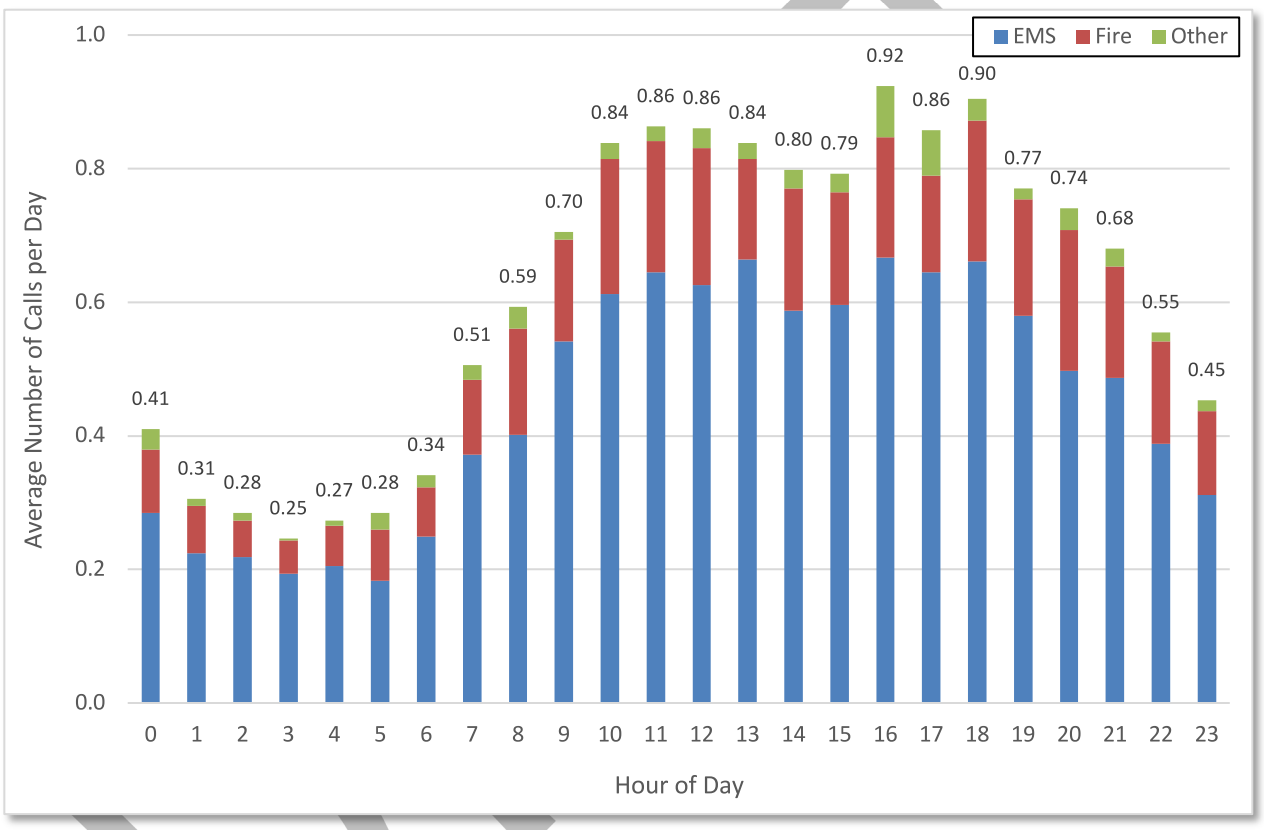
Nature of Call[1]	Number of Calls	Percentage of Total EMS Demands
MEDICAL EMERGENCIES	1,862	46.9
MAJOR CRASH	408	10.3
CITIZEN ASSIST	397	10.0
FALLS 17	204	5.1
BREATHING PROBLEMS 06	177	4.5
SICK 26	142	3.6

Nature of Call[1]	Number of Calls	Percentage of Total EMS Demands
UNCONSCIOUS FAINTING 31	93	2.3
CONVULSIONS SEIZURES 12	75	1.9
MEDICAL ALARM	73	1.8
CHEST PAIN 10	72	1.8
STROKE CVA 28	50	1.3
HEMORRHAGE LACERATIONS 21	49	1.2
ASSAULT 04	38	1.0
ABDOMINAL PAIN 01	32	0.8
DIABETIC PROBLEMS 13	30	0.8
OVERDOSE POISONING 23	30	0.8
PSYC SUICIDE ATTEMPT 25	29	0.7
HEART PROBLEMS INJURIES 19	28	0.7
LIFT ASSIST	21	0.5
VEHICLE CRASH	21	0.5
TRAUMATIC INJURY 30	19	0.5
CHOKING 11	16	0.4
BACK PAIN 05	15	0.4
MEDICAL	12	0.3
ALLERGIES ENVENOMATIONS 02	10	0.3
HEADACHE 18	10	0.3
GUNSHOT 27G	9	0.2
INTERFACILITY 33	9	0.2
CARDIAC RESP ARREST DEATH 09	8	0.2
PRE-ALERT BFD	6	0.2
PANDEMIC EPIDEMIC OUTBREAK	4	0.1
STABBING 27S	4	0.1
BURNS EXPLOSIONS 07	3	0.1
PREGNANT BIRTH MISCARRIAGE 24	3	0.1
ANIMAL BITE 03	2	0.1
EYE PROBLEMS INJURIES 16	2	0.1
DECEASED PERSON	1	< 0.1
ELECTROCUTION 15	1	< 0.1
HEAT COLD EXPOSURE 20	1	< 0.1
Total	**3,966**	**100.0**

[1]Entries are presented verbatim from the data file.

To provide a more granular understanding of the community's demand for services, a temporal analysis included the average number of calls per day by hour of the day. When referring to the figure below, the busiest hour was at 1600 with 338 calls occurring during that hour in 2020. The average number of calls per hour is a daily average for those 338 calls if they were distributed equally across the year (i.e., 338/366 = 0.92). Therefore, the busiest hour per day was at 1600 with an average hourly call volume of 0.92 calls per day. This contrasts with the 0300 hour where demand was only 0.25 calls per day. This pattern of a three-fold to four-fold increase in call volume is quite typical in other communities.

Figure 4: Overall: Average Calls per Day by Hour of Day



A distinction must be made between what CAD data reflect--a forward-looking categorization on which the department must base their responses--and that entered into the fire and EMS reporting systems which reflect what was found *after* the arrival of the fire department--in essence, a backward-looking perspective. The following table below is from records management data sources (Firehouse and ImageTrend) that provides that backward-looking perspective.

Across all jurisdictions and based on unit-level data provided in the records management systems data files, all units assigned to BFD made 6,944 responses, and were busy on calls for a total of 2,306.8 hours during 2020. Overall, average busy minutes per response was 23.1 minutes, and

average number of responses per call was 1.6. Classifications of records into program areas were based on the incident type descriptions reported in the records management systems.

Within BFD's jurisdiction, all units assigned to BFD made 6,749 responses, and were busy on calls for a total of 2,255.8 hours. Average busy minutes per response was 23.3 minutes, and average number of responses per call was 1.6.

Table 7: Number of Calls, Number of Responses, and Total Busy Time by Program – BFD Units

Program	Number of Calls	Number of Responses	Average Responses per Call	Total Busy Hours	Responses with Time Data	Average Busy Minutes per Response	Average Calls per Day	Average Responses per Day
EMS	3,144	5,108	1.6	1,666.0	4,230	23.6	8.6	14.0
Fire	1,229	1,725	1.4	557.6	1,656	20.2	3.4	4.7
Hazmat	62	85	1.4	75.3	85	53.1	0.2	0.2
Rescue	20	26	1.3	8.0	26	18.4	0.1	0.1
Total	**4,455**	**6,944**	**1.6**	**2,306.8**	**5,997**	**23.1**	**12.2**	**19.0**

Overall, units assigned to MedStar responding to calls within BFD's jurisdiction made 4,575 responses and were busy on calls for a total of 4,963.0 hours during 2020. Overall, average busy minutes per response was 65.1 minutes, and average number of responses per call was 1.0. Data are also presented by determinant in the table below, as all records were classified into the program area EMS.

The following table also reflects the severity of EMS incidents by determinate – a term employed by MedStar's call prioritization software. As reflected in the figure immediately below, calls are classified as either requiring a basic life support (BLS) or paramedic / advanced life support (ALS) level of care, in addition, the prioritization framework also reflects if the response should employ a 'hot' (lights & siren) or 'cold' (no lights & siren) response. The table below reflects MedStar's response metrics within the city based on these determinates.

Figure 5: MPDS Determinate Framework

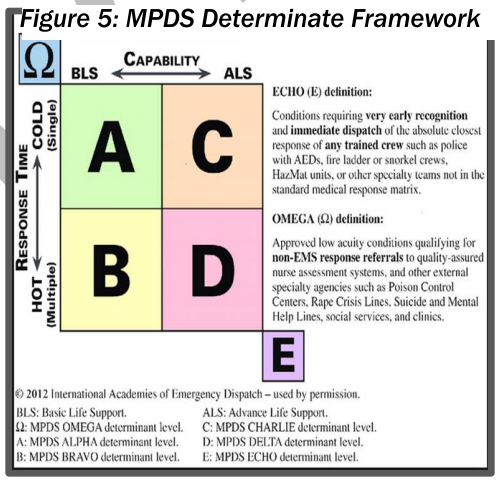


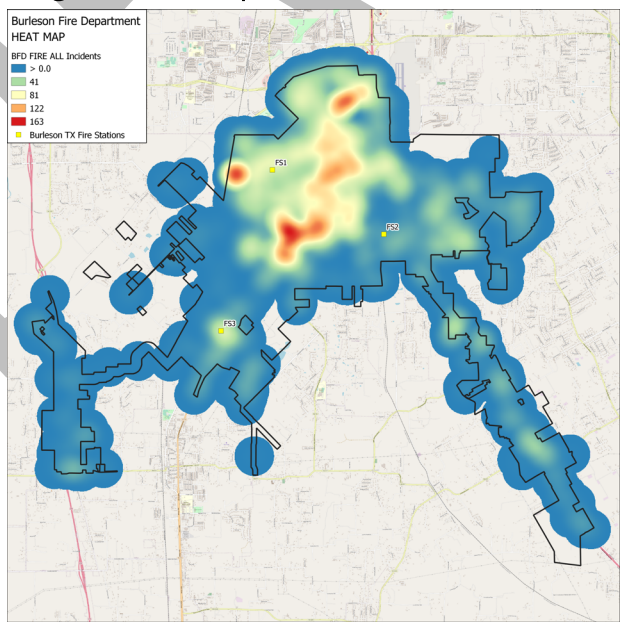
Table 8: Number of Calls, Number of Responses, and Total Busy Time by Determinant – MedStar Units in BFD's Jurisdiction

Determinant	Number of Calls[1]	Number of Responses[2]	Average Responses per Call	Total Busy Hours	Responses with Time Data[3]	Average Busy Minutes per Response	Average Calls per Day	Average Responses per Day
A	807	814	1.0	904.3	814	66.7	2.2	2.2
B	805	839	1.0	729.3	839	52.2	2.2	2.3
C	1,261	1,278	1.0	1,459.0	1,278	68.5	3.4	3.5
D	880	923	1.0	1,009.2	923	65.6	2.4	2.5
E	61	97	1.6	77.6	97	48.0	0.2	0.3
O	78	79	1.0	74.6	79	56.6	0.2	0.2
Unknown	491	545	1.1	709.0	545	78.1	1.3	1.5
Total	**4,383**	**4,575**	**1.0**	**4,963.0**	**4,575**	**65.1**	**12.0**	**12.5**

[1]"Number of Calls" reflects an adjusted number of calls following any exclusion activity to align with responses made by valid units assigned to "NORTH STAR" or "STAR" appearing in the MedStar data file.
[2]"Number of Responses" reflects the total number of records in the MedStar data file associated with responses made by valid units assigned to "NORTH STAR" or "STAR," regardless of calculated busy time.
[3]"Responses with Time Data" reflects the number of records in the MedStar data file associated with responses made by valid units assigned to "NORTH STAR" or "STAR" with calculated busy time not otherwise excluded.

Heat maps were created to identify the concentration of the historic demand for services overall, as well as by EMS calls appearing in the MedStar data file. As reflected below, the blue areas have the lowest concentration of demand, while the dark red areas have the highest concentration of demand. Relative risk for individual station areas can be discerned by assessing historical demand for services.

Figure 6: Heat Map for All Calls



Workload by Station

The station-level demand is more reflective for deployment decisions, and the unit-level workload will help evaluate the utilization of physical apparatus and assist with apparatus procurement or maintenance decisions.

Across all jurisdictions, Station #1 was the busiest station during 2020 based on number of responses made by units assigned to the station (4,834 responses) and based on total busy hours (1,520.5 hours; 65.9% of departmental busy hours). Station #2 was the second busiest station with 1,493 responses made by units assigned to the station for a total of 547.4 busy hours during 2020.

Table 9: Overall Workload by Jurisdiction and Station

Jurisdiction	Station	Number of Responses Made by Units Assigned to Station[1]	Responses with Time Data[2]	Total Busy Hours	Average Busy Minutes per Response	Percentage of Total Busy Hours
All	1	4,834	3,981	1,520.5	22.9	65.9
	2	1,493	1,436	547.4	22.9	23.7
	3	617	580	238.9	24.7	10.4
	Total	**6,944**	**5,997**	**2,306.8**	**23.1**	**100.0**
Within City Limits	1	4,767	3,916	1,495.0	22.9	66.3
	2	1,372	1,317	523.8	23.9	23.2
	3	610	573	237.0	24.8	10.5
	Total	**6,749**	**5,806**	**2,255.8**	**23.3**	**100.0**
Outside City Limits	1	67	65	25.6	23.6	50.1
	2	121	119	23.6	11.9	46.2
	3	7	7	1.9	16.4	3.7
	Total	**195**	**191**	**51.1**	**16.0**	**100.0**

[1]"Number of Responses" reflects the total number of records in the Firehouse and ImageTrend data file associated with responses made by valid units assigned to BFD, regardless of calculated busy time.
[2]"Responses with Time Data" reflects the number of records in the Firehouse and ImageTrend data file associated with responses made by valid units assigned to BFD with calculated busy time not otherwise excluded.

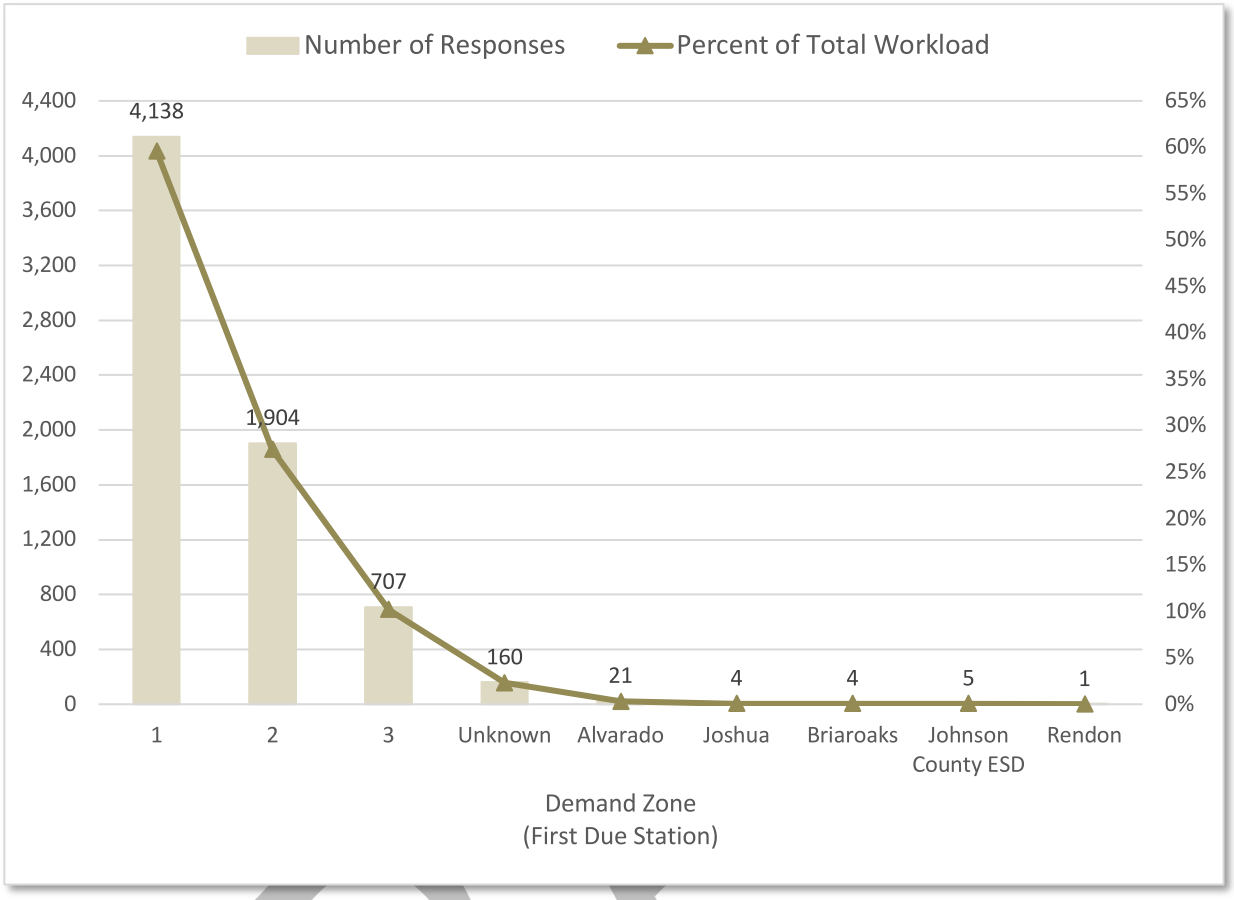
Mutual Aid

The department has inter-local agreements for purposes of mutual / automatic aid with the following fire departments:

- Fort Worth Fire Department
- Alvarado Fire Department
- Joshua Fire Department (combination agency)
- Crowley Fire Department
- Johnson County Emergency Services District (combination agency)
- Briar Oaks Volunteer Fire

These agreements are reflected in the table above characterized as "Outside City Limits."

Figure 7: Department Workload by Demand Zone (First Due Station)

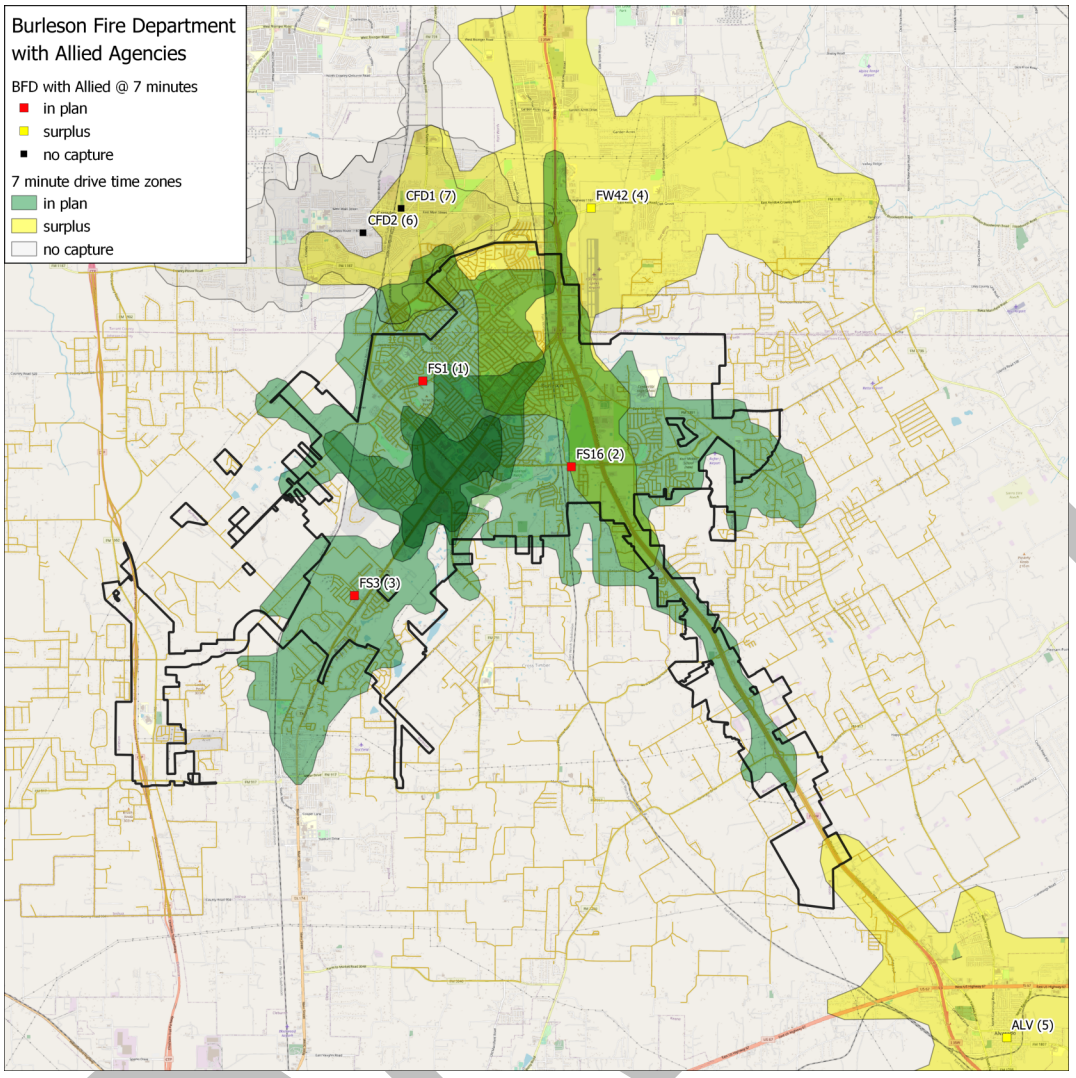


All analyses of all the existing regional auto/mutual aid partners demonstrate that only Fort Worth Station #42 could substantively contribute to any analysis with travel times between 4 and 8 minutes. In other words, while all these stations could provide resources to achieve an effective response force (ERF) with personnel for large incidents, only Fort Worth Station #42 is geographically close enough to contribute to a first unit distribution advantage. The marginal utility of Station #42 is reflected in the table and figure below reflecting a 7-minute travel time.

Table 10: Marginal Station Contribution for Regional Partners 7-Minute Travel Time – All Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	FS1	3,176	3,176	62.12%
2	FS16	1,283	4,459	87.21%
3	FS3	233	4,692	91.77%
4	FW42	189	4,881	95.46%
5	ALV	16	4,897	95.78%
6	CFD2	0	4,897	95.78%
7	CFD1	0	4,897	95.78%

Figure 8: Regional Partners - 7-Minute Travel Time



Unit Hour Utilization

Another measure, time on task, is necessary to evaluate best practices in efficient system delivery and consider the impact workload has on personnel. Unit Hour Utilization (UHU) values represent the proportion of the work period (e.g., 24 hours) that is utilized responding to requests for service.

Historically, the International Association of Fire Fighters (IAFF) has recommended that 24-hour units utilize 0.30, or 30% workload as an upper threshold.[5] In other words, this recommendation would have personnel spend no more than 7.2 hours per day on emergency incidents. These thresholds take into consideration the necessity to accomplish non-emergency activities such as training, health and wellness, public education, and fire inspections. The 4th edition of the IAFF EMS Guidebook no longer specifically identifies an upper threshold. However, *FITCH* recommends that an upper unit utilization threshold of approximately 0.30, or 30%, would be considered best practice. In other words, units and personnel should not exceed 30%, or 7.2 hours, of their workday responding to calls. These recommendations are also validated in the literature. For example, in their review of the City of Rolling Meadows, the Illinois Fire Chiefs Association utilized a UHU threshold of 0.30 as an indication to add additional resources.[6] Similarly, in a standards of cover study facilitated by the Center for Public Safety Excellence, the Castle Rock Fire and Rescue Department utilizes a UHU of 0.30 as the upper limit in their standards of cover due to the necessity to accomplish other non-emergency activities.[7]

UHU analyses included units designated by the BFD leadership team as 24-hour per day units. All units had UHU values < 0.30, reflecting the capacity to absorb additional workload as future demand will require in the short-term. As workload for any one unit achieves 0.25 UHU, *FITCH* recommends the department should begin planning on how to mitigate the increasing workload. At 0.3 UHU these mitigation plans should be implemented. Options include redistributing work to less busy units, adjust work schedules to move personnel between apparatus, make use of alternative shift schedules, or add new resources as may be required.

ALS unit SQ1 was the busiest unit in the department during 2020, with 610.3 total busy hours and a UHU value of 0.07. Engine E1 was the second busiest unit in the department during 2020, with 520.1 total busy hours and a UHU value of 0.06. Cross-staffed unit B2/T2 was the third busiest unit in the department during 2020, with 510.6 total busy hours and a UHU value of 0.06.

Based on these 2020 data, there is significant capacity within the current system, reflecting the ability to absorb additional workload. A caveat to the analysis reflected in the table below is the current practice of the communications center to initially assign E1 to medical incidents within their

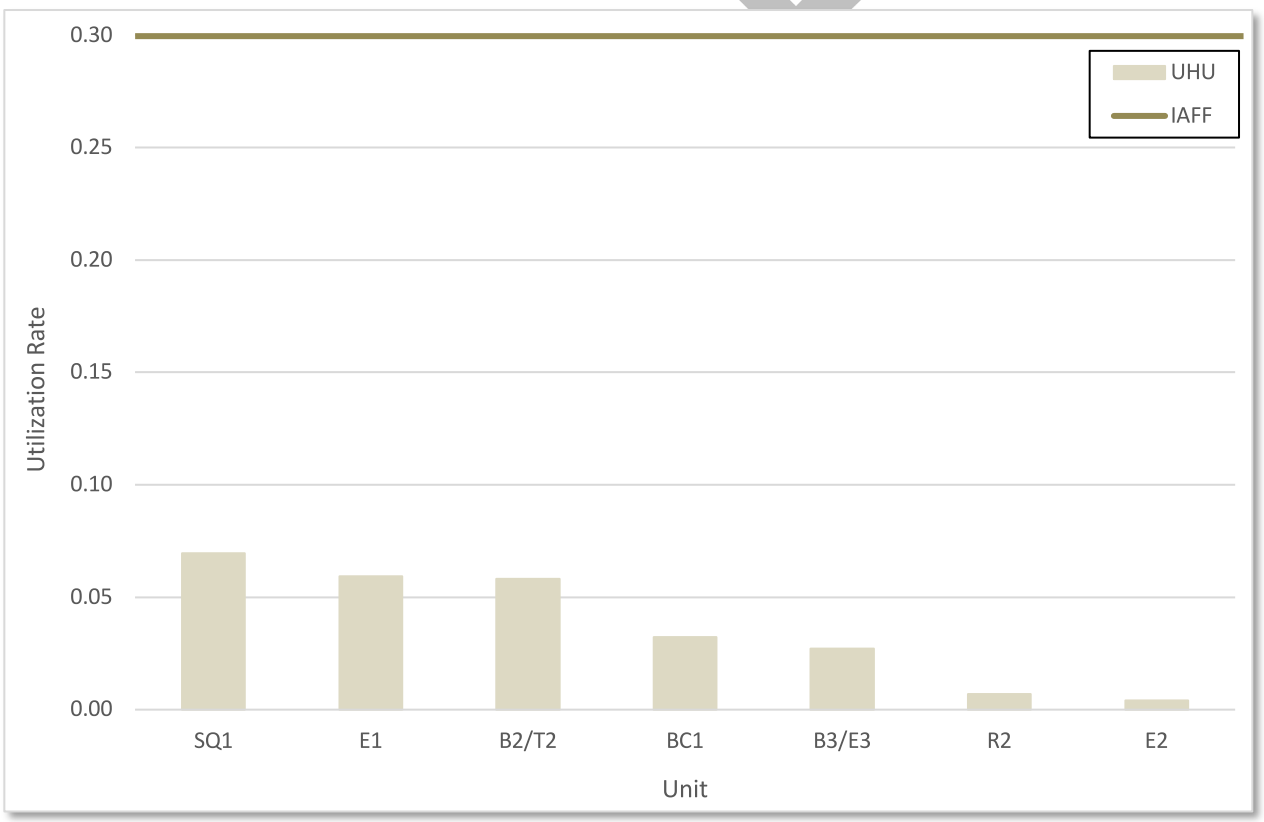
[5] International Association of Firefighters. (1995). Emergency *Medical Services: A Guidebook for Fire-Based Systems.* Washington, DC: Author. (p. 11)
[6] Illinois Fire Chiefs Association. (2012). An *Assessment of Deployment and Station Location: Rolling Meadows Fire Department.* Rolling Meadows, Illinois: Author. (pp. 54-55)
[7] Castle Rock Fire and Rescue Department. (2011). Community *Risk Analysis and Standards of Cover.* Castle Rock, Colorado: Author. (p. 58)

station area, and then subsequently modify the assignment when SQ1 responds in E1's place. This replacement / substitution, unless carefully managed, can have the result of artificially adjusting workloads that may not reflect actual system performance.

Table 11: Unit Hour Utilization – 24-Hour Per Day Units Across All Jurisdictions

Station	Unit ID	UHU Value	Total Busy Hours
1	BC1	0.03	283.1
	E1	0.06	520.1
	R2	0.01	60.4
	SQ1	0.07	610.3
2	B2/T2	0.06	510.6
	E2	< 0.01	36.8
3	B3/E3	0.03	238.9

Figure 9: Unit Hour Utilization – 24-Hour Per Day Units Across All Jurisdictions



Performance

Response time performance is the one of the most often cited performance variables. As reflected below, total response time is derived from three components: dispatch time, the interval between 911 call answer and alerting of fire responders; turnout time, the interval from alert until 'wheels are moving'; and travel time, the interval from 'wheels are moving' until arrival at the emergency location. The first two, dispatch and turnout, are largely under management control. The final component, travel time, is essentially dependent on the distance between the emergency incident location and the nearest fire station.

NFPA 1710 recommends a dispatch interval of 60 seconds 90% of the time, and a turnout time of 60 seconds for EMS related calls at the 90th percentile. However, it has been *FITCH's* experience that agencies do not meet these targets. Research has reflected that the dispatch interval requires almost 1.5 minutes and turnout times for EMS incidents take 1.6 minutes[8], performance that is aligned with *FITCH's* experience in the evaluation of comparable systems. It is noted that dispatch time, as reflected in Burleson's CAD system at 2.8 minutes at the 90th percentile, does not align well with either recommended targets or comparable systems. This issue will be addressed more fully under the 911 Communications section later in this report. The other components, turnout interval and travel time interval, while falling short of recommended targets, are comparable to *FITCH's* findings in similar systems.

Table 12: 90th Percentile Dispatch, Turnout, Travel, and Response Times by Program – First Arriving BFD Units in BFD's Jurisdiction

Jurisdiction	Program	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size[1]
Within BFD	EMS	2.9	1.5	7.0	10.4	2,856
	Fire	2.8	1.5	7.7	10.1	550
	Hazmat	2.7	1.5	9.4	10.4	44
	Rescue	--	--	--	--	6
	Total	**2.8**	**1.5**	**7.1**	**10.4**	**3,456**

[1]Sample sizes reflect the number of responses made by first arriving primary front-line units assigned to BFD; due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

[8] For example, see Upson, R., & Notarianni, K. (2010). *Quantitative Evaluation of Fire and EMS Mobilization Times*. Retrieved from https://www.springer.com/gp/book/9781461444411

TRANSPORT

OBSERVATION: At the 90th percentile, BFD total response times are 10.4 minutes (6.7 on average) while MedStar has a 90th percentile performance of 18.9 minutes (10.6 on average). Without Burleson's voluntary first response services, MedStar's performance far exceeds response time requirements typically seen in comparable systems.

OBSERVATION: High-performing EMS systems do not expect first responders and ambulances to arrive simultaneously – neither do they anticipate the differences found in Burleson[9]. Performance-based ambulance contracts across the nation typically require ambulance arrival between 10-12 minutes (90th percentile) for urban/suburban areas, with first responders arriving 2-4 minutes before the ambulance. Atypically, the MedStar agreement does not contain response time performance requirements.[10]

OBSERVATION: As reflected in the 911 Communications section of this report, response time performance does not include existing delays caused by primary to secondary public safety answering point (PSAP) transfers. In other words, the MedStar performance is likely longer then reported because of the delays required to transfer 911 callers.

A specific question *FITCH* was asked is the feasibility and efficacy of transitioning out of the MedStar ambulance system and providing city- and department-based EMS-patient transport services. This section specifically addresses this question.

EMS services delivered by the fire service represent the largest proportion of EMS systems in the nation.[11] In many fire-based systems, cross trained personnel provide both first response and ambulance transport services. In other systems, the fire service provides only the first response component while a second agency follows to provide transportation to the hospital. It is this second model that currently serves the City of Burleson – where MedStar provides the ambulance component for EMS and BFD provides first response services. BFD's provides first responder services at the advanced life support / paramedic level. Costs for this self-determined level of participation is fully funded by the city.

The number of MedStar responses indicating a patient transport totaled 3,270 (3,270 of 4,575 total MedStar records: 71.5% transport rate), averaging 8.9 transport responses per day. The average busy

[9] For example, NFPA 1710 recognizes a difference of 4 minutes at the 90th percentile between BLS first responders (5 minutes 90th percentile) and ALS paramedics (90th percentile). Pinellas County, Florida, operating the high-performance EMS system Sunstar, requires ALS fire first responders to arrive within 7.5 minutes (90th percentile) and transport ambulance within 10 minutes (90th percentile).

[10] Restated Interlocal Cooperative Agreement for participation in Metropolitan Area EMS Authority approved July 6, 2020 by the City of Burleson.

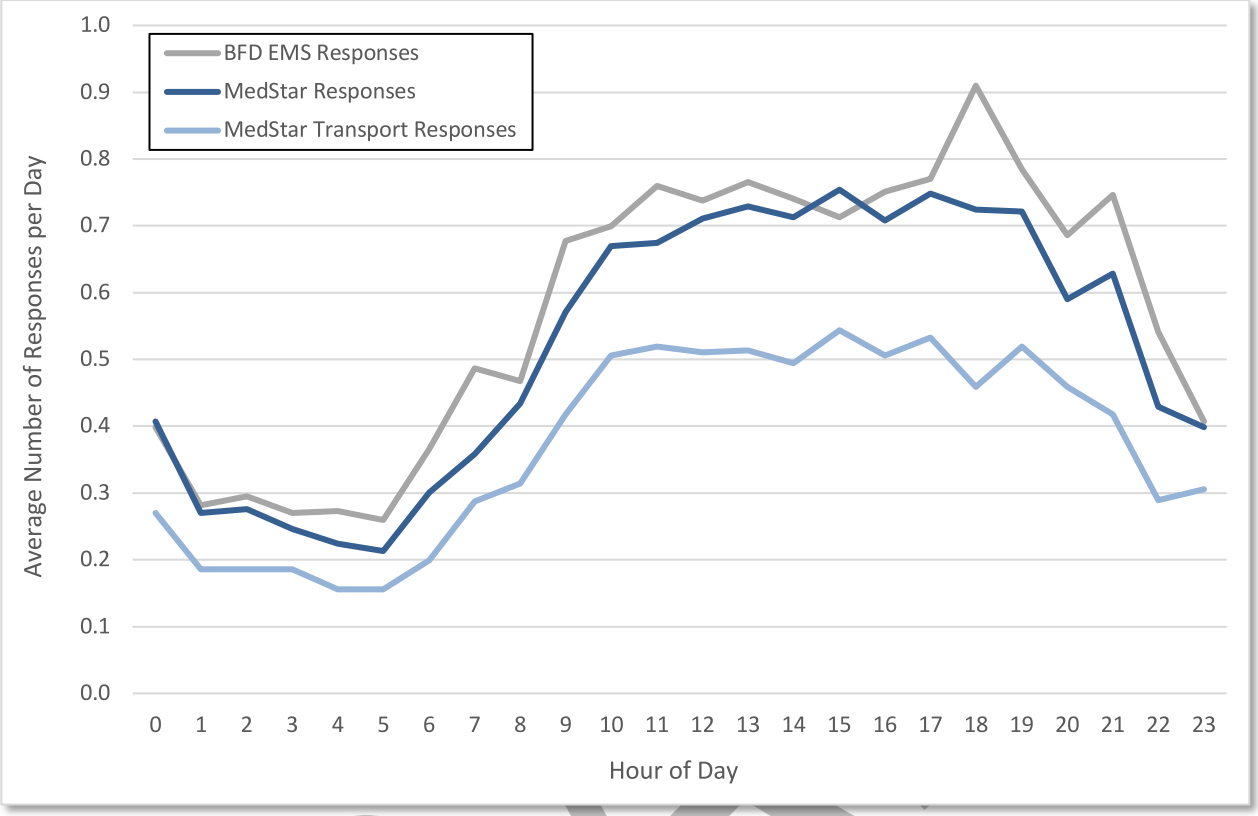
[11] NASEMSO (2014) 2011 National EMS Assessment. Accessed at https://nasemso.org/wp-content/uploads/NASEMSO_2011_EMS_Industry_Snapshot-Final.pdf on August 2018.

minutes per response of a MedStar transport response was 77.9 minutes, and the average busy minutes per response of a MedStar non-transport response was 33.1 minutes. For comparison purposes, the average busy minutes per response of BFD units on EMS responses within BFD's jurisdiction during 2020 was 23.7 minutes.

Table 13: MedStar Transport and Non-Transport Responses by Determinant and Overall BFD EMS Response Data

Determinant	MedStar Transport		MedStar Non-Transport		Total Number of MedStar Responses	MedStar Transport Rate (%)	BFD EMS	
	Average Busy Minutes per Response	Number of Responses	Average Busy Minutes per Response	Number of Responses			Average Busy Minutes per Response	Number of Responses
A	76.6	630	32.5	184	814	77.4	--	--
B	75.0	453	25.4	386	839	54.0	--	--
C	75.8	1,028	38.3	250	1,278	80.4	--	--
D	78.2	665	33.1	258	923	72.0	--	--
E	80.9	37	27.7	60	97	38.1	--	--
O	75.7	39	38.0	40	79	49.4	--	--
Unknown	87.2	418	47.8	127	545	76.7	--	--
Total	**77.9**	**3,270**	**33.1**	**1,305**	**4,575**	**71.5**	**23.7**	**5,046**

Figure 10: Average BFD EMS and MedStar Overall and Transport Responses per Day by Hour of Day



MedStar

Performance metrics for MedStar units arriving at the scene within BFD's jurisdiction during 2020 are reported below, along with the metrics previously presented for BFD's first arriving key units making responses to calls classified in the EMS program area. MedStar reported 4,323 arrivals to incidents in BFD's jurisdiction during 2020. Due to missing or excluded data (see Data Report Appendix), sample sizes corresponding to metrics below may be smaller. The 90th percentile travel time of arriving MedStar units was 14.5 minutes, as compared to BFD's travel time performance of first arriving units to EMS calls within its jurisdiction of 7.0 minutes at the 90th percentile.

Table 14: Average and 90th Percentile Dispatch, Turnout, Travel, and Response Times – Arriving MedStar Units in BFD's Jurisdiction

Units	Metric	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)
MedStar Arrivals	Average	2.4	0.4	7.9	10.6
	90th Percentile	4.9	0.6	14.5	18.9
BFD Key First Arrivals to EMS	Average	1.3	0.8	4.5	6.7
	90th Percentile	2.9	1.5	7.0	10.4

A significant finding is the difference between BFD total response times and those of MedStar, both on average and at the 90th percentile. In an efficient system design, the difference between a first responder unit and the transport component is often limited to 2.5 to 4 minutes at the 90th percentile. In this system, we find that the average difference is 3.9 minutes and 8.5 minutes at the 90th percentile, a magnitude much greater than is typically designed in high-performing EMS systems. As noted above, SQ1 responds to all high-priority EMS incidents throughout the city. Based on the observed response time performance of MedStar, the city should deploy their second ALS unit to Station #16. As reflected below, Station #16 can capture just over 92% of all historical calls within a 10-minute travel time. With a second unit assigned to Station #1, the percent capture increases to just over 97%.

There are two policy options for the provision of fire-based ambulance services identified: 10-minute and 7-minute travel times, respectively. A brief assessment of each is provided below.

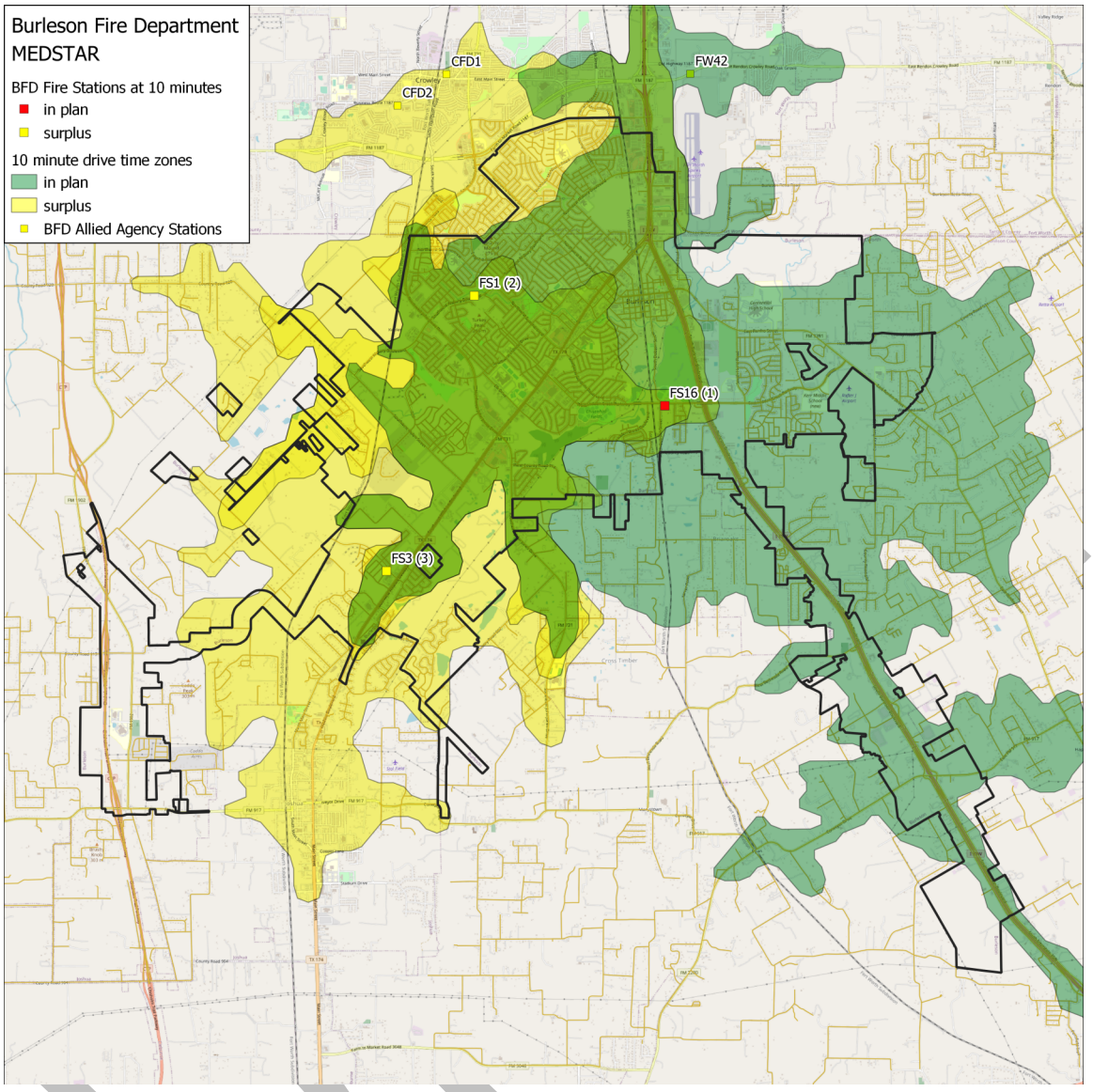
10-Minute Travel Time for Ambulance Services

For the 10-minute travel time, the marginal utility analysis demonstrates that a single station location (Station #16) would be sufficient to provide an ambulance arrival within 10 minutes or less to 92.58% of the incidents. Including the hourly demand for services, this deployment would require two ambulance resources to adequately meet the demand and the geographic limitations within the city. Understanding that the first due performance for BFD is to at 7 minutes, this model would require the continuation of responding the closest engine or truck with the ambulance when the ambulance is not available to respond immediately or in Station #3's territory. Of course, if the policy option of a single resource responding in 10 minutes is acceptable, then the two-ambulance resource allocation would be sufficient for average demand or less. Results are provided below.

Table 15: Marginal Station Contribution for 10-Minute Travel Time – EMS Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	FS16	4,058	4,058	92.58%
2	FS1	203	4,261	97.22%
3	FS3	41	4,302	98.15%

Figure 11: Current Station Bleed Map for 10-Minute Travel Time – EMS Calls



7-Minute Travel Time for Ambulance Services

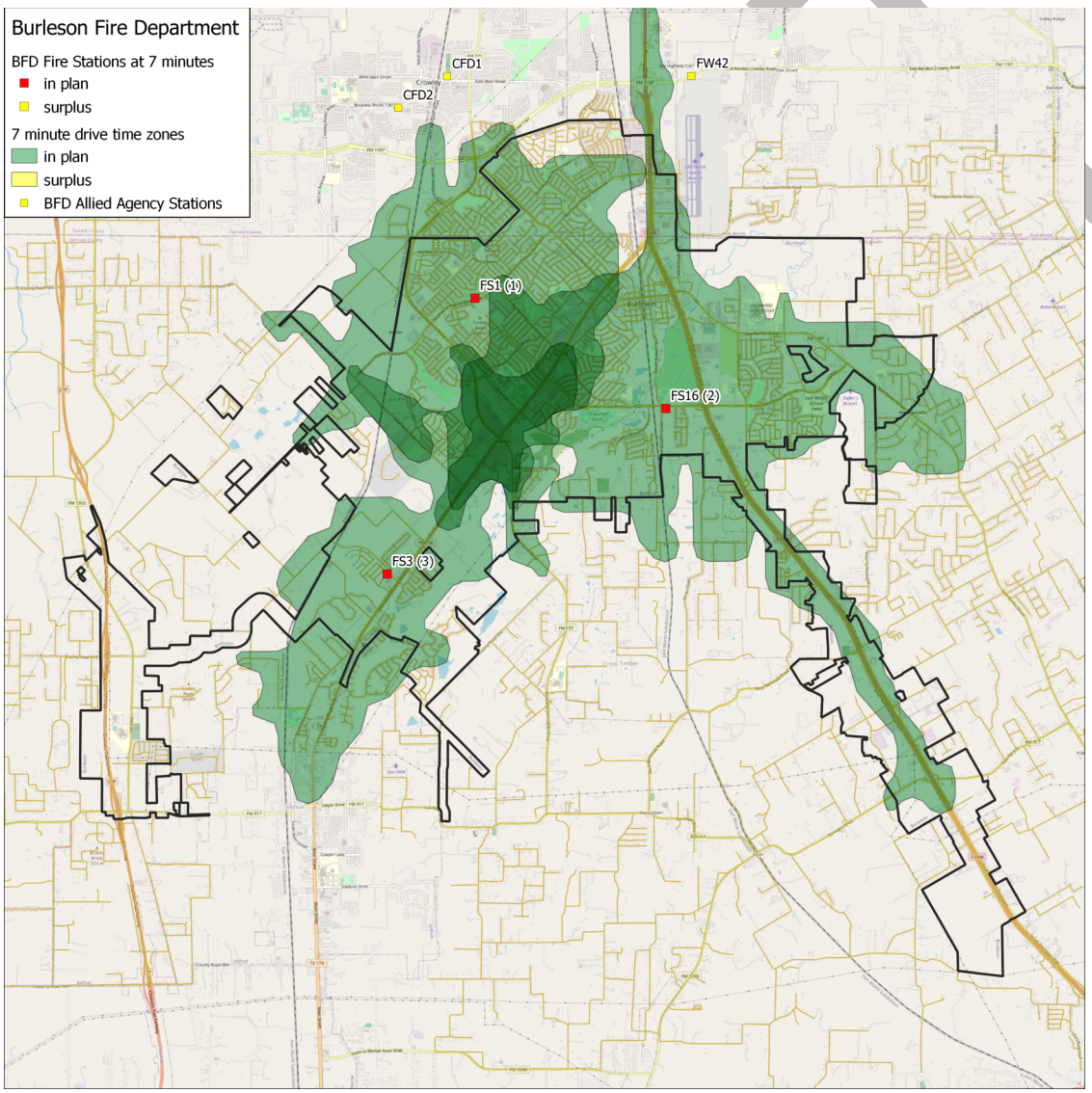
This assessment identified that there is considerable capacity within the system to absorb more work, and/or continue to respond to first due EMS incidents. However, many communities have a sensitivity to responding large fire suppression apparatus to EMS incidents. Under this scenario, the policy option could be to design the system for the EMS resources to be sufficiently allocated to cover at least 90% of the incidents within a 7-minute travel time. Therefore, the fire suppression resources would largely be available and only respond to high-acuity events that require additional personnel.

Within a 7-minute ambulance travel time scenario, it would require a total of four ambulances deployed. This may be a long-range option for the city and department to consider. Results are provided below.

Table 16: Marginal Station Contribution for 7-Minute Travel Time – All Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	FS1	3,051	3,051	59.67%
2	FS2	1,312	4,363	85.33%
3	FS3	281	4,644	90.83%

Figure 12: Current Station Bleed Map for 7-Minute Travel Time – All Calls



FITCH undertook an estimate of potential revenues for EMS transport based on the data above, payer mix information provided by staff, Medicare reimbursement rates, and *FITCH's* experience

both managing and consulting on EMS systems nationwide. The table below reflects an estimated $1.3 million in gross revenues generated from EMS incidents within the city. Insurance, regardless of type, follow the Centers for Medicare & Medicaid Services (CMS) guidelines for level of service provided. While only allowing reimbursement of 911 calls when the patient is transported to a hospital, calls can be classified as basic life support (BLS), advanced life support 1 (ALS-1), or advanced life support 2 (ALS-2) for major or significant paramedic level care. And while Medicare or Medicaid will typically pay their set cost; commercial (group insurance), facility (nursing home to outpatient treatment centers, etc.) and private pay (patient responsibility) may have different reimbursement rates.

With the current level of resources, including the recent budget approval for the addition of a second EMS squad, the anticipated revenues will provide the city more than sufficient funding to assume ambulance transport services. For purposes of 'magnitude of cost' estimates, the following highlight issues to be addressed with the assumption of ambulance transport by BFD. Competitive procurement processes are likely to achieve lower costs than reflected here. Expenditures, beyond those in the current budget include the following:

- Replace paramedic non-transport squad vehicles with transport capable ambulance – incremental capital costs estimated at $125,000 to$150,000 per unit.
- Procure and train 911 personnel on call prioritization software – capital cost of $50,000 and recurring cost of $10,000
- Potential need for up to three new dispatchers – recurring costs up to $210,000
- Medical Director – recurring $40,000
- Pre-billing staff – recurring 0.5 FTE estimated at $40,000
- Contracted billing services – recurring estimated at $63,000

Adjusting for the above recurring budgetary impacts, the city would still see new net revenues estimated at just below $1 million per year.

Table 17: Estimated EMS Transport Revenues

LEVEL OF SERVICE	MEDICARE	MEDICARE HMO	MEDICAID	COMMERCIAL	FACILITY	PRIVATE PAY	TOTAL
ALS EMERGENCY	$ 333,033	$ 69,283	$ 24,628	$ 240,061	$ 57,969	$ 6,138	$ 731,112
ALS-2 EMERGENCY	$ 10,248	$ 2,132	$ 810	$ 6,147	$ 1,484	$ 157	$ 20,978
BLS EMERGENCY	$ 238,446	$ 49,606	$ 16,968	$ 196,413	$ 47,429	$ 5,022	$ 553,885
	$ 581,726	**$ 121,021**	**$ 42,406**	**$ 442,621**	**$ 106,883**	**$ 11,317**	**$ 1,305,974**

The city should transition to fire-based ambulance transport. It is anticipated that two transport ambulances staffed with fire personnel would be sufficient to meet the city's response time goals. As reflected below, even at the 90th percentile, city-deployed paramedic ambulances at Station #16 and Station #1 would provide a 4.5-minute improvement over MedStar's existing 14.5-minute performance. The city should identify mutual aid resources to be available during periods of extraordinary demand.

RECOMMENDATION: The city should transition ALS squad units from a non-transport design to a transport-capable ambulance. This will ensure greater capability and flexibility at minimal additional capital expense.

RECOMMENDATION: The city should assume direct responsibility for EMS transport / ambulance services.

Should the city desire, alternatives to this option include MedStar ensuring more resources within city limits, or protocols to permit Burleson to directly transport role when MedStar is delayed in their arrival on scene.

FUTURE GROWTH & DEVELOPMENT

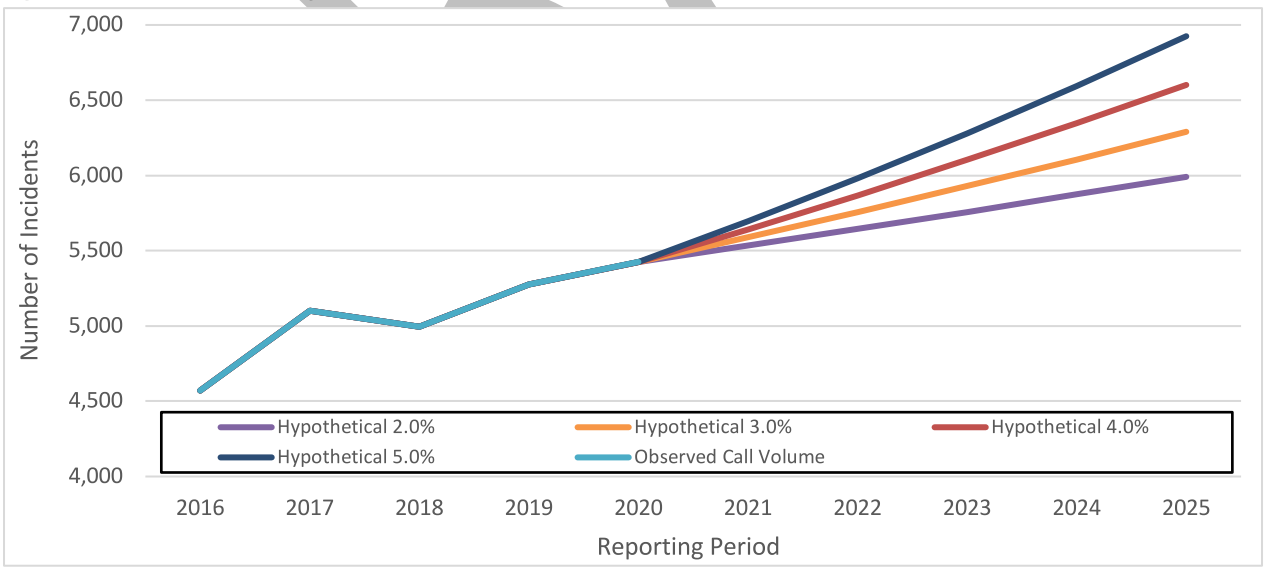
The city has been experiencing significant growth through its economic development efforts. For example, a project entitled, "Chisholm Summit" near I-35W, is anticipated to create 3,000 residential units consisting of single-family homes, townhomes, and patio homes. In addition, some multi-family and senior citizen independent housing is also anticipated. The city has also obtained 106 acres in the Chisholm Summit area for anticipated medical service needs.

Another project, Silo Mills, is expected to create an additional 2,000 residential units. This and other development agreements could result in 3,000 to 5,000 total residential units. At price points between $300,000 to $1 million, and average 2.25 persons per dwelling unit, the overall economic impact for the city is quite positive. The ETJ represents an estimated 150% in land area and an ultimate population approaching 80,000. At that level, assuming comparable growth in fire service demands, a fourth fire station may well be required.

Projected Call Growth

The available CAD dataset included five reporting periods of data, representing calendar years 2016 to 2020. From 2016 to 2020, calls for BFD services increased from 4,571 to 5,426, with an average growth rate of 4.38% per year. The figure below depicts observed call volume during the last five reporting periods and various hypothetical growth scenarios over the next five reporting periods. These projections should be used with caution due to the variability in growth observed across prior calendar years. In all cases, data should be reviewed annually to ensure timely updates to projections.

Figure 13: Observed and Hypothetical Growth in Call Volume



As the figure above reflects, anticipated call volume over the next five years could approach 7,000 under the most aggressive scenario. This reflects the need for the department to prepare for this increased demand regardless of the exact timing of its arrival.

Comparison to National References

There are two notable references for travel time available to the fire service in NFPA 1710[12] and the Commission on Fire Accreditation International (CFAI)[13]. NFPA 1710 suggests a 4-minute travel time at the 90th percentile for first due arrival of Basic Life Support (BLS) and fire incidents, and the CFAI recommends a 5 minute and 12 seconds travel time for first due arrival in an urban/suburban population density. The arrival of an ALS unit is recommended at 8 minutes travel time by NFPA 1710. It is important to note that the latest edition (9th edition) of the CFAI guidelines have de-emphasized response time and only reference the legacy standards with a separately provided companion document[14].

Given the overall 90th percentile travel time of 7.1 minutes, a 6-minute travel time was used to reflect the more restrictive 4-minute and 5:12 travel times.

When referring to the marginal utility analyses provided in the tables on the following pages, ascending rank order is the station's capability to cover risk (incidents) for all calls in relation to the total historical call volume of the sample period (2020). Station is the identifier for the current BFD station; station capture is the number of calls the station would capture within the specified travel time parameter; total capture is the cumulative number of calls captured with the addition of each station; and percent capture is the cumulative percentage of risk covered with the addition of each station.

The goal would be to achieve at least 90% capture. Figures below depict drive time mapping.

6-Minute Travel Time for All Calls and Current Stations

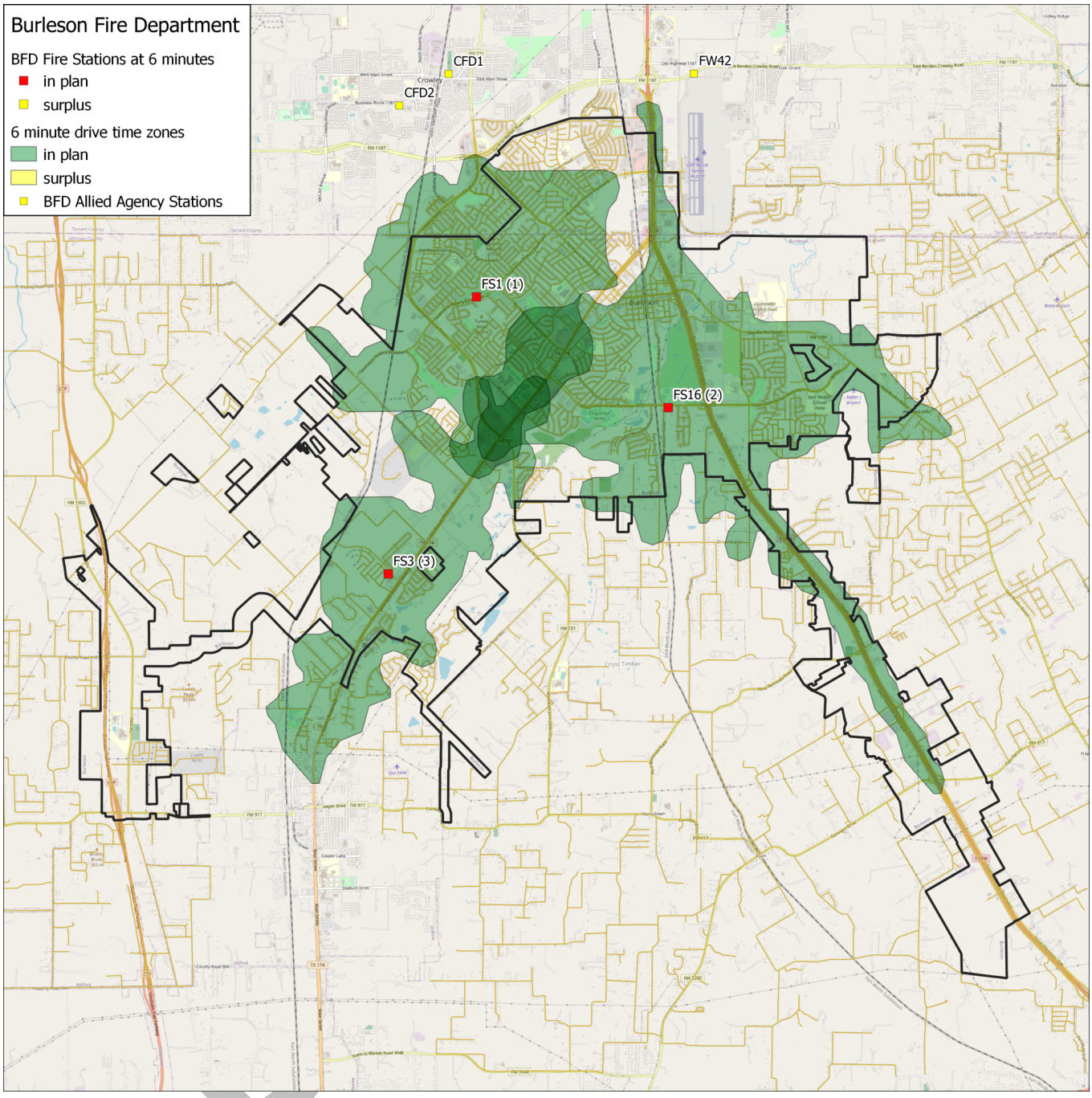
Results suggest that with all three stations, 82.22% of all calls could be responded to within 6 minutes or less travel time.

Table 18: Marginal Station Contribution for 6-Minute Travel Time – All Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	FS1	2,513	2,513	49.15%
2	FS16	1,392	3,905	76.37%
3	FS3	299	4,204	82.22%

[12] National Fire Protection Association. (2010). NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. Boston, MA: National Fire Protection Association.
[13] CFAI. (2009). Fire & emergency service self-assessment manual, (8th ed.). Chantilly, Virginia: Author. (page 71)
[14] CFAI. (2016). Fire & emergency service self-assessment manual, (9th ed.). Chantilly, Virginia: Author.

Figure 14: Current Station Bleed Map for 6-Minute Travel Time – All Calls



FACILITIES REQUIREMENTS

The following discussion highlights various facility needs likely to be required by the fire department in the mid to long-term. The city should periodically evaluate these needs based on new or changing community demands, population growth, annexation of ETJ, and future development.

Station #4

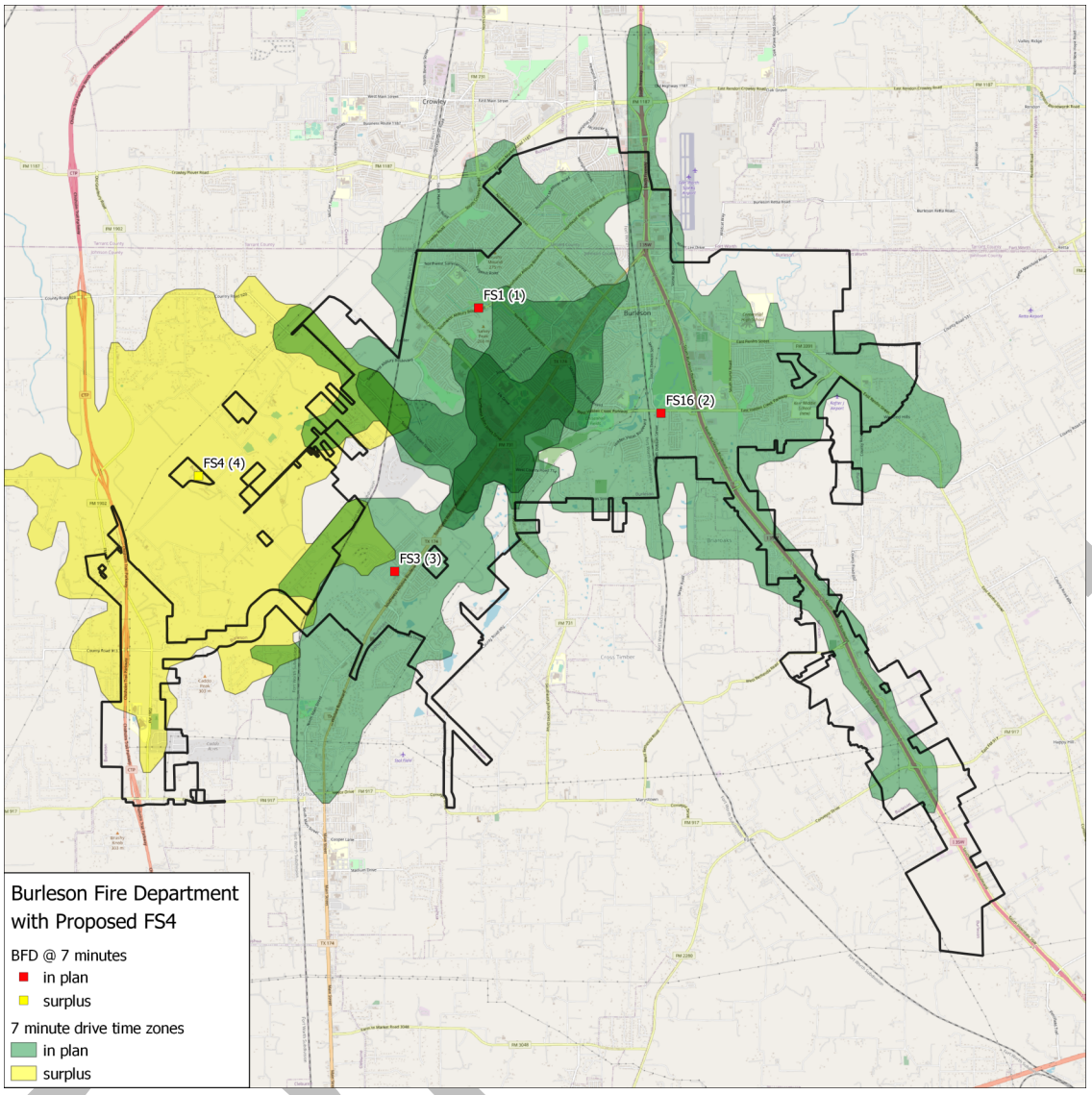
As reflected above, anticipated future population growth and expansion of the city's corporate boundaries are expected to have a significant impact on demands made of the department. While the exact timing of the growth and the additional calls required is unknown, the city should anticipate and plan that a future fourth fire station will be needed at some point in time.

As overall demand within the city increases, and the need for a fourth fire station is anticipated, optimizing the location for Station #4 could allow ambulance coverage to reduce travel time down to 7 minutes. A four-station deployment plan, in addition to the three current stations, could respond to 92.84% of all calls within 7 minutes or less travel time. The table and figure below represent such a configuration. It is recognized that the current distribution of calls across the city reflects only a small benefit from a new Station #4 would occur based on historical demand - this is reflective of current limited development, and therefore demand in the Chisholm Summit area. However, as development begins there will be a natural increase in demand. In addition, when compared to the 7-minute three-station map shown above, it is easy to appreciate the geographic coverage that Station #4 would offer for the Chisholm Summit area. Notwithstanding the comments above, there is little doubt that Station #4 will be required and that planning and development for the facility should occur before significant development occurs within Chisholm Summit. Recognizing the anticipated mix of land uses, the city should consider a 30-year plus facility that will accommodate housing of at least three major apparatus with associated personnel.

Table 19: Marginal Station Contribution for Fourth Station 7-Minute Travel Time – All Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	FS1	3,176	3,176	62.12%
2	FS16	1,283	4,459	87.21%
3	FS3	233	4,692	91.77%
4	FS4	55	4,747	92.84%

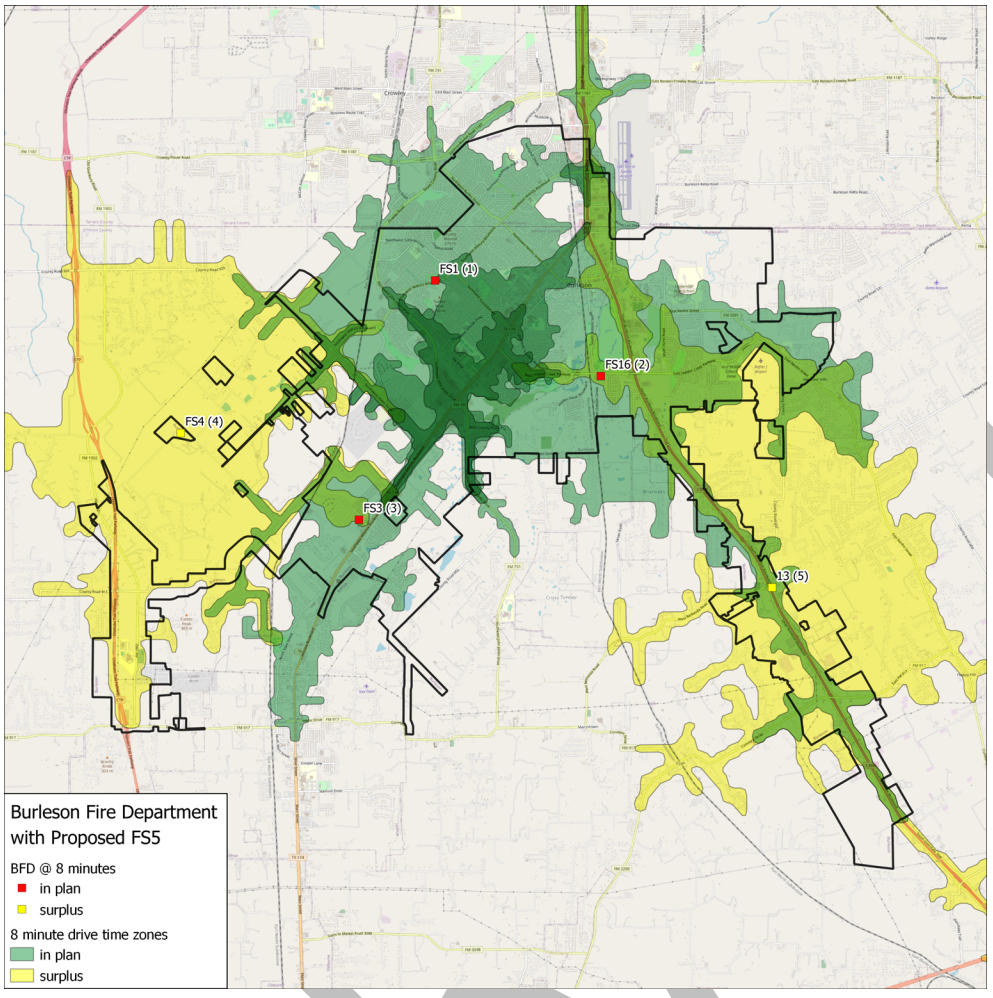
Figure 15: Four-Station Deployment Plan - 7-Minute Travel Time



Station #5

Based on the city's ETJ, approximately doubling the geographic corporate boundaries and long-term population growth projected up near 80,000, it is possible a fifth fire station may be required in the long-term. The most likely driving factors include commercial and industrial development along 35W in the southeastern portion of the city. If required, a Station #5 somewhere adjacent to 35W near Bethesda Rd. or further south would be the most probable. The following figure(s) reflect the coverage that a Station #5 could add.

Figure 16: Five Station Deployment Plan – 7-Minutes



The need and timing for any such Station #5 should be driven by changes in demand and performance metrics. The following discussion addresses these factors in more detail.

As there are no national guidelines or recommendations for the addition of fire stations, the choice is ultimately a policy determination of the governing legislative body. However, certain performance metrics most used in assessing the need for additional fire facilities are outlined in the table below. The department should periodically assess each of these metrics at the frequency and target levels defined below to help inform the need and timing for additional capital equipment and facilities.

Finally, in addition to the operational considerations, some communities establish fiscal milestones as well. For example, the city could adopt a policy that 50% of the operating costs are being captured in revenue prior to opening the station. A robust policy discourse will be required to determine the level of investment, operational considerations, and the sustainability of revenue.

Table 20: Summary of Recommended Performance Metrics in Assessing System Reinvestment

Type of Measure	Performance Metric	Recommended Performance Urban	Priority	Review Period
Station/Unit Performance	Turnout Time – EMS	≤1.0 Min at 90%	Priority 1 & 2	Quarterly
	Turnout Time – All Other	≤1.5 Min at 90%	All Responses except Priority 1 & 2 EMS	Quarterly
	Travel Time	≤7 Min at 90%	Priority 1 & 2	Quarterly
	Travel Time	≤9 Min at 90%	Priority 3 & 4	Quarterly
	Travel Time	≤11 Min at 90%	Priority 5 & 6	Quarterly
	Minimum Engine Staffing	≥3 Firefighters	All Responses	Daily
	Minimum Fire Rescue Squad	≥1 FF/PM ≥1 FF/EMT	All Responses	Daily
	Minimum Ambulance Staffing	≥1 FF/PM ≥1 FF/EMT	All Responses	Daily
System Design and Performance	Dispatch	≤2 Min at 90%	Priority 1 & 2	Monthly
	Station Risk Rating	Increases in Risk		Annually
	Reliability	≥70%		Quarterly
	Call Concurrency	≤15%		Quarterly
	Call Volume	3,000 – Initial 1,000 – Ongoing		Annually
	Unit Hour Utilization	≤0.25 on 24-hour units ≤0.50 on 12-hour units		Quarterly
	Cross-Staffing at Unit Level	<1,800 annual calls and <15% Call Concurrency		Annually

RECOMMENDATION: The department should continuously monitor development in the Chisholm Summit area and begin design and construction of a new fire station before development begins in earnest – thereby ensuring resources are available to meet demand generated by Chisholm Summit's construction phase and ultimate occupation.

RECOMMENDATION: The department should monitor long-term annexation, development, population growth, and community demand to assess the need for any additional fire facilities beyond Station #4.

Current Facilities

Local governments recognize the need to periodically reinvest in capital infrastructure. This need is magnified when community needs change. For the fire service, one such trend over the past three decades has been in EMS. NFPA longitudinal data reflects that during this time, the incidence of structure fires, fire deaths and fire injuries have been reduced by approximately 50%. At the same time, the fire service has seen EMS demand rise by 300%. Different types of apparatus and additional storage requirements for medical supplies and equipment has required changes in fire station design. More recent research also reflects increased risk of occupational cancers among fire personnel. This has resulted in new approaches to reduce the risk of occupational exposures, including the need to retrofit fire stations with vehicle exhaust systems, add space for specialized laundry equipment, and greater storage requirements for maintain additional fire gear worn by fire personnel. Other demographic changes have resulted in the transition from dormitory sleeping quarters to individual rooms with increased restroom facilities. In totality, today's modern fire stations bear little resemblance of those from decades ago.

As part of its capital planning, the city should also evaluate older fire stations to ensure they meet current and future demands. As an example, it was noted that Station #1 (approaching 20-years since construction) appears space constrained for administrative needs. Additionally, should demand in the central portion of the city require, additional space would be needed to house a double company. Station #3, built in 2009, may not require any short-term renovations but should be considered for appropriate updates when deemed necessary. Potential changes in EMS delivery noted elsewhere in this report could also have a moderate impact on overall needs for EMS equipment storage, training needs, etc. The city should contemplate any needs for reinvestment in existing capital facilities during its periodic capital planning process.

RECOMMENDATION: The city should evaluate long-term needs for Station #1 and Station #3 to ensure they meet emerging departmental needs. As required, capital funding should be allocated for necessary renovations.

911 COMMUNICATIONS

OBSERVATION: The existing requirement to transfer 911 callers needing EMS service to be transferred to MedStar's communication center introduces additional delays in the timely notification of EMS resources.

OBSERVATION: Response time performance does not include existing delays caused by primary to secondary public safety answering point (PSAP) transfers. In other words, the MedStar performance is likely longer then reported because of the delays required to transfer 911 callers.

OBSERVATION: Implementation of a call prioritization / pre-arrival instruction system may likely require an additional dispatcher during an estimated 16-hours per day. Should the city pursue this program, additional 911 personnel (2-3 FTEs) may be required.

The city recently reorganized the 911 communications center operations within city government. Services had previously been provided under supervision of the Police Department but transitioned to a stand-alone department under the City Manager's office. The 911 communication center is a primary PSAP serving both the City of Burleson Police and Fire Departments. *FITCH* is aware that the city recently had a 911 communications study undertaken by Mission Critical Partners (MCP). Therefore, the following comments are limited to operations of the 911 communications center and how this impacts fire services delivery within the community.

A significant challenge for timely processing of emergency calls is that medical incidents are transferred to MedStar. While the center typically operates with limited staffing, they will attempt to remain on the line while MedStar utilizes the Medical Priority Dispatch System (MPDS) to assess the severity of a medical call. Only after MedStar has categorized the call's severity will MedStar finalize their dispatch process and send a CAD-to-CAD request back to Burleson's communications center for a fire department unit to be assigned. Observation of this process revealed a workflow that was ineffective for timely dispatch of fire department units. The observed process also appears to align with the data previously reported. It was reported by 911 center staff that the fire department historically was assigned to all medical incidents; however, in recent years, the department elected to limit their responses to only those categorized as a moderate or severe emergency. For the lowest-acuity incidents, MedStar may respond alone. This newer process is one used in many larger agencies, especially when the fire department has limited resources for a high community demand, and arguably a best practice in these certain circumstances. However, the relatively poor performance in call processing impacts those cases where a timely response is required. The entire process is delayed as the caller must be transferred to MedStar until city resources may later be requested. 911 staff did suggest that the implementation of a new fire station alerting system (Phoenix G2) also impacted their ability to manually pre-alert fire stations for incidents which appear to be a higher priority. Overall, the 911 dispatch process and interaction with MedStar dispatch deserves greater attention, especially when one notes the variance between BFD response times and those of MedStar. As reflected elsewhere, processes that must "work around"

the system design, without fully capturing data from the 911 call flow, can result in data that do not fully reflect actual system performance. Notwithstanding the forgoing, should the city elect to assume direct responsibility for EMS ambulance transport services, the delays described above can be fully mitigated by the 911 communications center directly providing call prioritization and pre-arrival instruction capabilities. The elimination of routinely transferring 911 callers to a secondary PSAP will save an estimated 1 minute on average and 1.5 minutes at the 90th percentile.

Somewhat surprising, and as reflected previously, even other call types of fire, hazardous materials, and other non-EMS programs still appear to require significant time intervals in order to process incoming 911 calls. However, for medical calls, the city is required under the inter-local cooperative agreement with MedStar to ". . . transfer 911 callers in accordance with System performance standards adopted by the Authority." And while a bi-directional CAD-to-CAD interface is in place, it is only utilized in a single direction, from MedStar to the city's CAD. MedStar's use of MPDS is a best practice in high-performing EMS systems, and should the city elect to take a more dominant role in EMS from a system's perspective, it would likely need to consider assuming responsibility for call-prioritization rather than sending EMS calls to MedStar. By doing so, the city would assume a more active role in defining EMS responses within the community. Nonetheless, call processing performance in 911 call intake for the city suggests that opportunities exist to enhance this overall process. Based on these finding, it is noted that BFD recently began to respond to all EMS incidents within the city, thereby mitigating the impact the primary to secondary PSAP call transfer delays have on overall response times.

RECOMMENDATION: Should the city assume EMS ambulance transport service; the communications center should implement a call prioritization and pre-arrival instructions system similar to the existing MPDS system employed by MedStar.

SUMMARY

Overall, BFD appears to be an effective and well-managed fire service organization. The workforce reflects a highly motivated group of public employees serving a thriving and growing community. There are opportunities for improvement in current service delivery, and others that will help the city and department in the mid- and long-term timeframe. Nine recommendations are made within this Long-Range Master Plan. The following discussion frames the recommendations from a temporal dimension: those that should be addressed in the immediate or short-term, those appropriate for a mid-term timeframe, and those directed towards a long-term time horizon. In addition, the recommendations address two major themes identified during this engagement: 1) an organization that must evolve to continue addressing the increased demands driven by community growth, and 2) those reflecting the national trend of the fire service's increasing role in the delivery of EMS services.

Short-Term Recommendations

In the short-term, the city should adjust its service provisions, specifically the fire department's organizational structure and deployment of ALS squads, in anticipation of future needs. Additional attention to the 911 communication center and its processing of EMS related calls should be of particular importance to city leadership. This specific recommendation has the greatest potential to improve the citizen's experience when requiring EMS services.

- RECOMMENDATION: The city should assume direct responsibility for EMS transport / ambulance services.
    - Should the city desire, alternatives to this option include MedStar ensuring more resources within city limits, or protocols to permit Burleson to directly transport role when MedStar is delayed in their arrival on scene.
- RECOMMENDATION: Should the city assume EMS ambulance transport service; the communications center should implement a call prioritization and pre-arrival instructions system similar to the existing MPDS system employed by MedStar.
- RECOMMENDATION: Re-align reporting responsibilities of the Fire Marshal's Office as a direct report to the Assistant Fire Chief. This will better align reporting structures of those conducting the majority of annual inspections and delivery of public education activities and place the Fire Marshal's Office under a single command officer.
- RECOMMENDATION: The city should transition ALS squad units from a non-transport design to a transport-capable ambulance. This will ensure greater capability and flexibility at minimal additional capital expense prior to purchasing the second squad asset.

Mid-Term Recommendations

Mid-term recommendations should commence within the next two to three budget cycles. With the exception of the administrative assistant position, each of the other recommendations will require the city to engage with external partners in order to address these needs. Discussions with MedStar

will inform the city's decision to either work with their existing ambulance provider to increase or supplement transport capabilities, or to contemplate the decision to fully assume primary EMS transport responsibilities. Recommendations to outsource or develop sprinkler and fire alarm plans capabilities will likely require additional training for existing staff or identify an appropriate private sector provider. The need to enhance ICS/NIMS training for senior city staff may well involve outside training resources. Accordingly, this two- to three-year timeframe affords city staff time to identify relevant partners and clarify terms of those engagements.

- RECOMMENDATION: The city should consider an additional administrative assistant position within the next few budget cycles to address demands currently handled by operational staff
- RECOMMENDATION: Re-configure the provision of fire sprinkler and fire alarm plan reviews and make it a city responsibility. The department should either develop the capacity in-house or identify and contract with an external provider of these services to ensure a seamless service to the developer community.
- RECOMMENDATION: The fire department should recommend to the City Manager that all city employees having a role during activation of the EOC be required to complete the necessary baseline and additional ICS/NIMS courses recommended by emergency management.
- RECOMMENDATION: The department should continuously monitor development in the Chisholm Summit area and begin design and construction of a new fire station before development begins in earnest – thereby ensuring resources are available to meet demand generated by Chisholm Summit's construction phase and ultimate occupation.
- RECOMMENDATION: The city should evaluate long-term needs for Station #1 and Station #3 to ensure they meet emerging departmental needs. As required, capital funding should be allocated for necessary renovations.

Long-Term Recommendations

In the long-term, the city should annually monitor overall fire department system performance, with recognition that future reinvestment will be required as overall community growth and demand increase. The recommendation for updating the Hazard Mitigation Plan reflect growing concerns of increased community disasters, and community growth supports the need to monitor system performance on an annual basis to inform the decision to reinvest in the fire department's capabilities.

- RECOMMENDATION: The department should undertake a status review of the 2013 action items, while simultaneously beginning an update to the relevant sections of the 2013 Hazard Mitigation Action Plan.
- RECOMMENDATION: The department should monitor long-term annexation, development, population growth, and community demand to assess the need for any additional fire facilities beyond Station #4.

www.fitchassoc.com

July 2021

Final Summary Report

City of Grapevine Fire Department
Grapevine, Texas

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CONSULTANT REPORT

City of Grapevine Fire Department
Executive Summary Report

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EXECUTIVE SUMMARY

This comprehensive summary report includes an executive summary, a presentation slide deck, a quantitative data report, and a geographic information system report. Overall, the firm's strategy is to provide administration and fire department administration with sufficient objective data from which to establish policy. Therefore, all alternatives and recommendations are grounded in the data analysis and best practices insulating the process from potential biases.

Overall, the Grapevine Fire Department is a well-performing professional all-hazards agency. Understanding that the overwhelming preponderance of requests for services from the community were for Emergency Medical Services (EMS), the department wanted to evaluate the efficacy of improving the EMS delivery within the existing deployment portfolio.

Results found that the Medic unit deployment is resource constrained and at least one of the Medic units (Medic 3) will surpass the recommended upper threshold for work on a 24-hour shift. The combination of relatively low frequency of fire related events, low call concurrency, excellent response times, and excellent station placement, the department is in good position to repurpose one fire suppression resource and personnel to the EMS mission.

Therefore, six incremental alternatives were developed for the City and Department's consideration.

In no specific order, the alternatives are defined as follows and can be independently adopted:

1. Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add a fourth medic unit
    a. Reallocation of up to 9 FTEs
2. Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add a fourth medic unit
    a. Reallocation of up to 6 FTEs
3. Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add two medic units
    a. Cost Neutral (No changes to existing staffing strategy)
4. Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add two medic units
    a. Requires 2 additional FTEs for the department
5. Consider Cross Staffing Truck 1 and Medic 1
    a. Cost Neutral
6. Consider Reducing Engine and Truck Responses to EMS Incidents
    a. Minimal cost avoidance for replacement and operating costs
    b. Reintroduces readiness capacity to the system

Community Demands for Service

Commensurate with most communities that provide integrated fire and emergency medical services (EMS), requests for EMS are the vast majority of community driven incident activity. EMS accounts

for 72.2% of the incident activity and nearly 80% of all time on task. Fire related incidents account for 25.5% of the incidents but only 17.3% of the overall time on task. Overall, the patient transport rate was 66%.

Of the *Fire* related activity, reports of outside fires (0.6%), vehicles fires (0.9%), and structure fires (1.1%) account for 2.3% of the total community requests for service.

In 2019, the Grapevine Fire Department answered 6,349 unique requests for service that resulted in 13,387 vehicle movements.

Table 1: Number of Calls, Number of Responses, and Total Busy Time by Program

Program	Number of Calls[1]	Number of Responses[2]	Average Responses per Call	Total Busy Hours	Average Busy Minutes per Response	Average Calls per Day	Average Responses per Day
EMS	4,584	9,738	2.1	6,861.0	42.3	12.6	26.7
Fire	1,620	3,223	2.0	1,498.9	27.9	4.4	8.8
Hazmat	89	167	1.9	84.6	30.4	0.2	0.5
Rescue	56	259	4.6	144.9	33.6	0.2	0.7
Total	**6,349**	**13,387**	**2.1**	**8,589.4**	**38.5**	**17.4**	**36.7**

[1]"Number of Calls" reflects an adjusted number of calls following any exclusion activity to align with responses made by units assigned to GFD (see Appendix).
[2]"Number of Responses" reflects the total number of records in the data file associated with responses made by units assigned to GFD, regardless of calculated busy time.

Observation:
On average the department is sending 2 or more units to calls. There is an opportunity to reduce resource allocation to lower severity incidents.

Observation:
Opportunity to better align resource allocation to the severity of risk.

Observation:
On average, there are 4.8 calls per day for non-EMS activity over the 24-hour period.

Observation:
On average, there are 10 vehicle movements (responses not unique calls) per day for non-EMS activity over the 24-hour period.

Historical Performance

The Grapevine Fire Department currently operates from five fixed facility fire stations and has a travel time of 7.0 minutes overall. In other words, 9 out of 10 times, the department will provide this level of service or better.

Table 2: 90th Percentile Dispatch, Turnout, Travel, and Response Times by Program – First Arriving Units

Program	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size[1]
EMS	1.7	1.8	6.1	8.4	4,381
Fire	2.2	2.0	9.2	11.6	1,423
Hazmat	2.3	1.8	8.4	10.6	88
Rescue	2.6	2.0	6.3	9.1	49
Total	**1.8**	**1.8**	**7.0**	**9.2**	**5,941**

1Sample sizes reflect the number of emergency (lights and sirens) responses made by first arriving primary front-line units assigned to GFD; due to missing or excluded time data, sample sizes corresponding to individual table metrics may be smaller.

Observation:
Overall, the dispatch time is within expectations for a 90th percentile dispatch interval. However, there may be an opportunity to improve the individual performance for fire related activity.

Recommendation:
It is recommended that the dispatch center evaluate performance by program area and look for opportunities for incremental improvement in fire related activity.

Observation:
The travel time is excellent and within the national experience. It is common for urban/suburban areas to perform between 5 and 8 minutes at the 90th percentile.

Turnout Time

Turnout time is defined as the time from when the units are notified of an incident by the dispatch center until the unit identifies that it is enroute to the call. It is highly recommended to maximize turnout time as it is largely a no-cost option under management control to realize improved total response time and efficiency.

National recommendations provide differentiation between EMS and fire/special operations incidents. For example, the best practice for an EMS incident is a turnout time of 60 seconds or less 90% of the time. Due to the necessity to don personal protective equipment prior to responding to fire related incidents, best practices provide either 80 seconds National Fire Protection Association (NFPA) or 90 seconds Commission on Fire Accreditation International (CFAI) or less at the 90th percentile for turnout times associated with fire calls. Therefore, turnout and travel times were reported by the major program areas of EMS and fire.

Observation:
The turnout time is not meeting national best practices of 1 minute for EMS incidents and 1.5 minutes for fire related incidents.

Recommendation:
It is recommended that the department work to align turnout time with best practices.

System Resiliency

The system design was evaluated to determine if any efficiencies or service gaps existed. Overall, the system is very robust and has low call concurrency, high resiliency, and quality response times. Response times were evaluated and discussed previously. However, the EMS (Medic) program is less robust and may benefit from reallocation of resources or investment.

Overlapped or Simultaneous Call Analysis

Overlapped or simultaneous calls are defined as another call being received while one or more calls are already ongoing within the city. For example, if there is an ongoing call in Station 5's zone wherein all units have not yet been cleared, and another request for service occurs in anywhere in the city jurisdiction, those two calls would be captured as overlapped calls.

Understanding the percentage of overlapped calls will help to determine the number of units required to meet the community demand. In general, the larger the call volume, the greater the likelihood of overlapped calls occurring. The distribution of the demand throughout the day will impact the chance of having overlapped calls. Additionally, the duration of a call plays a significant role; the longer it takes to clear a request, the greater the likelihood of having an overlapping request.

Results for these analyses are reported for all calls and by program. Note that for calls by program, overlapped calls represent any call classified in its respective program area, but that overlapped with one or more calls from *any* program area. For example, the department observed 2,996 calls during 2019 that overlapped with one or more calls received by the department—2,433 were classified as EMS calls, 506 were classified as fire calls, 36 were classified as hazmat calls, and 21 were classified as rescue calls. The 2,433 calls that were classified as EMS calls could have overlapped with one or more calls from EMS, fire, or other program areas.

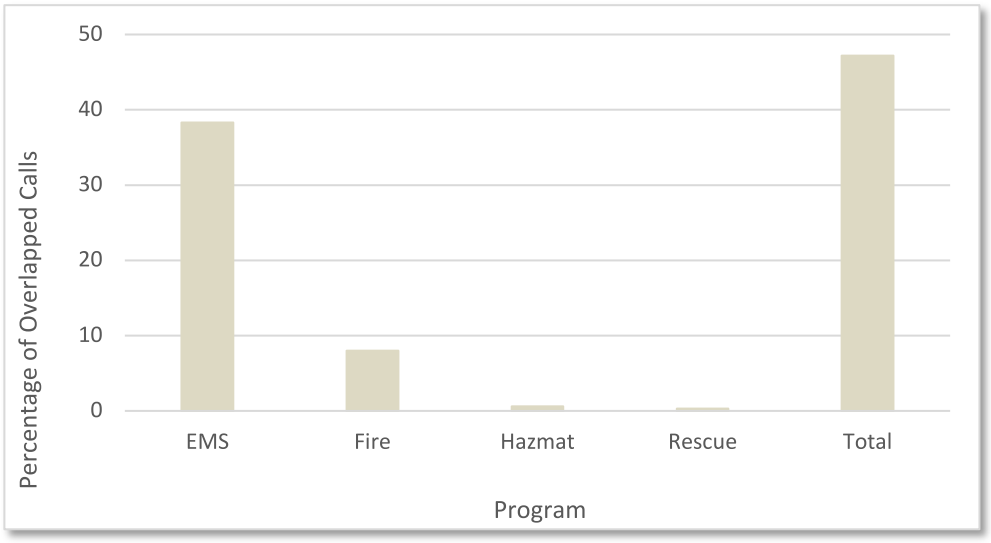
During 2019, GFD observed 47.2% overlapped calls across the department.

Table 3: Overlapped Calls by Program

Program	Overlapped Calls	Total Calls	Percentage of Overlapped Calls
EMS	2,433		38.3
Fire	506		8.0
Hazmat	36	**6,348**[1]	0.6
Rescue	21		0.3
Total	**2,996**		**47.2**

[1]One call was missing maximum unit clear date and time.

Figure 1: Percentage of Overlapped Calls by Program



Observation:
In the Grapevine system, there is greater than an 38% chance that a second call or greater will occur during any EMS response.

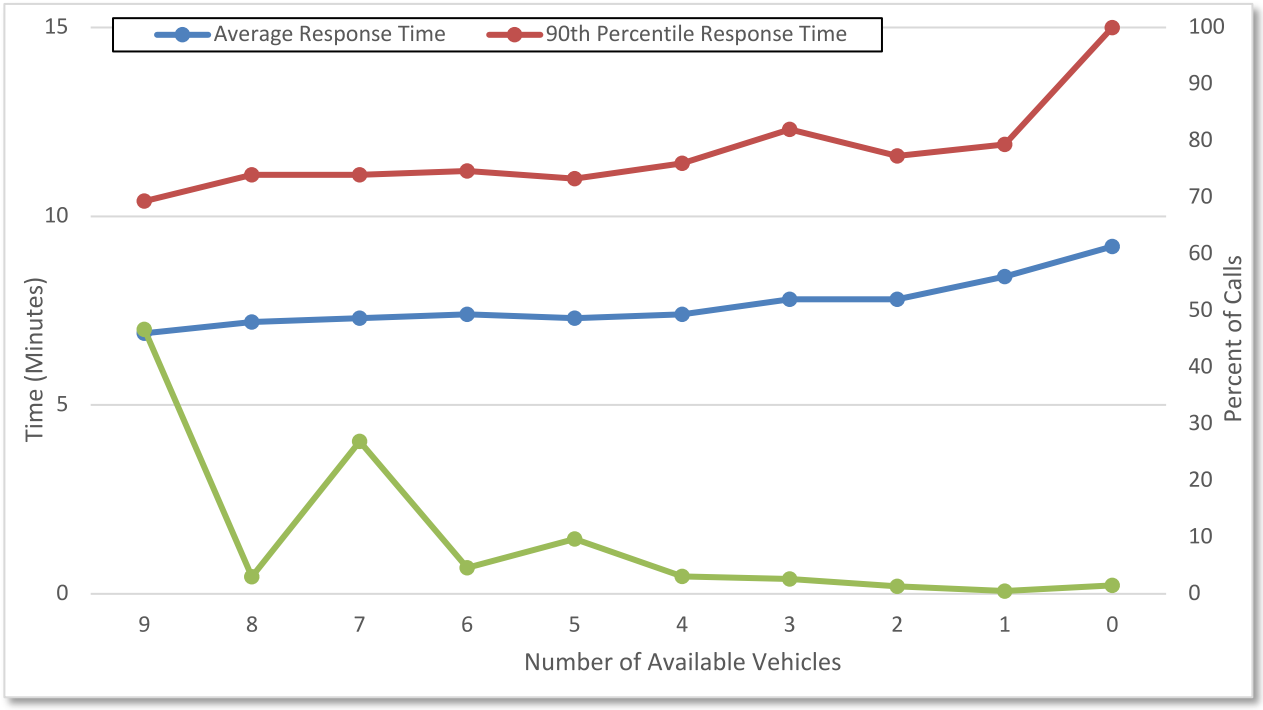
Observation:
In the Grapevine system, there is less than an 10% chance that a second call or greater will occur during any fire, hazmat, or rescue response combined.

Observation:
In other words, there is greater than a 90% chance that the first fire related call can be dispatched, handled, and the unit return to service prior to a second or greater call occurring.

Available Units and the Impact on Response Time

Analyses were completed to measure the relative impact to response time in relation to the number of available units. The green line is the number of available units, and the see-saw nature is the fact that two units are dispatched to nearly every incident. The blue line is the average response time and the red line is the 90th percentile. When a call occurs, nearly 47% of time, all 9 resources are available. Total response time varies by less than 2 minutes between 9 units and 3 units available at the 90th percentile. The average varies by approximately 1 minute between 9 units and 2 units. Approximately 1.5% of the incidents the Grapevine Fire Department was experiencing total exhaustion.

Figure 2: Average and 90th Percentile Response Times by Number of Available Vehicles



Observation:
At the system level, the model is robust and has considerable resiliency in the system as response times are minimally impacted.

Observation:
Overall, 46.7% of the time when a call occurs, all nine resources were available.

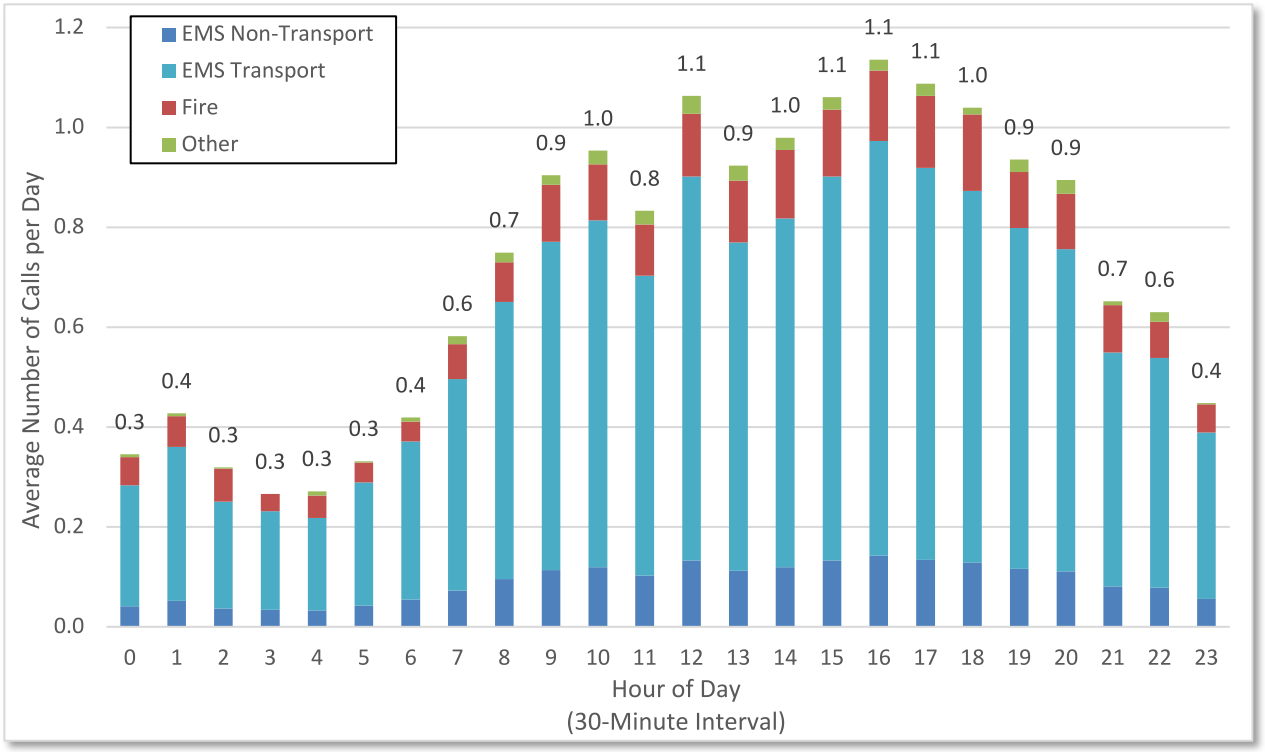
Observation:
However, elongated response times are evidenced below 3 units. This analysis with all 9 units is obscuring the distinct impact on Medic unit capabilities specifically.

Temporal Distribution of Calls and Medic Resource Demands

To provide a more granular understanding of the community's demand for services, this temporal analysis included the average number of calls per hour. The index and color scheme illustrate that the overwhelming community demand is for EMS incidents and that the EMS incidents result in patient transports at a high rate. The call duration for a patient transported to the hospital is over 81 minutes or nearly 1.5 hours.

Therefore, during the peak of the day between approximately 9 am and 9 pm (0900 to 2100), there is one of the three Medic units engaged on a call. On average, this would require the remainder of the City system to deliver Medic and transport services with two units remaining. This elongates the response time and increases the per unit workload.

Figure 3: Average Calls per Day by Hour of Day – 30-Minute Interval Only



Observation:
On average, during the peak of the day, one of the 3 Medic units will be occupied on a call leaving the City system with two Medic units.

Recommendation:
The department could benefit from additional Medic resources to improve resiliency and provide opportunities for efficiency in fire suppression.

Observation:
The fire related incidents rate (0.3 calls per hour) would not indicate a strong community demand for fire services.

Observation:
Reinforces that the overwhelming community demand for services are for EMS.

Establishing Desired Performance

The fire department's current performance is defined as a travel time of 7.0 minutes or less to 90% of the incidents. While this is not well aligned with the National Fire Protection Association's (NFPA) 1710 recommendations of 4-minutes or the Commission on Fire Accreditation International's (CFAI) recommendation of 5-minutes and 12-seconds, the performance of 7.0 minutes is within the national experience for urban departments between 5 and 8 minutes at the 90th percentile.

The evidenced-based research in emergency medical services and fire behavior suggests that if the agency cannot respond to the most critical of incidents within 5-minutes or less from onset, the outcome is not strictly correlated to the response time. In other words, the vast majority of incidents a modern fire department responds to may not be time sensitive. Therefore, the City has considerable latitude in establishing the desired service levels.

This study recognizes that the travel time of approximately 7-minutes is well-aligned with other larger urban/metropolitan fire department agencies and remains a local policy choice. Therefore, analyses focused on optimizing efficiencies within the context of maintaining the quality performance currently provided.

Observation:
Understanding that a 7-minute travel time is well-aligned with national experience in other urban/suburban communities, these analyses focused on optimizing efficiencies within the context of maintaining the quality performance currently provided.

Workload

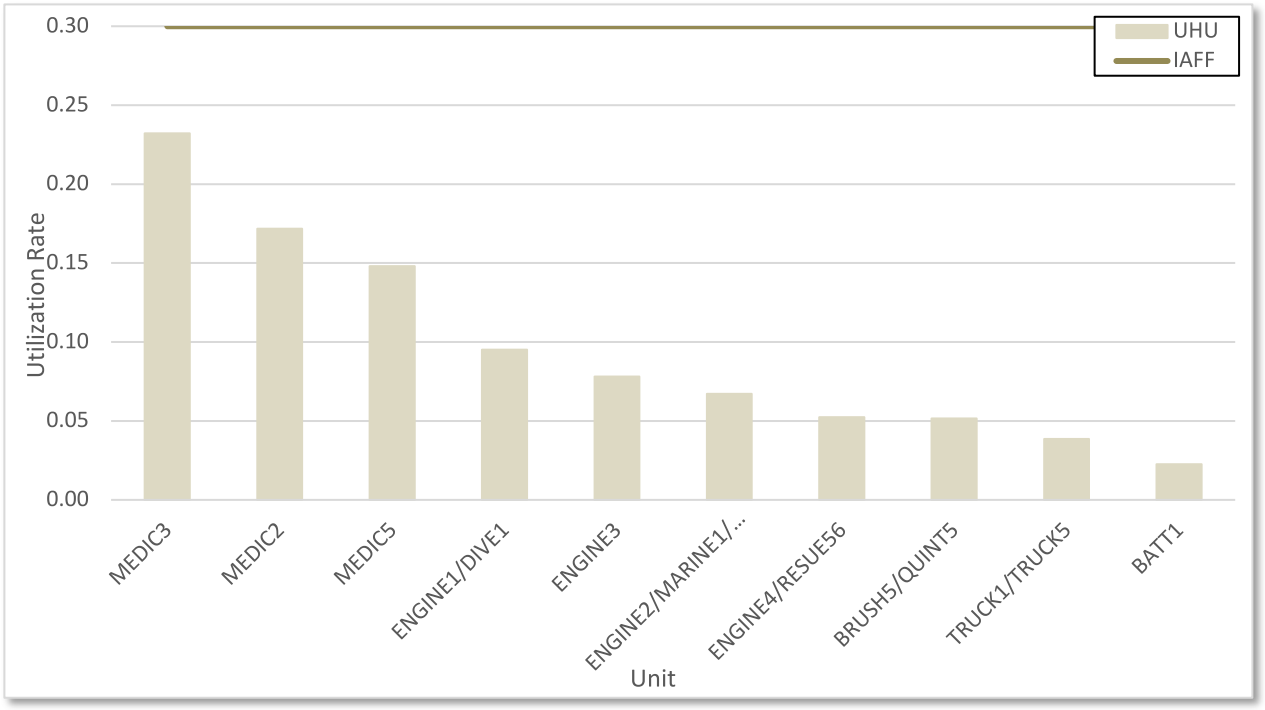
A measure of time on task, is necessary to evaluate best practices in efficient system delivery and consider the impact workload has on personnel. Unit Hour Utilization (UHU) values represent the proportion of the work period (24 hours) that is utilized responding to requests for service.

Historically, the International Association of Fire Fighters (IAFF) has recommended that 24-hour units utilize 0.30, or 30% workload as an upper threshold.[1] In other words, this recommendation would have personnel spend no more than 7.2 hours per day on emergency incidents. These thresholds take into consideration the necessity to accomplish non-emergency activities such as training, health and wellness, public education, and fire inspections. The 4th edition of the IAFF EMS Guidebook no longer specifically identifies an upper threshold. However, *FITCH* recommends that an upper unit utilization threshold of approximately 0.30, or 30%, would be considered best practice. In other words, units and personnel should not exceed 30%, or 7.2 hours, of their workday responding to calls. These recommendations are also validated in the literature. For example, in their review of the City of Rolling Meadows, the Illinois Fire Chiefs Association utilized a UHU threshold of 0.30 as an indication to add additional resources.[2] Similarly, in a standards of cover study facilitated by the Center for Public Safety Excellence, the Castle Rock Fire and Rescue Department utilizes a UHU of 0.30 as the upper limit in their standards of cover due to the necessity to accomplish other non-emergency activities.[3]

[1] International Association of Firefighters. (1995). Emergency *Medical Services: A Guidebook for Fire-Based Systems.* Washington, DC: Author. (p. 11)
[2] Illinois Fire Chiefs Association. (2012). An *Assessment of Deployment and Station Location: Rolling Meadows Fire Department.* Rolling Meadows, Illinois: Author. (pp. 54-55)
[3] Castle Rock Fire and Rescue Department. (2011). Community *Risk Analysis and Standards of Cover.* Castle Rock, Colorado: Author. (p. 58)

All ambulance units had UHU values below 0.30, however, Medic 3 will approach the recommended planning threshold of 0.25 UHU in the near future. Additional Medic resources is the primary method for addressing system limitations due to workload. All of the fire suppression apparatus had UHU values of less than 0.095, or approximately 2.28 hours per day on 911 related activity. Therefore, considerable fire suppression capacity exists within the system.

Figure 4: Unit Hour Utilization



Observation:
All ambulance units are below the upper threshold for work measured by Unit Hour Utilizations. However, 0.25 should be utilized as a planning threshold to ensure that workload does not exceed .30 on 24-hour units.

Observation:
Medic 3 is approaching the upper workload threshold of 0.25 to 0.30 and will require a mitigation strategy.

Observation:
All Fire Suppression units (Engines and Trucks and their cross staffed apparatus) are all below .095 UHU. In other words, the fire suppression apparatus are on calls an average of 2.48 hours per 24-hour period. Therefore, excess capacity exists within the fire suppression program.

Observation:
The overall UHU of the Medic units is 18.4% as compared to the fire suppression units at 6.4%. In other words, the Medic units' workload is nearly three times higher with 66% less resources.

Recommendation:
The department is encouraged to consider the alternative solutions presented in this report that better align EMS resource allocation to community demands for service.

Optimized Staffing

Currently, the department operates from five fixed-facility fire stations where each fire station operates at least one fire suppression engine or truck. All engines and ladders have a minimum of three person staffing and each ambulance has a minimum of two-person staffing. Stations 2, 3, and 5 have 24-hour Medic units (ambulances) assigned. Stations 1 and 4 currently do not have ambulance capability. The minimum daily staffing is currently 26 personnel with a total of 32 personnel assigned to each shift. The breakout of primary apparatus and personnel are provided below.

Table 4: Current Daily Minimum Staffing Strategy

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1	1		8
2			1	1	5
3			1	1	5
4			1		3
5		1		1	5
Total 24/Hr. Staffing	1	7	12	6	26

An optimized staffing analysis was conducted, utilizing mathematical formulae, to determine the most efficient allocation of personnel to maintain the desired staffing. Analyses found that the City was staffing in a responsible manner. Although, there is excess FTE capacity of 2 FTEs, there are benefits to having margin to allow for hiring lag, long term illness or injuries, and some small capacity to cover attrition vacancies reducing the reliance on overtime.

Observation:
Utilizing average leave histories provided by the department, it requires 3.61 FTEs for each daily minimum staffed "seat".

Observation:
Currently, the department staffs with 96 personnel assigned to shift work and the optimized staffing multiple identifies that the department would need 94 to maintain the daily minimum staffing.

Observation:
Overall, the department's FTE allocation is reasonably aligned with best practice.

Alternative Deployment Models for Consideration

Six incremental alternative deployment models were developed for the City's consideration. These alternatives are developed through a comprehensive review of the risk, demand, and performance of the department as well as future growth projections.

In no specific order, the alternatives are defined as follows and can be independently adopted. The FTE estimates include the current excess capacity of 2 FTEs:

1. Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add a fourth medic unit
    a. Reallocation of up to 9 FTEs
2. Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add a fourth medic unit
    a. Reallocation of up to 6 FTEs
3. Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add two medic units
    a. Cost Neutral (No changes to existing staffing strategy)
4. Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add two medic units
    a. Requires 2 additional FTEs for the department
5. Consider Cross Staffing Truck 1 and Medic 1
    a. Cost Neutral
6. Consider Reducing Engine and Truck Responses to EMS Incidents
    a. Minimal cost avoidance for replacement and operating costs
    b. Reintroduces readiness capacity to the system

Alternatives 1 and 2 reallocate existing staff and create excess personnel capacity between 9 and 6 FTEs for potential fiscal savings or cost avoidance. Alternatives 3 and 5 are cost neutral from the personnel perspective. Alternative 4 is the only option that requires additional recurring investments as it requires two additional FTEs for the department. All alternatives will require capital investment for additional Medic units and required equipment.

Recommendation:
The City is encouraged to consider the identified alternatives that provide the greatest value within the environment.

Dynamic System Advantages

Dynamically deployed systems are afforded the greatest efficiency in the utilization of their resources. A traditional fire department model is a *static* system, where each of the resources are assigned a "home" station and after each call they attempt to get back to their home station. Through the lens of direct "home" station area, it passes the commonsense test as the assigned units are assumed to be the closest.

However, from a system or City perspective, efficiencies may be lost as vehicle movements are not engineered or as flexible as they could be during busy periods. It is acknowledged that the department currently utilizes a move-up strategy for Medic units as the system draws down resources. This analysis may assist the agency in refining move-up strategies as appropriate.

The overall performance through quantitative analyses resides at 7.0 minutes at the 90th percentile. This includes all units from the five fixed fire station facilities. In contrast, the GIS analyses suggested that only four of the fire stations were needed to achieve greater than 90% coverage with a 7-minute travel time. This demonstrates the relative positive benefit of the Department continuing to utilize and/or refine a programmatic move up plan following these analyses.

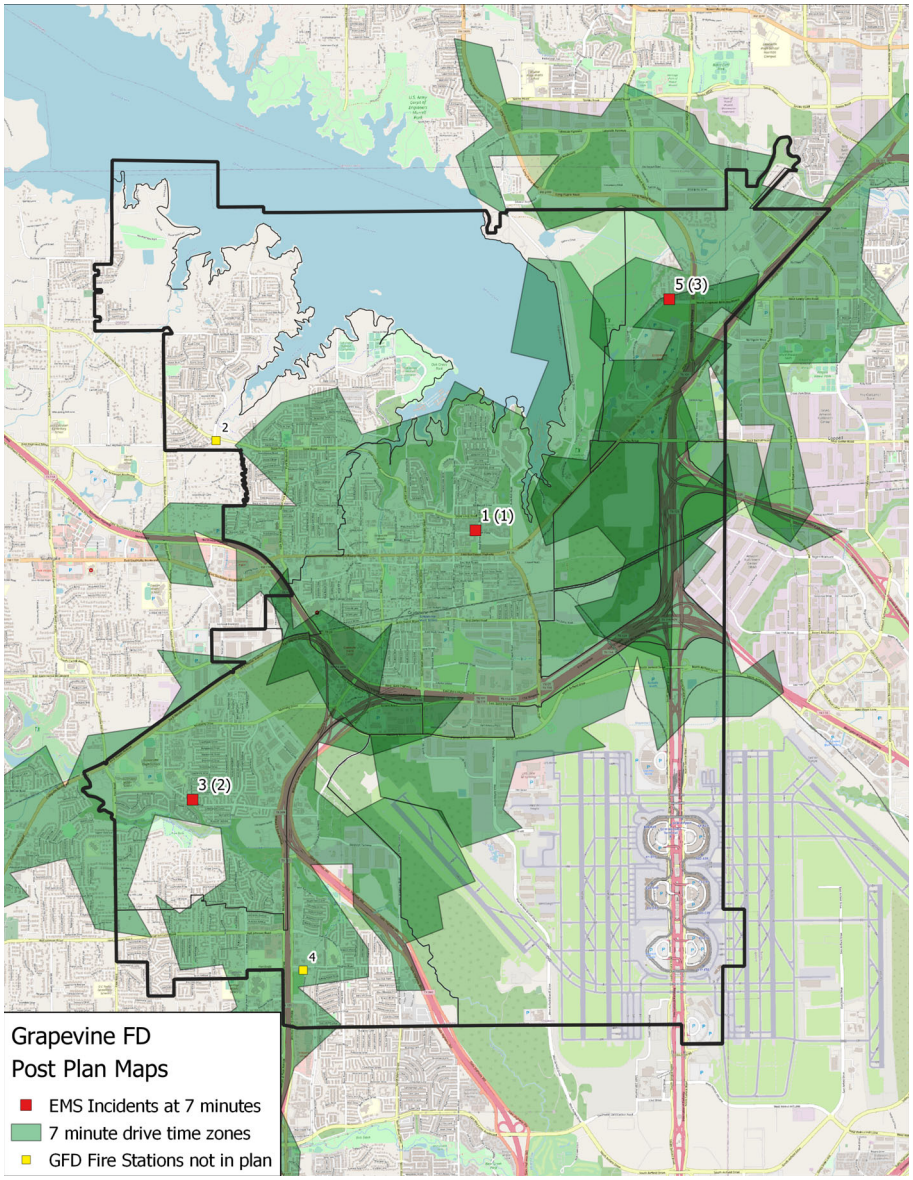
Currently, the department staffs EMS Medic units at Stations 2, 3, and 5. While this strategy is performing well, these analyses suggest that a Station 1, 3, 5 configuration would provide an incrementally more efficient delivery for Medic resources. However, the need for an additional Medic unit to address workload and to better align resource allocation to actual community demands would require the addition of Station 1 to Stations 2, 3, and 5. This four-station configuration would provide for 94% of all EMS calls within the current response time parameters.

Although the correct stations have been selected by the department, the order of the stations provide an incremental efficiency in better aligning resources to the greatest probability of the occurrence of a call. Therefore, following these analyses, if the system was busy and only one medic unit was left available Station 1 should be a consideration. If two units, Station 1 and 3; and three units Stations 1, 3, and then 5; and four units would be at Stations 1, 3, 5, and then 2, respectively.

Table 5: Marginal Fire Station Contribution for 7-Minute Travel Time – EMS Calls

Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	2,384	2,384	55.20%
2	3	1,347	3,731	86.39%
3	5	192	3,923	90.83%
4	2	148	4,071	94.26%
5	4	128	4,199	97.22%

Figure 5: Current Fire Station Bleed Map for 7-Minute Travel Time – EMS Calls



Therefore, in all substantive scenarios a 4th ambulance is recommended. The mechanism to how it is staffed and funded is ultimately the City's and Department's preference. These alternatives provide low to no cost options for implementation.

Recommendation:
In all substantive alternatives a 4th ambulance is recommended.

Observation:
The mechanism to how it is staffed and funded is ultimately the City and Department's preference. These alternatives provide low to no cost options for implementation.

Understanding the marginal utility analyses, Station 4 contributes less than 3% to the city-wide improvement in obtaining the desired response time, placing a Medic unit at Station 4 is not a high operational necessity. However, from a uniform risk mitigation standpoint, following a 4 Medic model, Station 4 would be the only station that didn't have a minimum of a 5-person staffing strategy. If considering increasing staff for Station 4 to ensure that all stations have a similar human resource allocation, there may be an enhanced return on investment by creating a Medic unit for Station 4. Therefore, the consideration of staffing a Medic unit at Station 4 has merit and is tolerant to risk understanding that 94% of the incidents could be handled without Station 4. The call volume is sufficiently infrequent, and the call concurrency is relatively low, so up-staffing for fire related events may not provide the best return on investment. Since nearly 74% of all calls for Station 4 required a Medic unit to respond from another territory, the department could realize efficiencies by having Station 4 handle the majority of their own incidents while simultaneously accounting for the uniform risk mitigation strategy of having all stations staffed with at least 5-personnel.

Observation:
Considering a relatively uniform risk mitigation staffing strategy, the department may want to consider up-staffing Station 4 to have a commensurate human resource allocation at each station, if the four medical alternative is adopted.

Observation:
Since nearly 74% of all calls for Station 4 required a Medic unit to respond from another territory, the department could realize efficiencies by having Station 4 handle the majority of their own incidents while simultaneously accounting for the uniform risk mitigation strategy of having all stations staffed with at least 5-personnel.

Shift-based EMS Supervisory Capacity and Command and Control

The Department's consideration for alternatives that consolidate Engine 1 and Truck 1 and create a 4th Medic unit provides potential for the reallocation of personnel that may introduce opportunities for improvements in other areas. First, with a 4 Medic model or more, EMS field supervision would be appropriate and beneficial to the overall program. It is customary to have an EMS supervisory role that serves the field and is available for additional command and control, quality assurance, clinical guidance, and operational considerations. Therefore, the potential to create a shift-based EMS supervisor within the personnel reallocation may return an excellent return on investment.

Observation:
It is customary to have an EMS supervisory role that serves the field and is available for additional command and control, quality assurance, clinical guidance, and operational considerations.

Recommendation:
Within a 4 Medic model or more, EMS field supervision would be appropriate and beneficial to the overall program.

Second, the department's current practice is to utilize a Medic response to serve as a safety officer and other Battalion Chief aid roles on larger incidents. The allocation of personnel towards the command-and-control function is entirely a local policy choice, however, if the department is desirous, some capacity may be available to assign personnel to this function permanently and eliminate the drawdown of EMS resources specifically for this command function.

Observation:
Currently, the department utilizes Medic unit personnel to serve as a safety officer and chief's aid positions.

Effective Response Force Assembly

There are two prevailing recommendations for the time to assemble an effective response force for structure fires. First, NFPA 1710 suggests that the Effective Response Force (ERF) should arrive in eight (8) minutes travel time or less. Second, the CFAI provides a baseline travel time performance objective of 10 minutes and 24 seconds 90% of the time or less as well as a 13-minute travel time ERF for suburban areas.

The following analyses evaluated each scenario both with and without the impact of the proposed change to an Engine/Truck to a Medic unit. The impact to ERF varies depending on the personnel count. For example, there are some ranges of ERF that would be identical. However, utilizing a 16-person ERF, the modification to staffing would result in less than a 4% difference at 10- and 12-minutes and less than 1% at the 15-minute threshold. Overall, at the 16-person threshold, the difference in ERF assembly is minimal across all performance ranges.

Table 6: Comparisons of Effective Response Force Configurations

Travel Time Objective	Current	Current with Engine/Truck to Medic[4]
8-Minute	7.67%	6.33%
10-Minute	31.85%	29.13%
12-Minute	62.16%	58.64%
15-Minute	90.44%	89.20%

Overall, the ERF coverage is more robust in the center of the jurisdiction where the greatest historical demand exists as well as the ability of the adjacent stations to respond to the core. The areas towards the borders are more challenged since they do not benefit from concentric response zones.

These analyses only contemplated GFD stations, units, and staffing. It is understood that outside agencies may contribute to improvement in actual performance.

[4] ERF calculations adjusted from 3-person unit to a 2-person unit.

Observation:
Like most agencies, the City is challenged to assemble a 16-person ERF within the more restrictive national consensus standard.

Observation:
The modification(s) to staffing would result in less than a 4% difference at 10- and 12-minutes and less than 1% at the 15-minute threshold.

Observation:
Overall, at the 16-person threshold, the difference in ERF assembly is minimal across all performance ranges.

Considerations for ISO

While contemplating alternatives that consolidate the Engine and Truck at Station 1, a policy consideration for the City and Department is if any unintended impacts would occur to the current ISO Public Protection Classification (PPC) of a 2/2x.[5] ISO rates fire departments across the country with a detailed rating structure that allocates 10% to Communications, 50% to the Fire Department, and 40% to Water Supply.

When contemplating utilizing a single Quint apparatus at Station 1, the Credit for Engine Companies and Ladder service should remain relatively constant. In addition, the Credit for Deployment analysis should remain relatively consistent as well, as informed from the effective response force analyses. Therefore, the primary area of variable point structure would be associated with the Credit for Company Personnel. If the fire department simply reallocates personnel to Medic Units, EMS Supervision, and/or Chief's Aid responsibilities, then the same number of personnel would remain at 26. In this scenario, there would be no evidence of an impact to the ISO rating.

However, if the department elected to attrition any of the total daily minimum staffing count in the future, there is some built in flexibility in the overall ratings. Currently, the department's score is an 88.07 with a Class 1 occurring at 90 and Class 2's entry point is at 80. Therefore, the ISO overall score has some flexibility, where the score could decrease but still have capacity to retain the ISO 2 overall score.

Observation:
With reasonable confidence, the developed alternatives should not have a significant impact on the ISO rating.

[5] April 2017 ISO Report.

Figure 6: 2017 ISO Rate Structure

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunicators	3.97	4
432. Credit for Dispatch Circuits	2.61	3
440. Credit for Emergency Communications	9.13	10
Fire Department		
513. Credit for Engine Companies	6.00	6
523. Credit for Reserve Pumpers	0.50	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	1.51	4
553. Credit for Reserve Ladder and Service Trucks	0.48	0.50
561. Credit for Deployment Analysis	8.09	10
571. Credit for Company Personnel	9.05	15
581. Credit for Training	7.30	9
580A. Credit for Texas State Training	0.55	3.26*
*Note: Maximum value for 581 + 580A = 9 points		
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	38.48	50
Water Supply		
616. Credit for Supply System	29.60	30
621. Credit for Hydrants	3.00	3
631. Credit for Inspection and Flow Testing	6.25	7
640. Credit for Water Supply	38.85	40
Divergence	-4.03	--
1050. Community Risk Reduction	4.64	5.50
Texas Addendum Credit- CAFS	1.00	1
Total Credit	88.07	106.50

Finally, there are several areas where the department could improve the ISO credit scores to offset any potential variability with system changes. For example, additional points are available in the Credit for Emergency Communications, Credit for Ladder Service, and Credit for Training, and Credit for Community Risk Reduction. The majority of the opportunities for incremental score improvement are not major investments. The department may want to expand the Quint program, as the Medic program takes a greater role in handling the EMS requests for service.

Observation:
There are several areas where the department could improve the ISO credit scores to offset any potential variability with system changes.

Observation:
As the Medic program takes a greater role in handling the EMS requests for service, the department could improve the Credit for Ladder Service by expanding the Quint model.

Recommendation:
It is recommended that the department improve the ISO credit scores to offset any potential variability with system changes.

Summary of Recommendations

1. It is recommended that the dispatch center evaluate performance by program area and look for opportunities for incremental improvement in fire related activity.

2. It is recommended that the department work to align turnout time with best practices.

3. The department could benefit from additional Medic resources to improve resiliency and provide opportunities for efficiency in fire suppression.

4. The department is encouraged to consider the alternative solutions presented in this report that better align EMS resource allocation to community demands for service.

5. The City is encouraged to consider the identified alternatives that provide the greatest value within the environment.

6. In all substantive alternatives a 4th ambulance is recommended.

7. Within a 4 Medic model or more, EMS field supervision would be appropriate and beneficial to the overall program.

8. It is recommended that the department improve the ISO credit scores to offset any potential variability with system changes.

Summary of Observations

1. On average the department is sending 2 or more units to calls. There is an opportunity to reduce resource allocation to lower severity incidents.

2. Opportunity to better align resource allocation to the severity of risk.

3. On average, there are 4.8 calls per day for non-EMS activity over the 24-hour period.

4. On average, there are 10 vehicle movements (responses not unique calls) per day for non-EMS activity over the 24-hour period.

5. Overall, the dispatch time is within expectations for a 90th percentile dispatch interval. However, there may be an opportunity to improve the individual performance for fire related activity.

6. The travel time is excellent and within the national experience. It is common for urban/suburban areas to perform between 5 and 8 minutes at the 90th percentile.

7. The turnout time is not meeting national best practices of 1 minute for EMS incidents and 1.5 minutes for fire related incidents.

8. In the Grapevine system, there is greater than an 38% chance that a second call or greater will occur during any EMS response.

9. In the Grapevine system, there is less than an 10% chance that a second call or greater will occur during any fire, hazmat, or rescue response combined.

10. In other words, there is greater than a 90% chance that the first fire related call can be dispatched, handled, and the unit return to service prior to a second or greater call occurring.

11. At the system level, the model is robust and has considerable resiliency in the system as response times are minimally impacted.

12. Overall, 46.7% of the time when a call occurs, all nine resources were available.

13. However, elongated response times are evidenced below 3 units. This analysis with all 9 units is obscuring the distinct impact on Medic unit capabilities specifically.

14. On average, during the peak of the day, one of the 3 Medic units will be occupied on a call leaving the City system with two Medic units.

15. The fire related incidents rate (0.3 calls per hour) would not indicate a strong community demand for fire services.

16. Reinforces that the overwhelming community demand for services are for EMS.

17. Understanding that a 7-minute travel time is well-aligned with national experience in other urban/suburban communities, these analyses focused on optimizing efficiencies within the context of maintaining the quality performance currently provided.

18. All ambulance units are below the upper threshold for work measured by Unit Hour Utilizations. However, 0.25 should be utilized as a planning threshold to ensure that workload does not exceed .30 on 24-hour units.

19. Medic 3 is approaching the upper workload threshold of 0.25 to 0.30 and will require a mitigation strategy.

20. All Fire Suppression units (Engines and Trucks and their cross staffed apparatus) are all below .095 UHU. In other words, the fire suppression apparatus are on calls an average of 2.48

hours per 24-hour period. Therefore, excess capacity exists within the fire suppression program.

21. The overall UHU of the Medic units is 18.4% as compared to the fire suppression units at 6.4%. In other words, the Medic units' workload is nearly three times higher with 66% less resources.

22. Utilizing average leave histories provided by the department, it requires 3.61 FTEs for each daily minimum staffed "seat".

23. Currently, the department staffs with 96 personnel assigned to shift work and the optimized staffing multiple identifies that the department would need 94 to maintain the daily minimum staffing.

24. Overall, the department's FTE allocation is reasonably aligned with best practice.

25. The mechanism to how it is staffed and funded is ultimately the City and Department's preference. These alternatives provide low to no cost options for implementation.

26. Considering a relatively uniform risk mitigation staffing strategy, the department may want to consider up-staffing Station 4 to have a commensurate human resource allocation at each station, if the four medical alternative is adopted.

27. Since nearly 74% of all calls for Station 4 required a Medic unit to respond from another territory, the department could realize efficiencies by having Station 4 handle the majority of their own incidents while simultaneously accounting for the uniform risk mitigation strategy of having all stations staffed with at least 5-personnel.

28. It is customary to have an EMS supervisory role that serves the field and is available for additional command and control, quality assurance, clinical guidance, and operational considerations.

29. Currently, the department utilizes Medic unit personnel to serve as a safety officer and chief's aid positions.

30. Like most agencies, the City is challenged to assemble a 16-person ERF within the more restrictive national consensus standard.

31. The modification(s) to staffing would result in less than a 4% difference at 10- and 12-minutes and less than 1% at the 15-minute threshold.

32. Overall, at the 16-person threshold, the difference in ERF assembly is minimal across all performance ranges.

33. With reasonable confidence, the developed alternatives should not have a significant impact on the ISO rating.

34. There are several areas where the department could improve the ISO credit scores to offset any potential variability with system changes.

35. As the Medic program takes a greater role in handling the EMS requests for service, the department could improve the Credit for Ladder Service by expanding the Quint model.

REPORT PRESENTATION BODY

City of Grapevine, TX

Fire Department Operational and Efficiency Study

Community Response History

Community Demand

- EMS accounts for largest share of community requests for service
- Total of 4,602 unique incidents in 2019
- 17.5 calls per day
- Year over year growth in calls varied between -2.3% and 7.5%
- Average year over year growth is approximately 2.5% per year
- National experience is between 3% and 7% in EMS growth

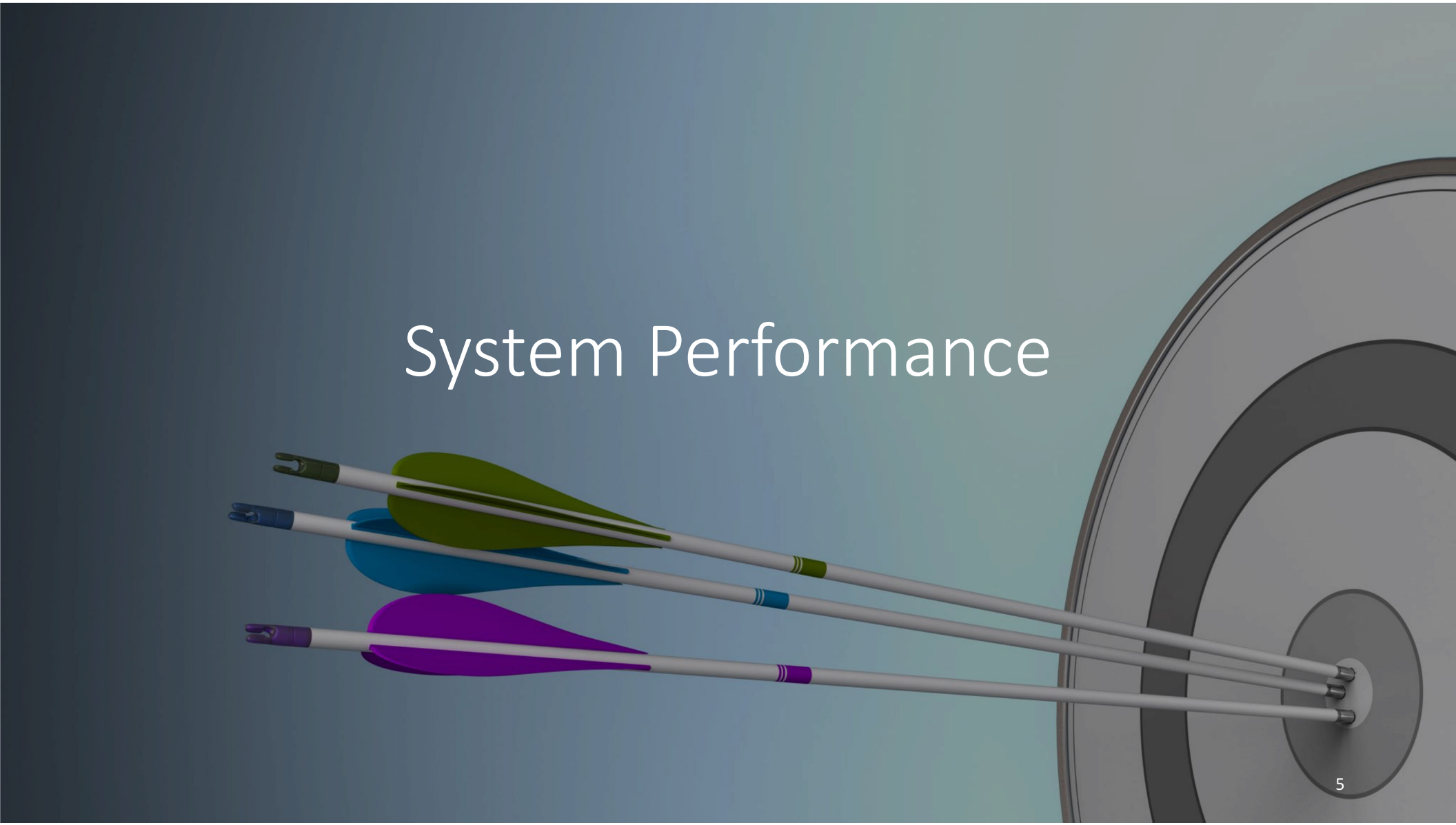
Call Category	Reporting Period		
	2017	2018	2019
Cardiac and Stroke	428	408	423
Death	1	1	0
Difficulty Breathing	359	353	375
Fall and Injury	1,084	954	1,067
Illness and Other	1,270	1,171	1,311
Mutual Aid	109	125	94
MVA	599	624	649
Overdose and Psychiatric	156	158	225
Seizure and Unconsciousness	407	387	458
EMS Total	**4,413**	**4,181**	**4,602**
Fire Alarm	533	572	558
Fire Other	262	255	320
Mutual Aid	117	139	119
Outside Fire	43	63	37
Public Service	421	449	467
Structure Fire	87	95	69
Vehicle Fire	55	47	55
Fire Total	**1,518**	**1,620**	**1,625**
Hazmat	87	94	90
Hazmat Total	**87**	**94**	**90**
Rescue	50	35	56
Rescue Total	**50**	**35**	**56**
Total	**6,068**	**5,930**	**6,373**
Average Calls per Day	**16.6**	**16.2**	**17.5**
YoY Growth	**N/A**	**-2.3%**	**7.5%**

Call Category	Number of Calls	Average Calls per Day	Call Percentage
Cardiac and Stroke	423	1.2	6.6
Death	0	0.0	0.0
Difficulty Breathing	375	1.0	5.9
Fall and Injury	1,067	2.9	16.7
Illness and Other	1,311	3.6	20.6
Mutual Aid	94	0.3	1.5
MVA	649	1.8	10.2
Overdose and Psychiatric	225	0.6	3.5
Seizure and Unconsciousness	458	1.3	7.2
EMS Total	**4,602**	**12.6**	**72.2**
Fire Alarm	558	1.5	8.8
Fire Other	320	0.9	5.0
Mutual Aid	119	0.3	1.9
Outside Fire	37	0.1	0.6
Public Service	467	1.3	7.3
Structure Fire	69	0.2	1.1
Vehicle Fire	55	0.2	0.9
Fire Total	**1,625**	**4.5**	**25.5**
Hazmat	90	0.2	1.4
Hazmat Total	**90**	**0.2**	**1.4**
Rescue	56	0.2	0.9
Rescue Total	**56**	**0.2**	**0.9**
Total	**6,373**	**17.5**	**100.0**

Community Demand

- EMS accounts for 72.2% of the requests for service
- Fire related incidents accounts for 25.5% of the incidents
- Special risks such as hazmat and technical rescue are combined 2.3% of demand
- Outside, Vehicle, and Structure fires combined account for 2.6% of the demand.
- Validates an EMS centric resource allocation

System Performance



2019 Historical Performance

- Measured at the 90th percentile
- Considering "Travel Time"
- EMS is at 6.1 minutes
- Fire is at 9.2 minutes
- Grapevine system performance is at 7.0 minutes overall

Program	Dispatch Time (Minutes)	Turnout Time (Minutes)	Travel Time (Minutes)	Response Time (Minutes)	Sample Size[1]
EMS	1.7	1.8	6.1	8.4	4,381
Fire	2.2	2.0	9.2	11.6	1,423
Hazmat	2.3	1.8	8.4	10.6	88
Rescue	2.6	2.0	6.3	9.1	49
Total	1.8	1.8	7.0	9.2	5,941

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2019 Historical Performance

- Measured at the 90th percentile
- Considering "Travel Time"
- Engines is at 6.8 minutes
- Quints is at 9.2 minutes
- Truck is at 8.7 minutes
- Medics at 6.4 minutes
- The first due experience of the Quint and Truck are 11.9% of the overall call volume likely contributing to the 90th percentile Fire Program experience

Unit Type	Travel Time (Minutes)	Number of First Arrivals	Number of First Arrivals with Travel Times
Battalion Chief	8.3	99	87
Engine	6.8	3,447	3,363
Medic	6.4	1,676	1,628
Quint	9.2	475	452
Truck	8.7	244	234
Total	7.0	5,941	5,764

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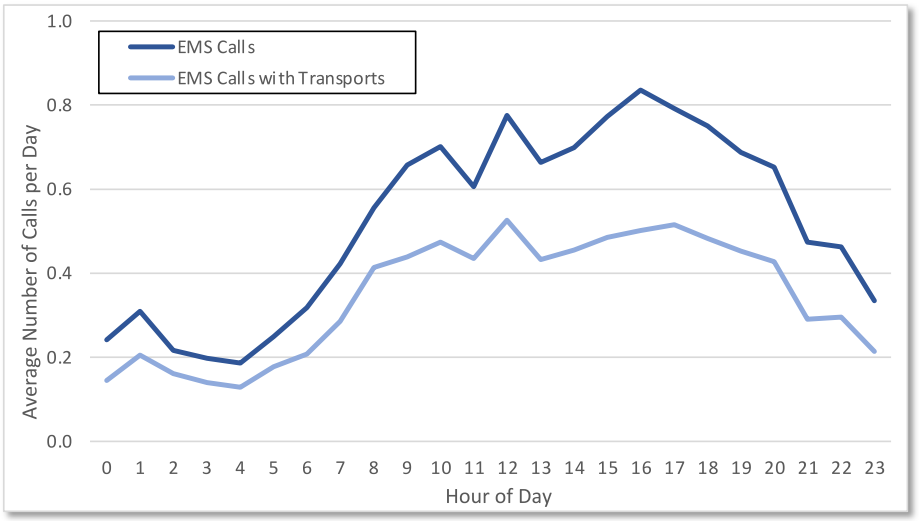
Patient Transport Rates



- Very close relationship between EMS calls and calls that resulted in patient transportation to the hospital
- Reinforces a consistent and clinically driven patient centered decision process for patient care and transportation
- Transport Rate is 66%

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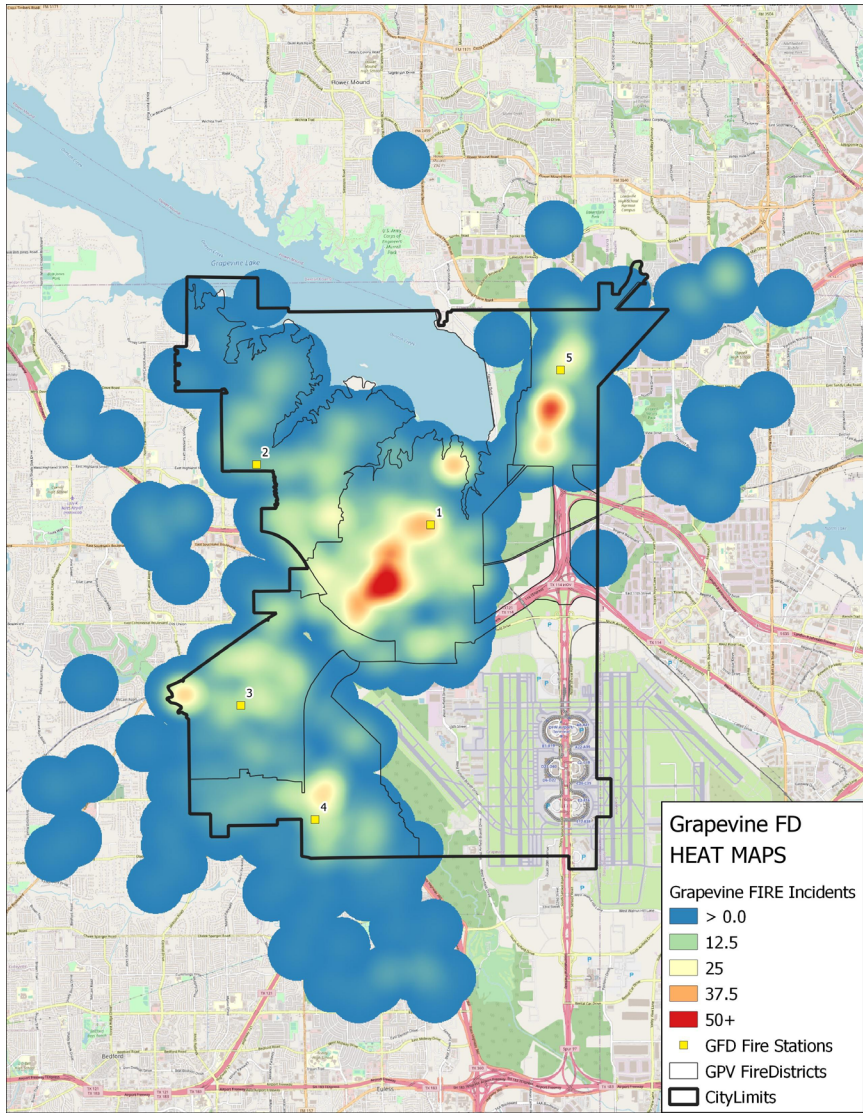
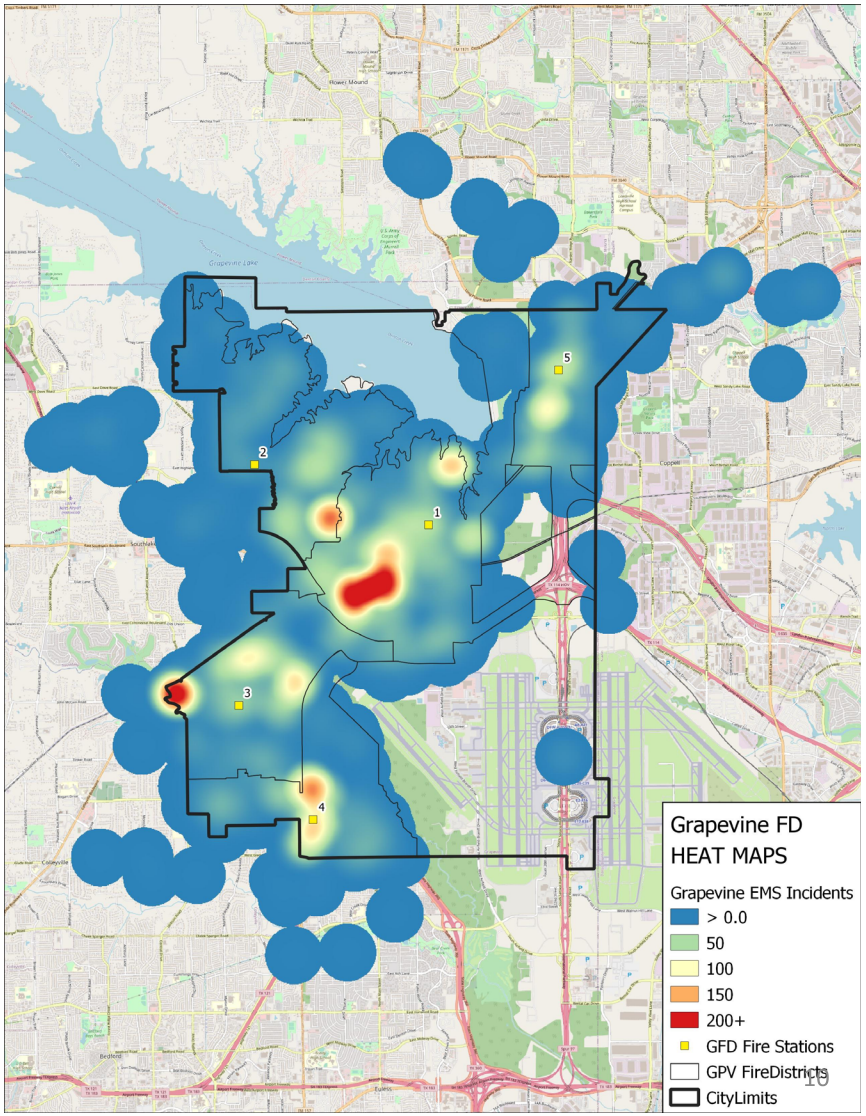
Risk Assessment

Fire Incidents



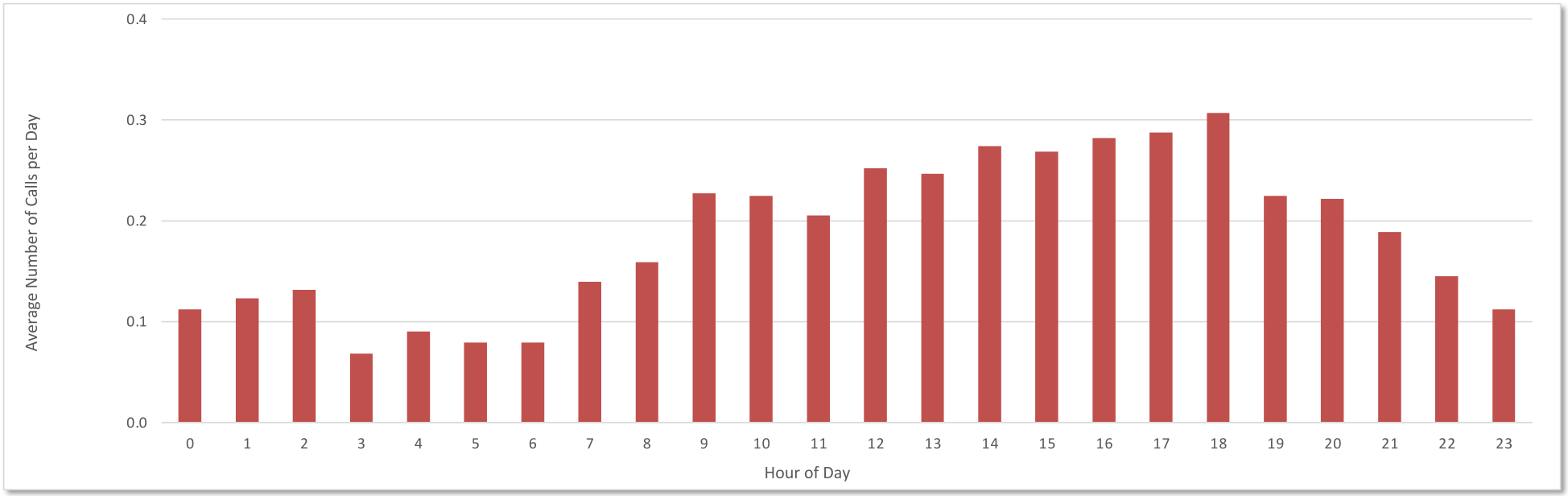
EMS Incidents

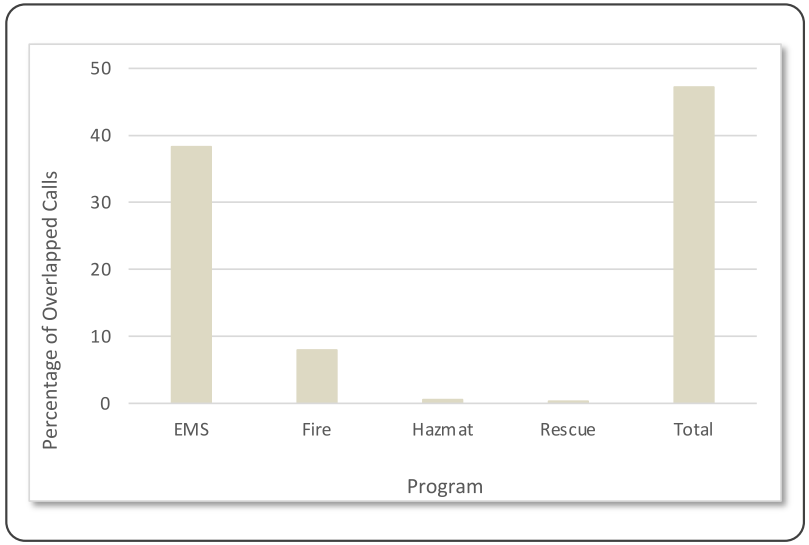



System Resiliency

Fire Related Demand

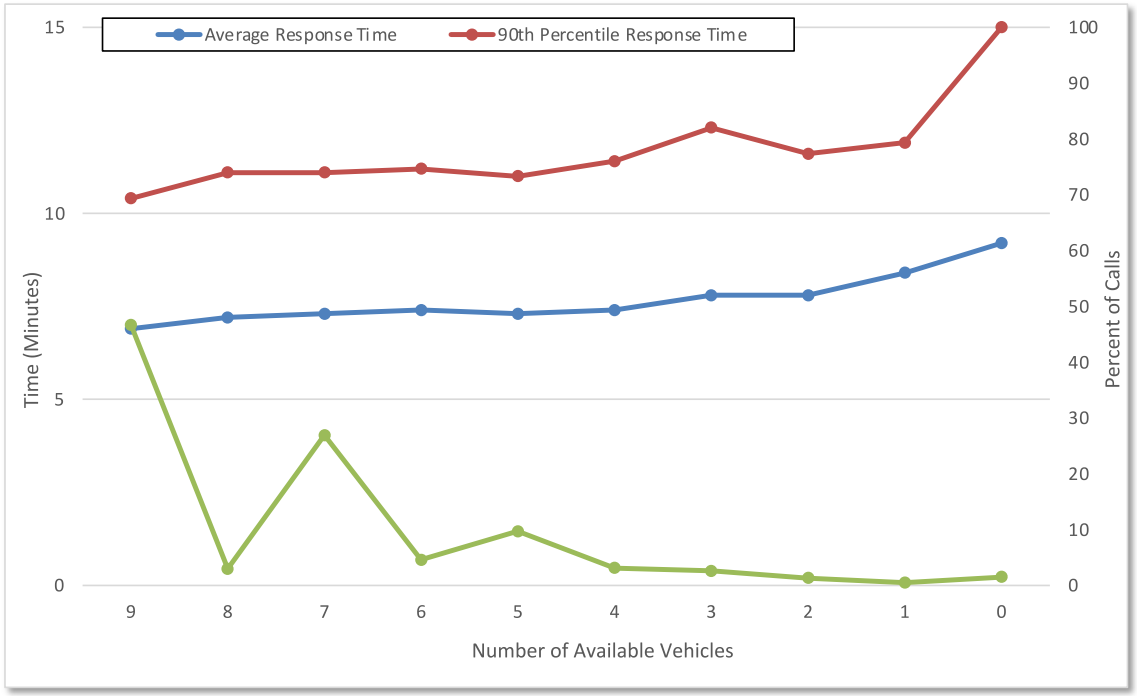
- The rate of fire related incidents would not indicate a strong community demand for fire services
- Average hourly demand 0.3 calls per hour at the peak
- In other words, on average a Fire a fire related incident occurs about every third day or more when considering any specific hour
- Reinforces that the overwhelming community demand for services are for EMS





- As a system, the simultaneous call rate is 47.2%
- In other words, 47.2% of the time when a call can occurs and a second or greater incident may occur prior to the first call concluding and the unit going back to available status
  - 38.3% of the simultaneity is due to EMS activity
- Fire (and all non-EMS) related activity only has a call concurrency rate of 8.9%
  - In other words, approximately 91% of the time when a non-EMS incident occurs the incident can be mitigated, and the units returned to available status prior to another non-EMS event occurring

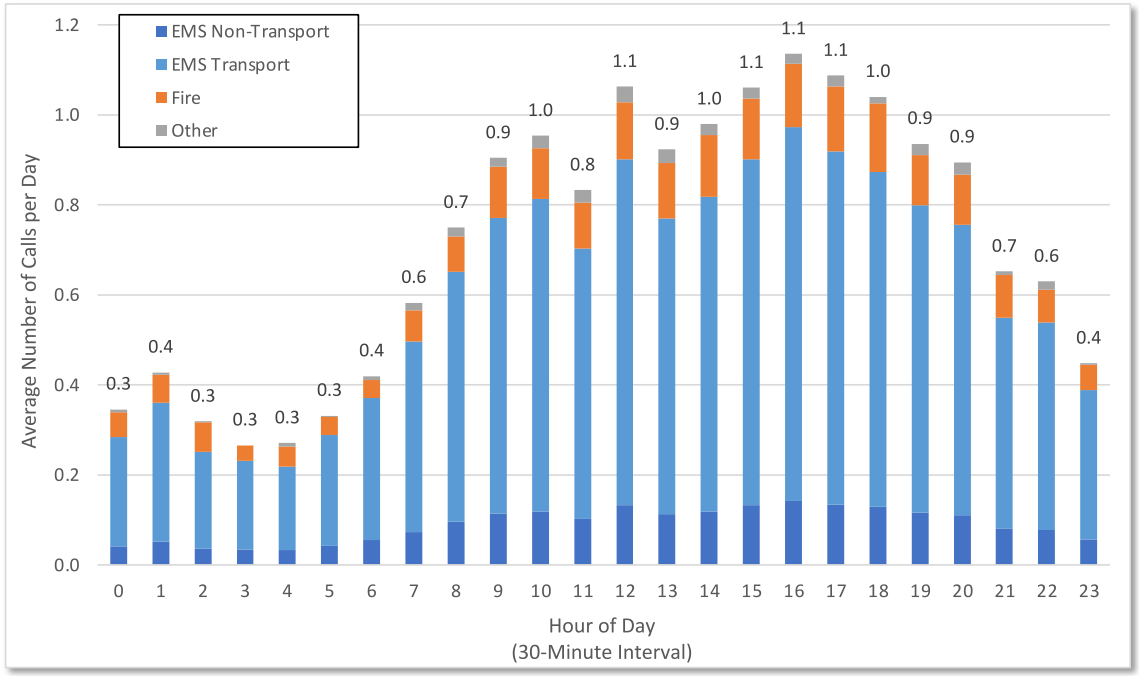
Simultaneous Events



- When a call occurs, 46.7% of the time all 9 resources are available
- The total response time varies less than 2 minutes at the 90th percentile between 9 units available and 3 units.
- The average response time varies approximately 1 minute between 9 available vehicles and 2
  - Data suggests approximately 95 times in 2019 there were zero vehicles available in Grapevine
  - Equating to 1.5% of the incidents

Measures of Resiliency

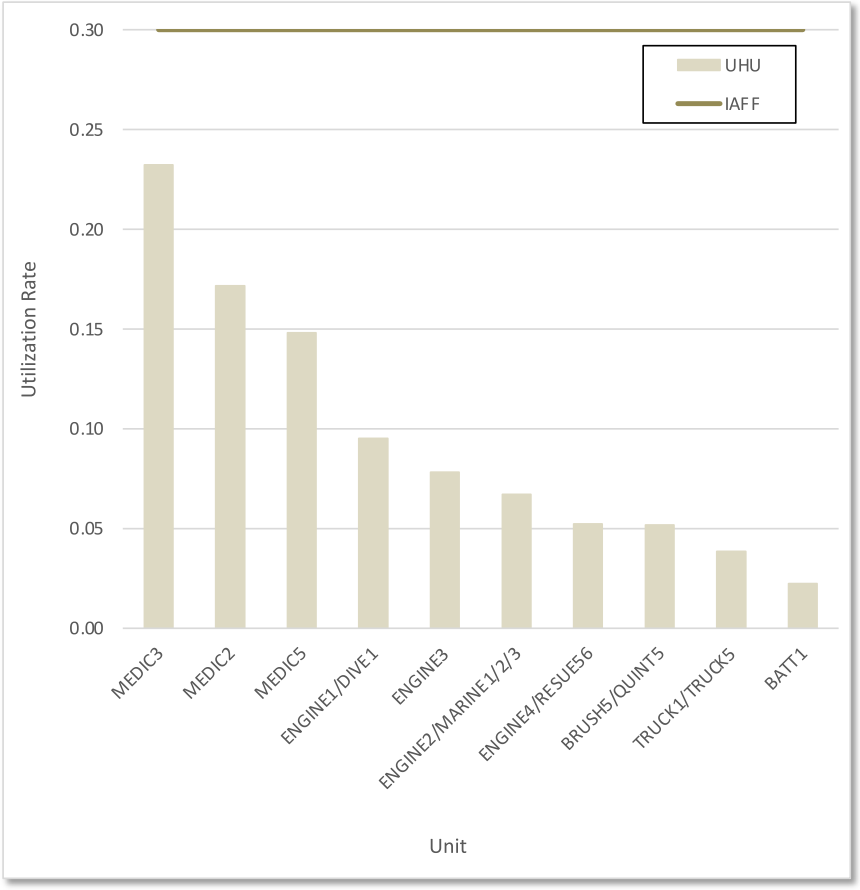
Temporal Distribution



- The community demand is at its peak between 9 am and 9 pm
- Generally, there is an average of 1 call per hour throughout the peak periods

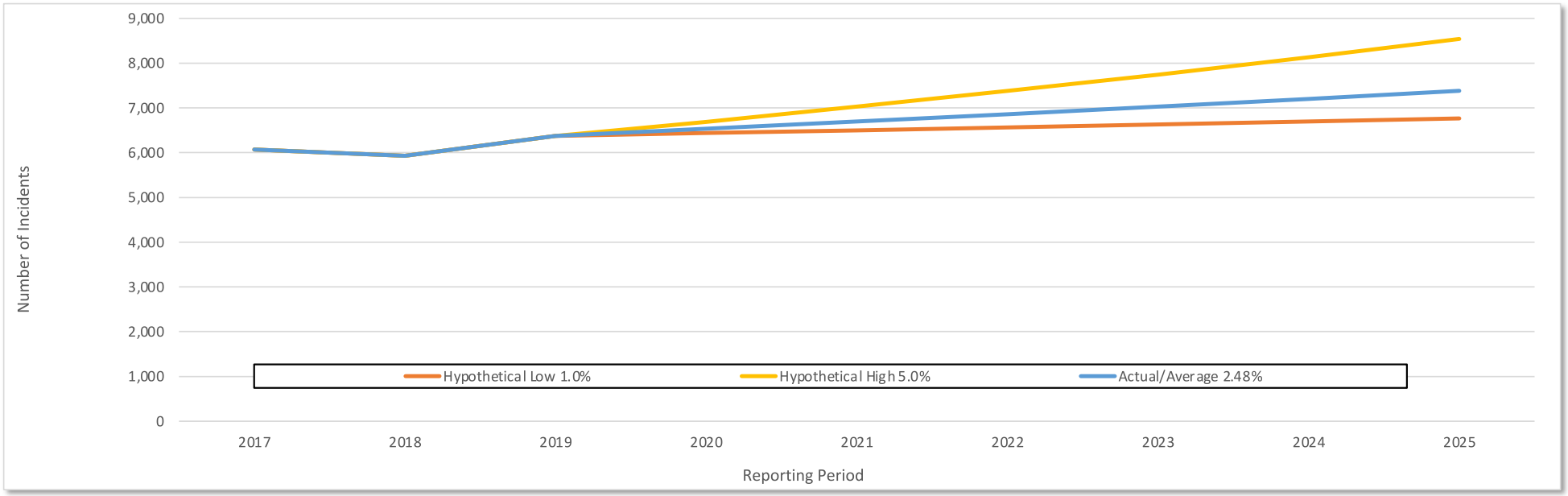
Unit Hour Utilization

- Considering how much work is to much work
- Best practice is not to exceed 0.25 to 0.30-unit hour utilization within a 24-hour shift
- Medic 3 will cross the recommended threshold soon and will require some mitigation strategy and/or reinvestment
- Overall, the current workload indicates that there is excess capacity in the system and therefore can absorb more work
  - Particularly, in fire suppression
  - Fire units have an average of 6.4% UHU compared to 18.4% for the Medic Units



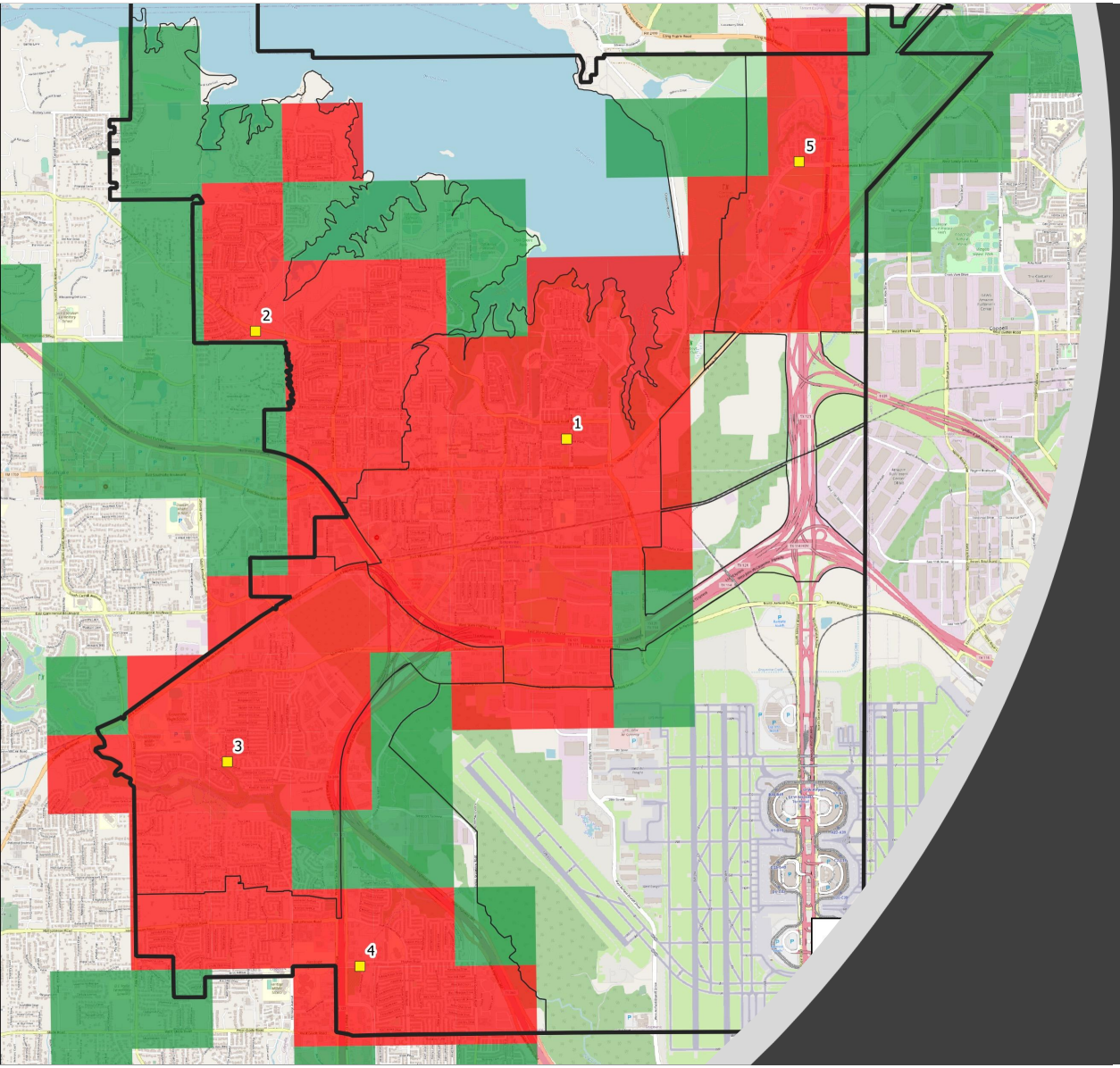
Projected Growth

- Community requests for services had a year of year growth of 2.48% over the study period
- If the last three years is representative of the future, demand will be relatively stable
- In our experience most of the country is growing by 3% to 7% per year in EMS incidents



Desired Performance and Station Locations

- All Calls

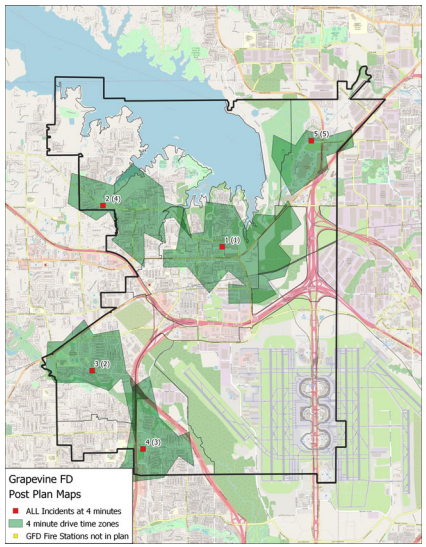


Call Density Validates Station Locations

Overall, the station placement is well aligned with the demand for services

4-Minute Travel Time

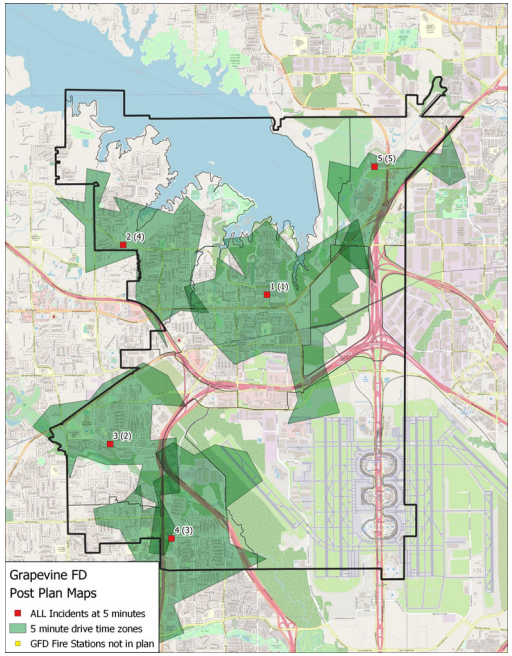
- The current configuration can meet approximately 47% of the incidents within 4-minutes travel time or less



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	816	816	13.85%
2	3	636	1,452	24.65%
3	4	562	2,014	34.19%
4	2	396	2,410	40.92%
5	5	342	2,752	46.72%

5-Minute Travel Time

- Current configuration can meet approximately 71% of the incidents within 5-minutes travel time or less



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	1,673	1,673	28.40%
2	3	940	2,613	44.36%
3	4	666	3,279	55.67%
4	2	534	3,813	64.74%
5	5	355	4,168	70.76%

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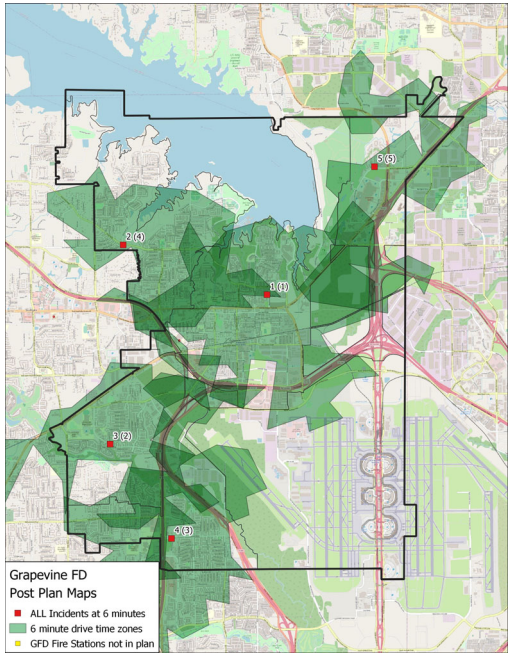
6-Minute Travel Time

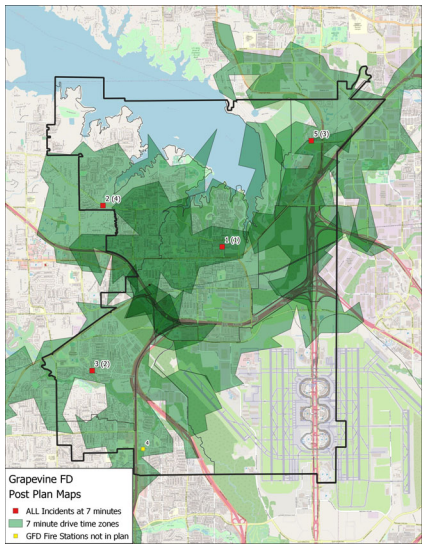
- Current configuration can meet approximately 90% of the incidents within 6-minutes travel time or less



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	2,515	2,515	42.70%
2	3	1,381	3,896	66.15%
3	4	585	4,481	76.08%
4	2	480	4,961	84.23%
5	5	367	5,328	90.46%

7-Minute Travel Time

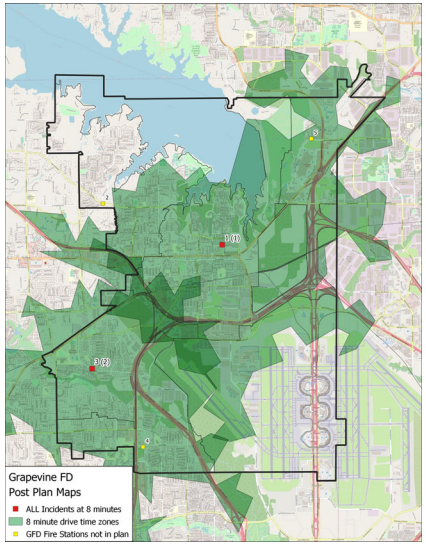
- Current configuration can meet approximately 96% of the incidents within 7-minutes travel time or less
- A four-station configuration can meet approximately 93% of the incidents within 7-minutes travel time



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	3,245	3,245	55.09%
2	3	1,692	4,937	83.82%
3	5	294	5,231	88.81%
4	2	243	5,474	92.94%
5	4	186	5,660	96.10%

8-Minute Travel Time

- Current configuration can meet approximately 98% of the incidents within 8-minutes travel time or less
- A two-station configuration can meet approximately 93% of the incidents within 8-minutes travel time



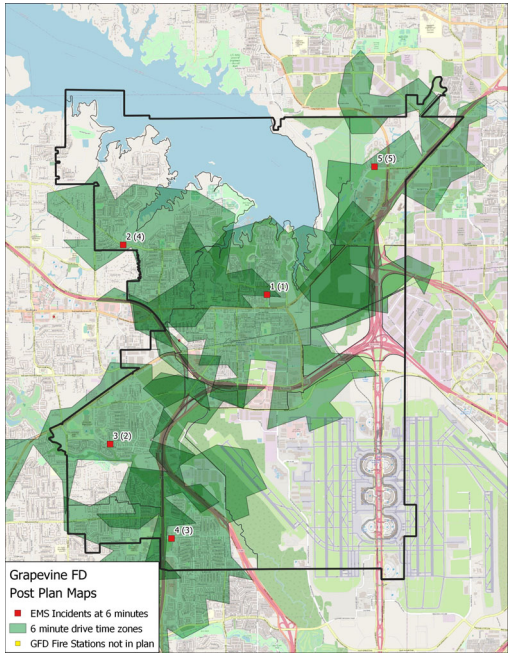
Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	3,622	3,622	61.49%
2	3	1,883	5,505	93.46%
3	2	187	5,692	96.64%
4	5	33	5,725	97.20%
5	4	18	5,743	97.50%

Desired Performance and Station Locations

- EMS Calls

6-Minute Travel Time

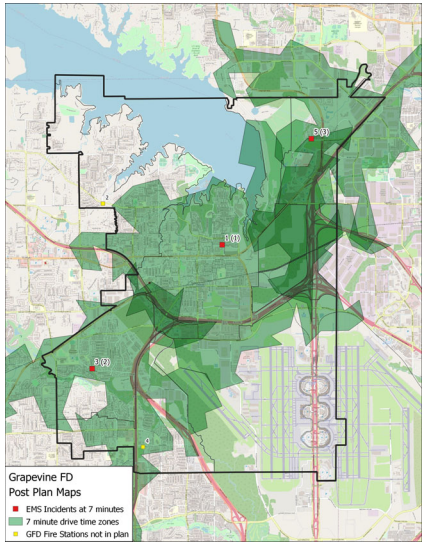
- Current configuration can meet approximately 92% of the EMS incidents within 6-minutes travel time or less



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	1,866	1,866	43.20%
2	3	1,121	2,987	69.16%
3	4	418	3,405	78.84%
4	2	328	3,733	86.43%
5	5	248	3,981	92.17%

7-Minute Travel Time

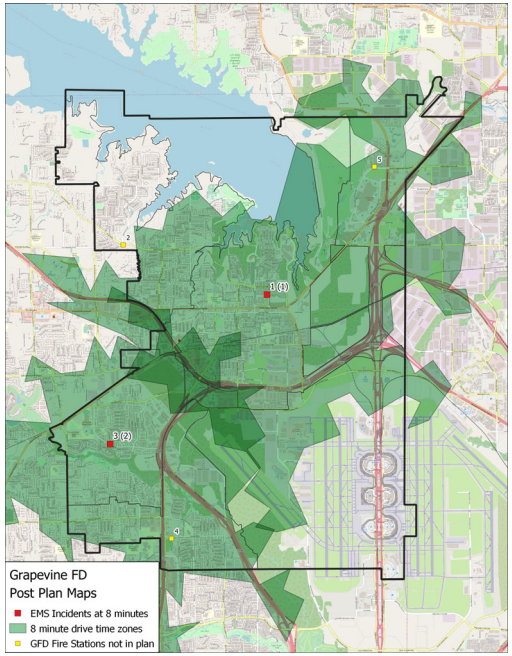
- Current configuration can meet approximately 97% of the EMS incidents within 7-minutes travel time or less
- A three-station configuration can meet approximately 91% of the EMS incidents within 7-minutes travel time



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	2,384	2,384	55.20%
2	3	1,347	3,731	86.39%
3	5	192	3,923	90.83%
4	2	148	4,071	94.26%
5	4	128	4,199	97.22%

8-Minute Travel Time

- Current configuration can meet approximately 98% of the EMS incidents within 8-minutes travel time or less
- A two-station configuration can meet approximately 95% of the EMS incidents within 8-minutes travel time



Rank	Station	Station Capture	Total Capture	Percent Capture
1	1	2,625	2,625	60.78%
2	3	1,477	4,102	94.98%
3	2	116	4,218	97.66%
4	5	19	4,237	98.10%
5	4	2	4,239	98.15%

Staffing Considerations

Time on Task

- While EMS accounts for 72.2% of the requests for service, EMS accounts for 79.9% of all time on task for 911 generated activity
- Conversely, fire related activity accounted for 25.5% of the calls but only 17.3% of all time on task
- Hazmat accounted for 1% of the time on task
- Technical Rescue accounted for 1.7% of the overall time on task
- Validates an EMS centric resource allocation

Program	Number of Calls[1]	Number of Responses[2]	Average Responses per Call	Total Busy Hours	Responses with Time Data[3]	Average Busy Minutes per Response	Average Calls per Day	Average Responses per Day
EMS	4,584	9,738	2.1	6,861.0	9,730	42.3	12.6	26.7
Fire	1,620	3,223	2.0	1,498.9	3,218	27.9	4.4	8.8
Hazmat	89	167	1.9	84.6	167	30.4	0.2	0.5
Rescue	56	259	4.6	144.9	259	33.6	0.2	0.7
Total	6,349	13,387	2.1	8,589.4	13,374	38.5	17.4	36.7

Current Deployment Minimum Staffing

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1	1		8
2			1	1	5
3			1	1	5
4			1		3
5		1		1	5
Total 24/Hr.	1	7	12	6	26

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- The department has a minimum staffing threshold of 26 prior to hiring back on overtime

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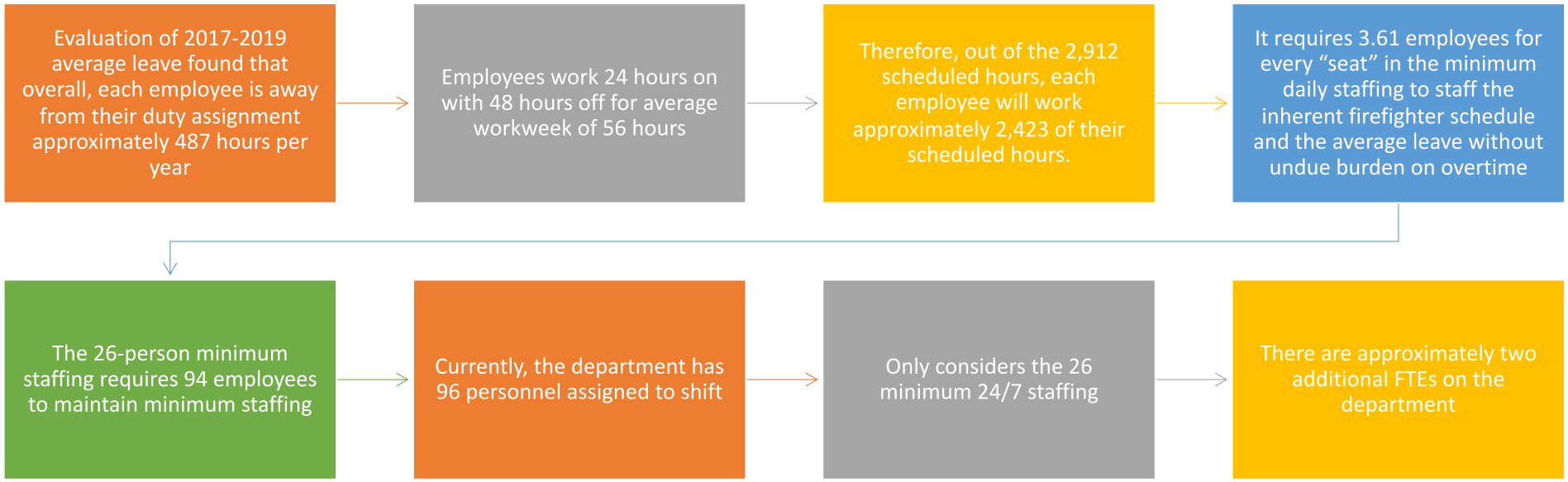
Optimized Staffing



Effective Response Force Evaluations

Effective Response Force Calculations

- Approximately, 90% coverage of assembling an Effective Response Force (ERF) within 15-minutes
  - GFD utilizes 16 personnel in their ERF
- Evaluated the relative impact to ERF if reallocated a fire suppression apparatus to a 4th Medic unit
  - Minimal impact at approximately 4% or less coverage difference

Travel Time Objective	Current	Current with Engine/Truck to Medic
8-Minute	7.67%	6.33%
10-Minute	31.85%	29.13%
12-Minute	62.16%	58.64%
15-Minute	90.44%	89.20%

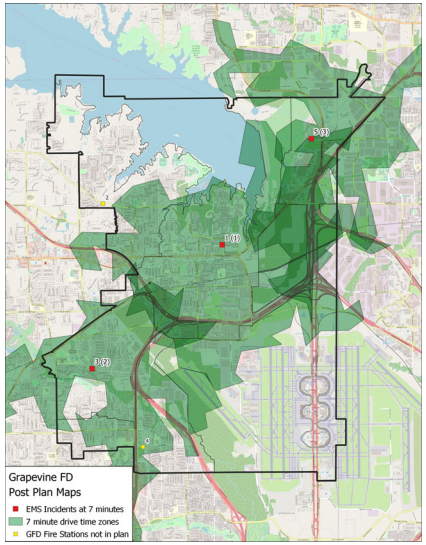
Alternatives for Consideration

Alternative 1

Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add One Medic Unit

7-Minute Travel Time

- Current configuration can meet approximately 97% of the EMS incidents within 7-minutes travel time or less
- A three-station configuration can meet approximately 91% of the EMS incidents within 7-minutes travel time



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4	2	148	4,071	94.26%
5	4	128	4,199	97.22%

Engine 1 and Truck 1 Consolidation with 3 Personnel Minimum Staffing

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1		1	6
2			1	1	5
3			1	1	5
4			1		3
5		1		1	5
Total 24/Hr.	1	6	9	8	24

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- Consolidate Engine 1 and Truck 1 into a single 3-person crew
- Add a dedicated Medic Unit with 2-person crew
- Would create department excess capacity of 8 to 9 FTEs

Alternative System Designs - #1

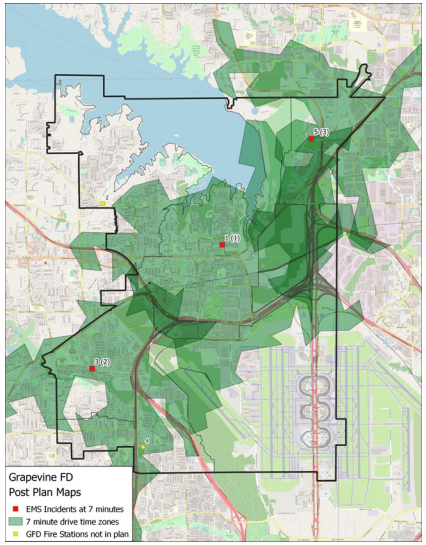
- Better aligns resource allocation to community demands for EMS
- Improves EMS capacity and geographic coverage throughout the city
- Adequately addresses workload concerns on existing Medic units
- Consolidate Engine 1 and Truck 1 into a single 3-person unit
- Place a 4th Ambulance in service
- Minimal impact to effective response force capabilities
- Would create department excess capacity of 8 to 9 FTEs

Alternative 2

Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add One Medic Unit

7-Minute Travel Time

- Current configuration can meet approximately 97% of the EMS incidents within 7-minutes travel time or less
- A three-station configuration can meet approximately 91% of the EMS incidents within 7-minutes travel time



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4	2	148	4,071	94.26%
5	4	128	4,199	97.22%

Engine 1 and Truck 1 Consolidation with 4 Personnel Minimum Staffing

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1		1	7
2			1	1	5
3			1	1	5
4			1		3
5		1		1	5
Total 24/Hr.	1	7	9	8	25

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- Consolidate Engine 1 and Truck 1 into a single 4-person crew
- Add a dedicated Medic Unit with 2-person crew
- Would create department excess capacity of 5 to 6 FTEs

Alternative System Designs - #2

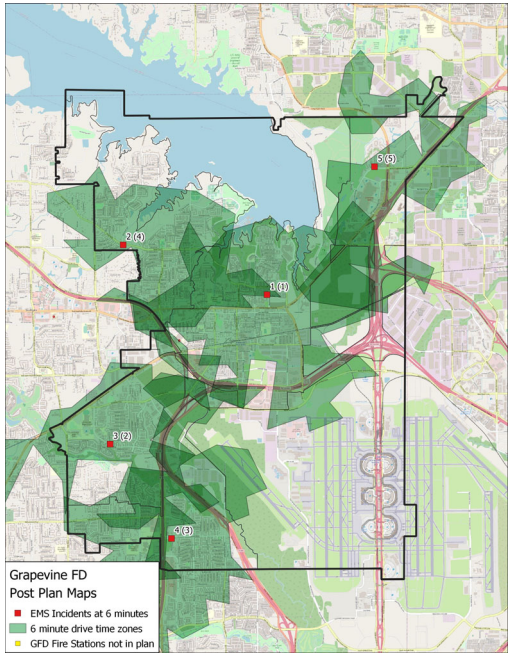
- Better aligns resource allocation to community demands for EMS
- Improves EMS capacity and geographic coverage throughout the city
- Adequately addresses workload concerns on existing Medic units
- Consolidate Engine 1 and Truck 1 into a single 4-person unit
- Place a 4th Ambulance in service
- Minimal impact to effective response force capabilities
- Would create department excess capacity of 5 to 6 FTEs

Alternative 3

Consolidate Engine 1 and Truck 1 into Single 3-Person Unit and Add Two Medic Units

6-Minute Travel Time

- Current configuration can meet approximately 92% of the EMS incidents within 6-minutes travel time or less



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5	5	248	3,981	92.17%

Engine 1 and Truck 1 Consolidation with 3 Personnel Minimum Staffing

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1		1	6
2			1	1	5
3			1	1	5
4			1	1	5
5		1		1	5
Total 24/Hr.	1	6	9	10	26

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- Consolidate Engine 1 and Truck 1 into a single 3-person crew
- Add two dedicated Medic Units with 2-person crews
- Reallocates existing staff to better serve EMS mission
- Improves response time by up to one minute

Alternative System Designs - #3

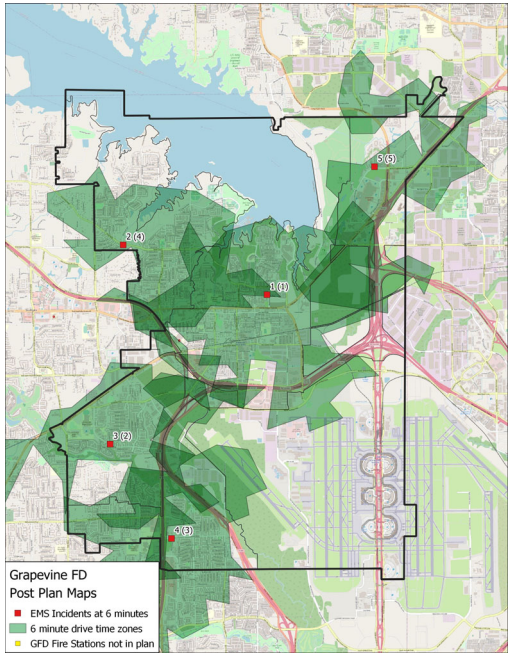
- Better aligns resource allocation to community demands for EMS
- Improves EMS capacity and geographic coverage throughout the city
- Improves response time by up to one minute
- Adequately addresses workload concerns on existing Medic units
- Consolidate Engine 1 and Truck 1 into a single 3-person unit
- Place a 4th and 5th Ambulances in service
- Maintains current effective response force capabilities
- Provides opportunity to reduce large apparatus responses to EMS incidents
- Cost neutral personnel costs

Alternative 4

Consolidate Engine 1 and Truck 1 into Single 4-Person Unit and Add Two Medic Units

6-Minute Travel Time

- Current configuration can meet approximately 92% of the EMS incidents within 6-minutes travel time or less



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2	3	1,121	2,987	69.16%
3	4	418	3,405	78.84%
4	2	328	3,733	86.43%
5	5	248	3,981	92.17%

Engine 1 and Truck 1 Consolidation with 4 Personnel Minimum Staffing

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1		1	7
2			1	1	5
3			1	1	5
4			1	1	5
5		1		1	5
Total 24/Hr.	1	7	9	10	27

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- Consolidate Engine1 and Truck 1 into a single 4-person crew
- Add dedicated Medic Units to Station 1 and Station 4 with 2-person crews
- Would require an additional 2 FTEs in total department strength
- Improves response time by up to one minute

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Alternative System Designs - #4

- Better aligns resource allocation to community demands for EMS
- Improves EMS capacity and geographic coverage throughout the city
- Improves response time by up to one minute
- Adequately addresses workload concerns on existing Medic units
- Consolidate Engine 1 and Truck 1 into a single 4-person unit
- Place a 4th and 5th Ambulances in service
- Maintains current effective response force capabilities
- Provides opportunity to reduce large apparatus responses to EMS incidents
- Would require 2 additional FTEs for department

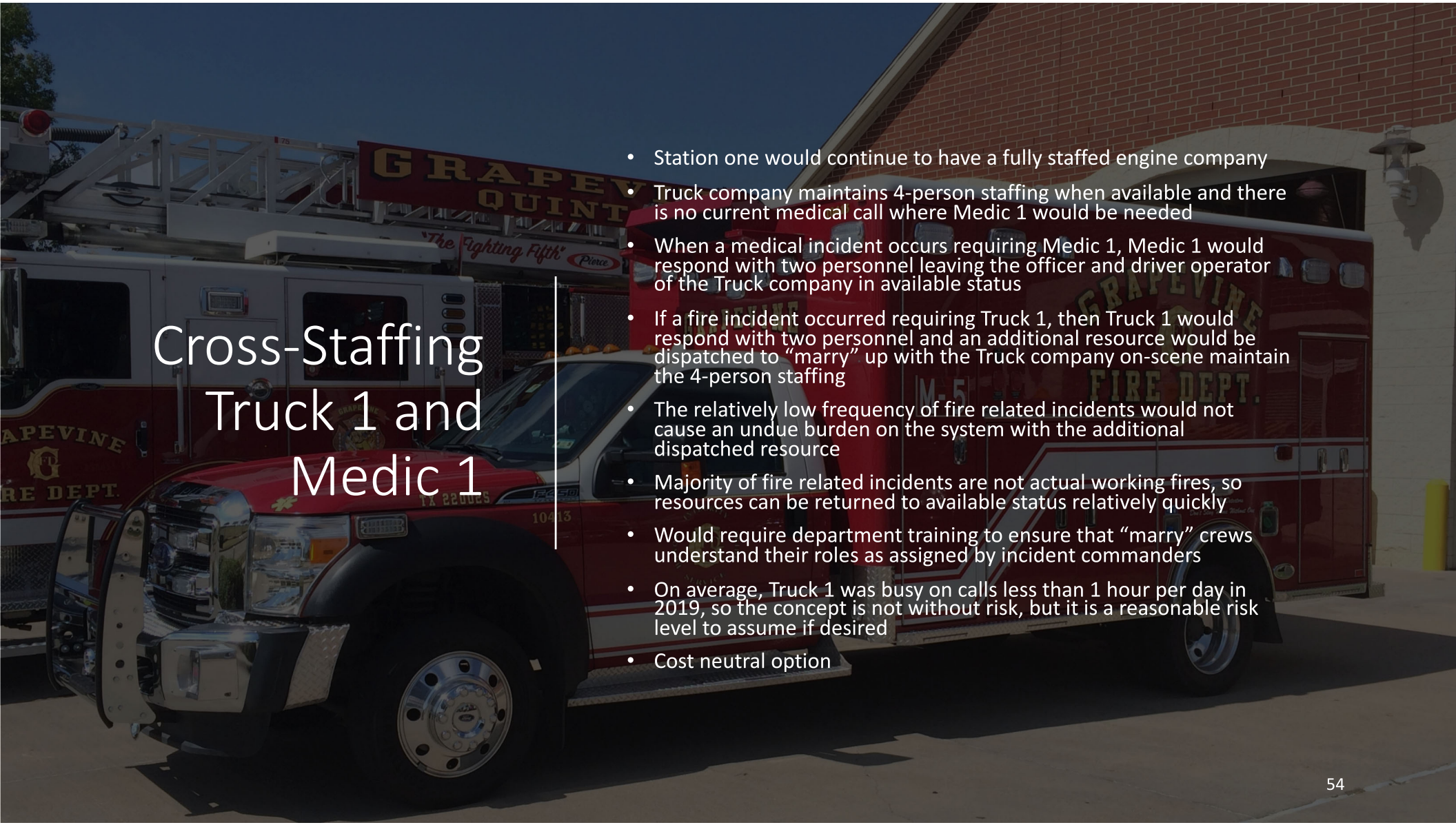
Alternative 5

Consider Cross Staffing Truck 1 and Medic 1

Cross Staff Truck 1 and Medic 1

Station	Battalion Chief	Truck Quint	Engine	Medic	Minimum Staffing
1	1	1	1	1	8
2			1	1	5
3			1	1	5
4			1		3
5		1		1	5
Total 24/Hr.	1	7	12	6	26

- Currently the department staffs a total of 96 personnel on shift or 32 per shift
- The department has a minimum staffing threshold of 26 prior to hiring back on overtime
- No changes in current personnel resource allocation



Cross-Staffing Truck 1 and Medic 1

- Station one would continue to have a fully staffed engine company
- Truck company maintains 4-person staffing when available and there is no current medical call where Medic 1 would be needed
- When a medical incident occurs requiring Medic 1, Medic 1 would respond with two personnel leaving the officer and driver operator of the Truck company in available status
- If a fire incident occurred requiring Truck 1, then Truck 1 would respond with two personnel and an additional resource would be dispatched to “marry” up with the Truck company on-scene maintain the 4-person staffing
- The relatively low frequency of fire related incidents would not cause an undue burden on the system with the additional dispatched resource
- Majority of fire related incidents are not actual working fires, so resources can be returned to available status relatively quickly
- Would require department training to ensure that “marry” crews understand their roles as assigned by incident commanders
- On average, Truck 1 was busy on calls less than 1 hour per day in 2019, so the concept is not without risk, but it is a reasonable risk level to assume if desired
- Cost neutral option

Alternative 6

Consider Reducing Engine and Truck Responses to EMS Incidents

Opportunities to Reduce Large Apparatus EMS Responses

- Department currently sends the closest engine and/or truck and a Medic to EMS incidents
  - Has been modified during COVID-19
- Therefore, on average there are at least two units sent to every EMS call which may not be clinically necessary
  - Local policy choice
- Most communities are sensitive to incidents where multiple apparatus are arriving for an EMS call
- A 5-ambulance program will replicate the fire suppression response time capability, so the need to send a ”first responder” before the ambulance will be significantly reduced
- While contemplating a consolidation of fire apparatus, a reduction in workload on EMS incidents will reintroduce readiness capacity back into the fire suppression system
- Greater flexibility to align resource allocations to risk would require a call prioritization process in the 911 center.

Considerations for ISO

- Evaluation of ISO Impact
- Any alternatives that maintain the current daily minimum staffing should have no material impact on the ISO rating
- With reasonable confidence, the developed alternatives should not have a significant impact on the ISO rating
- There are several areas where the department could improve the ISO credit scores to offset any potential variability with system changes.
- As the Medic program takes a greater role in handling the EMS requests for service, the department could improve the Credit for Ladder Service by expanding the Quint model.
- The department has an 8-point margin to absorb any unintended or incremental adjustments to the score but still maintain an ISO 2 rating

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	2.55	3
422. Credit for Telecommunicators	3.97	4
432. Credit for Dispatch Circuits	2.61	3
440. Credit for Emergency Communications	9.13	10
Fire Department		
513. Credit for Engine Companies	6.00	6
523. Credit for Reserve Pumpers	0.50	0.50
532. Credit for Pump Capacity	3.00	3
549. Credit for Ladder Service	1.51	4
553. Credit for Reserve Ladder and Service Trucks	0.48	0.50
561. Credit for Deployment Analysis	8.09	10
571. Credit for Company Personnel	9.05	15
581. Credit for Training	7.30	9
580A. Credit for Texas State Training	0.55	3.26*
*Note: Maximum value for 581 + 580A = 9 points		
730. Credit for Operational Considerations	2.00	2
590. Credit for Fire Department	38.48	50
Water Supply		
616. Credit for Supply System	29.60	30
621. Credit for Hydrants	3.00	3
631. Credit for Inspection and Flow Testing	6.25	7
640. Credit for Water Supply	38.85	40
Divergence	-4.03	--
1050. Community Risk Reduction	4.64	5.50
Texas Addendum Credit- CAFS	1.00	1

Summary of Recommendations and Observations

Summary of Recommendations

It is recommended that the dispatch center evaluate performance by program area and look for opportunities for incremental improvement in fire related activity.

It is recommended that the department work to align turnout time with best practices.

The department could benefit from additional Medic resources to improve resiliency and provide opportunities for efficiency in fire suppression.

The department is encouraged to consider the alternative solutions presented in this report that better align EMS resource allocation to community demands for service.

The City is encouraged to consider the identified alternatives that provide the greatest value within the environment.

In all substantive alternatives a 4th ambulance is recommended.

Within a 4 Medic model or more, EMS field supervision would be appropriate and beneficial to the overall program.

It is recommended that the department improve the ISO credit scores to offset any potential variability with system changes.

Summary of Observations

- On average the department is sending 2 or more units to calls. There is an opportunity to reduce resource allocation to lower severity incidents.
- Opportunity to better align resource allocation to the severity of risk.
- On average, there are 4.8 calls per day for non-EMS activity over the 24-hour period.
- On average, there are 10 vehicle movements (responses not unique calls) per day for non-EMS activity over the 24-hour period.
- Overall, the dispatch time is within expectations for a 90th percentile dispatch interval. However, there may be an opportunity to improve the individual performance for fire related activity.
- The travel time is excellent and within the national experience. It is common for urban/suburban areas to perform between 5 and 8 minutes at the 90th percentile.
- The turnout time is not meeting national best practices of 1 minute for EMS incidents and 1.5 minutes for fire related incidents.
- In the Grapevine system, there is greater than an 38% chance that a second call or greater will occur during any EMS response.
- In the Grapevine system, there is less than an 10% chance that a second call or greater will occur during any fire, hazmat, or rescue response combined.
- In other words, there is greater than a 90% chance that the first fire related call can be dispatched, handled, and the unit return to service prior to a second or greater call occurring.

Summary of Observations

- At the system level, the model is robust and has considerable resiliency in the system as response times are minimally impacted.
- Overall, 46.7% of the time when a call occurs, all nine resources were available.
- However, elongated response times are evidenced below 3 units. This analysis with all 9 units is obscuring the distinct impact on Medic unit capabilities specifically.
- On average, during the peak of the day, one of the 3 Medic units will be occupied on a call leaving the City system with two Medic units.
- The fire related incidents rate (0.3 calls per hour) would not indicate a strong community demand for fire services.
- Reinforces that the overwhelming community demand for services are for EMS.
- Understanding that a 7-minute travel time is well-aligned with national experience in other urban/suburban communities, these analyses focused on optimizing efficiencies within the context of maintaining the quality performance currently provided.
- All ambulance units are below the upper threshold for work measured by Unit Hour Utilizations. However, 0.25 should be utilized as a planning threshold to ensure that workload does not exceed .30 on 24-hour units.
- Medic 3 is approaching the upper workload threshold of 0.25 to 0.30 and will require a mitigation strategy.
- All Fire Suppression units (Engines and Trucks and their cross staffed apparatus) are all below .095 UHU. In other words, the fire suppression apparatus are on calls an average of 2.48 hours per 24-hour period. Therefore, excess capacity exists within the fire suppression program.

Summary of Observations

- The overall UHU of the Medic units is 18.4% as compared to the fire suppression units at 6.4%. In other words, the Medic units' workload is nearly three times higher with 66% less resources.
- Utilizing average leave histories provided by the department, it requires 3.61 FTEs for each daily minimum staffed "seat".
- Currently, the department staffs with 96 personnel assigned to shift work and the optimized staffing multiple identifies that the department would need 94 to maintain the daily minimum staffing.
- Overall, the department's FTE allocation is reasonably aligned with best practice.
- The mechanism to how it is staffed and funded is ultimately the City and Department's preference. These alternatives provide low to no cost options for implementation.
- Considering a relatively uniform risk mitigation staffing strategy, the department may want to consider up-staffing Station 4 to have a commensurate human resource allocation at each station, if the four medical alternative is adopted.
- Since nearly 74% of all calls for Station 4 required a Medic unit to respond from another territory, the department could realize efficiencies by having Station 4 handle the majority of their own incidents while simultaneously accounting for the uniform risk mitigation strategy of having all stations staffed with at least 5-personnel.
- It is customary to have an EMS supervisory role that serves the field and is available for additional command and control, quality assurance, clinical guidance, and operational considerations.
- Currently, the department utilizes Medic unit personnel to serve as a safety officer and chief's aid positions.
- Like most agencies, the City is challenged to assemble a 16-person ERF within the more restrictive national consensus standard.
- The modification(s) to staffing would result in less than a 4% difference at 10- and 12-minutes and less than 1% at the 15-minute threshold.
- Overall, at the 16-person threshold, the difference in ERF assembly is minimal across all performance ranges.
- With reasonable confidence, the developed alternatives should not have a significant impact on the ISO rating.
- There are several areas where the department could improve the ISO credit scores to offset any potential variability with system changes.
- As the Medic program takes a greater role in handling the EMS requests for service, the department could improve the Credit for Ladder Service by expanding the Quint model.

Steven Knight, PhD

Questions?

www.fitchassoc.com

FINAL REPORT

MARCH 2017

ASSESSMENT OF HOLLY SPRINGS, NORTH CAROLINA

ENGINEERING DEPARTRMENT

Submitted by:

FITCH & ASSOCIATES, LLC
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816.431.2600 www.fitchassoc.com

CONSULTANT REPORT

HOLLY SPRINGS ENGINEERING DEPARMENT ASSESSMENT

TABLE OF CONTENTS

Attachments:

Attachment A – Benchmark Summary
Attachment B – Current Job Descriptions

Introduction

Holly Springs, North Carolina retained *FITCH & Associates (FITCH)* to undertake an organizational assessment of the Town's Engineering Department. Rapid growth in the Greater Raleigh, NC area – and Holly Springs specifically – has placed a significant burden on the current Engineering Department. Typical of most communities that undergo rapid growth, and concurrent change, is the challenge to continue meeting community expectations in service delivery.

The study was to evaluate the Engineering Department from four perspectives.

1. Analysis of Comparable Communities
2. Community Growth Projections
3. Analysis of Current Organizational Structure, Qualifications, and Staffing
4. Optimized Organizational Design to Meet Future Demands

The report represents a compilation of findings and specific recommendations that are framed following these perspectives. *FITCH* spent time with Engineering Department staff to gather direct input on processes and assess qualitatively the Engineering Departments services. In addition, significant time was spent gathering and analyzing various data sources, many from the Town itself, to quantitatively evaluate the current levels of services and project future population and workload requirements.

We were impressed with the dedication of the staff, and the willingness to take the time to insure we had the information required to complete this project. A 'customer-focused' perspective was clearly identified in all the staff with whom we interacted.

Executive Summary

The Town of Holly Springs is in an enviable position – it stands as one of the most rapidly growing communities in all of North Carolina, and in the nation. For residents and community leaders this also represents significant challenges. This study of the Engineering Department found an organization engaged and dedicated to providing quality services – but that currently struggles with its growing workload because of limited resources. The Town's leadership recognized this issue and commissioned this study to evaluate short-term and long-term needs.

The findings and recommendations follow in the subsequent sections. However, the five specific recommendations address three areas of concern: providing additional resources over the next few years; reorganizing the Engineering Department to better focus efforts of department managers and leaders; and upgrade / enhancement to technology to address growing demand.

The specific recommendations are:

Recommendation #1: *To address increasing demand for inspections, the Town should add an additional Development Inspector position in FY 2019, and a second new Development Inspector position in FY2020.*

Recommendation #2: *To address increasing demand for plan reviews, the town should add an additional Development Plans Reviewer in FY 2019.*

Recommendation #3: *The Department should add an additional position in the FY 2018 budget year for an Assistant Director / Senior Engineer.*

Recommendation #4: *The Engineering Department should reorganize to allow managers and leaders to focus on the appropriate time horizon.*

Recommendation #5: *The Town's technology no longer adequately supports the Engineering Department's needs. The Information Technology Department should work with the Engineering Department to identify new software that will allow for efficient management of workload by capture of key performance data.*

Analysis of Comparable Communities

Working with City staff, appropriate benchmark communities within North Carolina were identified for comparative purposes. Survey instruments were sent to eight communities, and six responses were received for a response rate of 75%. Communities that responded and are included in the following analysis, along with their current populations, recent growth and median household income, are shown in Figure 1. As highlighted in the Community Growth Projections section of this report, Holly Springs led the benchmark cohort in growth from 2010 thru 2015. Holly Springs also led the cohort in median household income.

Figure 1: Benchmark Communities

	Population	% Population Growth 2010-2015	Median Household Income[1]
Holly Springs	**31,377**	**21.7**	**$94,452**
Apex	44,745	19.4	$90,654
Cary	152,627	12.9	$91,579
Garner	28,558	10.9	$58,825
Huntersville	55,602	18.9	$90,253
Wake Forest	34,463	14.4	$80,978
Wilson	49,357	0.4	$38,497

Unlike police or fire rescue services, engineering needs within a specific community may vary greatly with regard to methods and organizational structure from similar communities. This was the case for this benchmark review. Some engineering departments, such as Holly Springs, have significant responsibilities for water & wastewater utilities. In other communities, those responsibilities may be handled separately by the utility department, or by another outside entity. What inspections are completed within each community, and how these are defined and counted for performance measurement purposes is also quite different among communities. For these reasons comparative analysis between engineering functions, even within North Carolina alone, are challenging. Since all communities have differing affordability thresholds, the communities risk tolerance in accordance with what the community can afford is often at odds. Engineering departments act as community structural gate keepers and it is through this lens that this study does the community comparison. The following analysis offers some perspectives which help inform this study's findings.

A survey instrument was sent to engineering departments (or their equivalent) of the benchmark communities to assess their current workload and resources available to meet demand. As noted above, the variance of how the engineering function is structured in the benchmark communities reflect the national trends. The full survey results from each community are included in Attachment A of this report. Of particular interest for purposes of this study was to assess the comparative workloads among the benchmark communities. As reported by those communities, there is significant variance in the number of inspections completed per inspector. Holly Springs leads in this metric completing over 3,500

[1] US Census Bureau (2015). 2011-2015 American Community Survey. Downloaded from https://factfinder.census.gov/ Jan. 3, 2017

per inspector per year, or almost 18 inspections per day, per inspector. While it is noted that Holly Spring's staffing levels are higher than other communities per thousand population, this can be easily reconciled based on the significantly higher workload. As a general comment when comparing communities it is important to give higher weight to dependent variables versus independent variables. A dependent variable is one in which the control of the outcome is completely under the control of the community – in this case workload. The community can decide how much work to assign each inspector and how the work is to be accomplished. An independent variable is one in which the correlation between the metric and the outcome are not within the community control, per capita evaluations often fall within this category since many other variables can influence why for example Holly Springs has more inspectors per capita, some reasons can be higher concentration of industrial or high risk infrastructure, more responsibilities assigned to inspectors (as mentioned previously). Thus the clear statement that can be made looking at Figure 2 is that Holly Springs' value proposition as a function of workload looks very good.

Figure 2: Comparative Inspection Workload Characteristics

	# Inspections Per Inspector[2]	Ratio of Inspections to Plans[3]	Engineering Staff / 1,000 pop.[4]	Inspectors / 1,000 pop.	Total Employees / 1,000 pop.
Holly Springs	**3,588.3**	**12.0**	**0.29**	**0.22**	**0.64**
Apex	1,410.0	28.1	0.18	0.11	0.29
Cary	79.7	0.4	0.22	0.35	0.60
Garner	645.5	94.7	0.21	0.39	0.81
Huntersville[5]	260.0	0.9	0.07	0.02	0.31
Wake Forest	2,169.7	100.1	0.09	0.09	0.17
Wilson	775.0	7.3	0.18	0.04	0.22

A number of other community characteristics were captured as well in the survey instrument, and are summarized in Figure 3. Included are the current software used for managing and reporting workloads and performance of the department, organizational reporting responsibilities and structure and span of control. These will be discussed further in the recommendation of the Optimized Future Organizational Design section of this report.

[2] Based on 7 inspectors.

[3] Reflects 'average' number of inspections per project as calculated by # of plans reviewed.

[4] Per 1,000 pop. based on Town population of 31,377.

[5] Huntersville does final inspections only - Mecklenburg does the majority of all other inspections.

Figure 3: Misc. Benchmark Community Characteristics

	Software Utilized	Engineering Director Reports To:	Community Provides Water / Wastewater	Community has 2 or More Ass't City Managers	Engineering has Ass't Department Director
Holly Springs	**New World System**	**Town Manager**	**Y**	**N**	**N**
Apex	Cityworks; BSI Online; Excel	Ass't Town Manager	Y	Y	N
Cary	None	Ass't Town Manager	Y	Y	N
Garner	None	Ass't Town Manager	N	Y	Y
Huntersville	PubWorks Software	Ass't Town Manager	N	N	N
Wake Forest	New World System	Town Manager	N	N	N
Wilson	Sunguard Navaline	Deputy City Manager	Y	N	N

Community Growth Projections

In 2014 Forbes identified Raleigh, NC as the second fastest growing city in America[6]. In 2016, the Raleigh-Durham area remains ranked in the top 10 areas in the U.S. for growth. Forbes noted the presence of more than 170 major corporations, access to several major universities and a highly educated workforce that makes this region of North Carolina extremely attractive for economic development.

Holly Springs has similarly benefited from these economic conditions, perhaps to even a larger degree among its benchmark communities. Within the State of North Carolina, already identified as an economic engine based on its enviable rankings as a best state for business, the Town of Holly Springs ranked 15th out of 553 municipalities in growth between April 1, 2010 and July 1, 2015.[7] During this period, the Town grew an amazing 21.72%. Such growth, while a tribute to leadership within the community, also brings significant challenges. Growth at this pace must be managed, and community leaders need to be cognizant of the requirement to remain 'ahead of the curve' if they wish to continue providing a high level of service to their constituents and community. In this regard, the Town's decision to evaluate and adjust its organizational structure demonstrates awareness of the challenges inherent with rapid community growth.

To properly understand demands placed on the Engineering Department in the future, an evaluation of existing workload must be examined – focusing on recent historical growth and anticipated future growth within the community. Figure 4 is derived from the Town's reported population estimates over the past five years. During this period, population growth averaged 4.83% per annum.

[6] Carlye, E. (2014). *America's 20 fastest growing cities.* Forbes. February 14, 2014.

[7] North Carolina Office of Budget and Management. (2016). *July 2015 Municipal Estimates*. Downloaded November 18, 2016 from https://www.osbm.nc.gov/demog/municipal-estimates

Figure 4: Estimated Population 2010 thru 2015

	Estimated Population	Change from Prior Year
2010	24,804	
2011	25,372	2.29%
2012	26,390	4.01%
2013	28,020	6.18%
2014	29,869	6.60%
2015	31,391	5.10%

In addition to residential development, a significant portion of work done by the Engineering Department involves non-residential or commercial development - not reflected by increasing population estimates. Without evaluating the mix of residential versus commercial development, the impact on the Engineering Department could be significantly underestimated. To evaluate the potential impact of this commercial development on workload, Figure 5 reflects the Town's total property valuation from fiscal year 2010 through fiscal year 2017. The use of total property valuation, when compared to population growth alone, serves as a barometer for the additional impact from non-residential projects. While not significantly different when compared to population growth, total property valuation still grew at a slightly higher annualized rate than population growth along and was calculated at 5.38%.

Figure 5: Total Property Valuations for Holly Springs[8]

Fiscal Year	Total Valuation	Change in Valuation from Prior Year
2010	$2,878,055,000	
2011	$3,062,700,000	6.42%
2012	$3,202,889,457	4.58%
2013	$3,311,250,000	3.38%
2014	$3,516,300,000	6.19%
2015	$3,701,480,000	5.27%
2016	$3,863,500,000	4.38%
2017	$4,151,095,000	7.44%

It must be understood that historical growth demands may not be reflective of the future growth demands. In addition, the further out that one attempts to estimate future demand, the greater likelihood of the estimates will deviate from the actual future demand. These constraints were considered in the development of future population and workload demands.

Data from both the State and Town were used to construct Figure 6. This compares projections of growth from the period of 2010 through 2030 – and evaluates this information at the town, region (Wake County) and state levels.

[8] Town of Holly Springs Budget documents – FY 2010 thru FY 2017

Figure 6: State, County and Town Population Projections – 2020 thru 2030[9]

	Growth Projections 2010 thru 2020					Growth Projections 2020 thru 2030			
	April 2010 Estimate Base	July 2020 Projection	Net Change-Estimate From 2010	Net Change-%	Annualized Growth - 2010 thru 2020	July 2030 Projected	Net Change-Estimate From 2020	Net Change-%	Annualized Growth - 2020 thru 2030
Holly Springs, NC	**24,804**	**41,900**	**17,096**	**68.9%**	**6.9%**	**49,525**	**7,625**	**18.2%**	**1.8%**
Wake County, NC	901,018	1,105,777	204,759	22.7%	2.3%	1,306,559	200,782	18.2%	1.8%
State of North Carolina	9,535,691	10,573,611	1,037,920	10.9%	1.1%	11,607,489	1,033,878	9.8%	1.0%

In addition to the state population projections above, use was made of the Town's long-range population projections.[10] Holly Springs population estimates are slightly more aggressive overall, though we do take note that while the State's projections estimated annualized growth of 2.3% for Wake County between 2010 and 2020, the Town's actual growth based on the Planning & Zoning Department populations' figures has actually been 4.83% during the first five years of this period. In constructing the projections below, it seemed prudent to also recognize the potential impact of non-residential growth in the short term. Therefore, the model used for this analysis of future population utilizes a growth estimate of 5.3% in the short-term through 2020 and thereafter utilizes the 1.8% population growth assumed by both the State and Town.

These growth assumptions are used as the *FITCH* estimate in Figure 7 and compared to the Town's own population estimates. As can be seen in the tabular data, as well as the graphic in Figure 8, the two approaches are quite well correlated at the end of the forecast period.

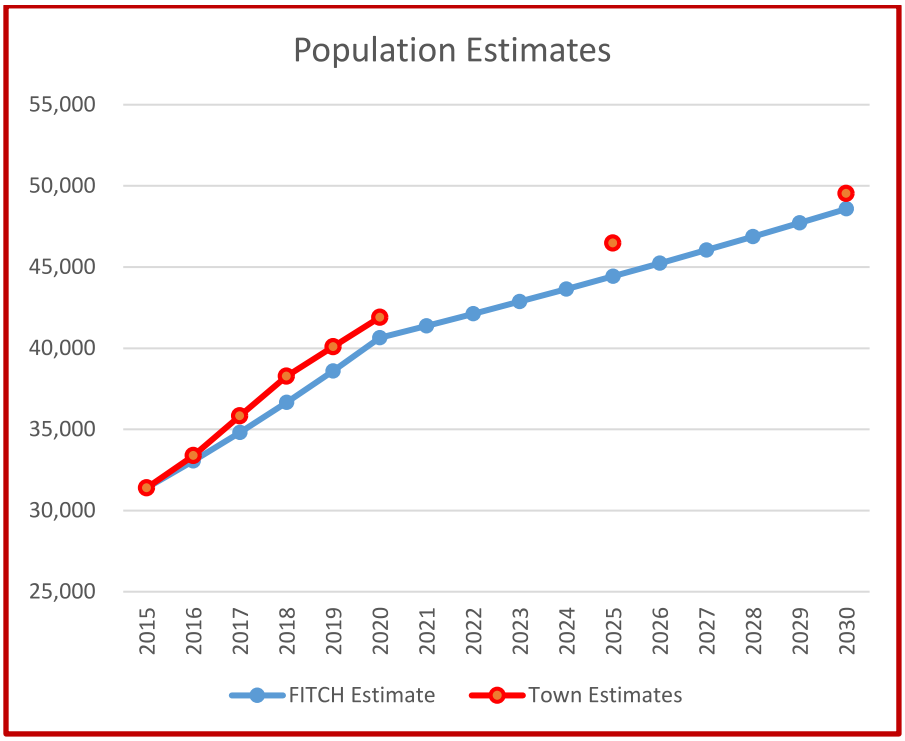
[9] Holly Springs Planning & Zoning Department Long Range Population Projections - Dated July 22, 2015; North Carolina Office of Budget and Management - Dated Sept 22, 2015. Downloaded Nov 16, 2016

[10] Town of Holly Springs. (April 22, 2015). *Long-Range Population Projections.*

Figure 7: Town Population Projections through 2030

	FITCH Estimate	Town Estimates	Fitch Population Change from Prior Year
2015	31,391	31,391	
2016	33,055	33,374	1,664
2017	34,807	35,823	1,752
2018	36,651	38,272	1,845
2019	38,594	40,086	1,943
2020	40,639	41,900	2,045
2021	41,371		732
2022	42,116		745
2023	42,874		758
2024	43,645		772
2025	44,431	46,475	786
2026	45,231		800
2027	46,045		814
2028	46,874		829
2029	47,717		844
2030	48,576	49,525	859

Figure 8: Fitch vs. Town Population Projections



Analysis of Current Organizational Structure and Staffing

For purposes of the following discussion, we highlight the anticipated impacts and growth from two perspectives. The first time horizon is through the year 2020, and the second time horizon is through 2030. This serves two purposes. The near term analysis will allow policy makers a high degree of confidence in short term needs, while the longer-term timeframe is appropriate for long range planning purposes. These perspectives also allow department directors to focus on their time horizon of 1 through 5 years, while the town manager will more often consider a 5 though 10 year time horizon for strategic planning purposes.

Beginning in fiscal year 2017, the Engineering Department had 22 full-time personnel, three part-time personnel and two intern positions. As reflected in Figure 9, the full-time positions include four management personnel, two supervisors, five plan reviewers, seven inspectors, one engineer dedicated to town projects/capital infrastructure, one GIS technician and two administrative support staff. For purposes of the staffing analysis, neither interns nor part-time personnel are considered. The budget for part-time personnel is relatively small, and therefore has minimal influence on the overall capacity of the department to perform work. In addition, generally part-time personnel – especially in professional positions – tend to become of 'revolving door' as these employees find more desirable full-time positions. Unless there is a specific basis for part-time positions, organizations are generally better served with full-time professional staff.

The specific positions, by category, are shown in Figure 10.

Figure 9: Organizational Chart

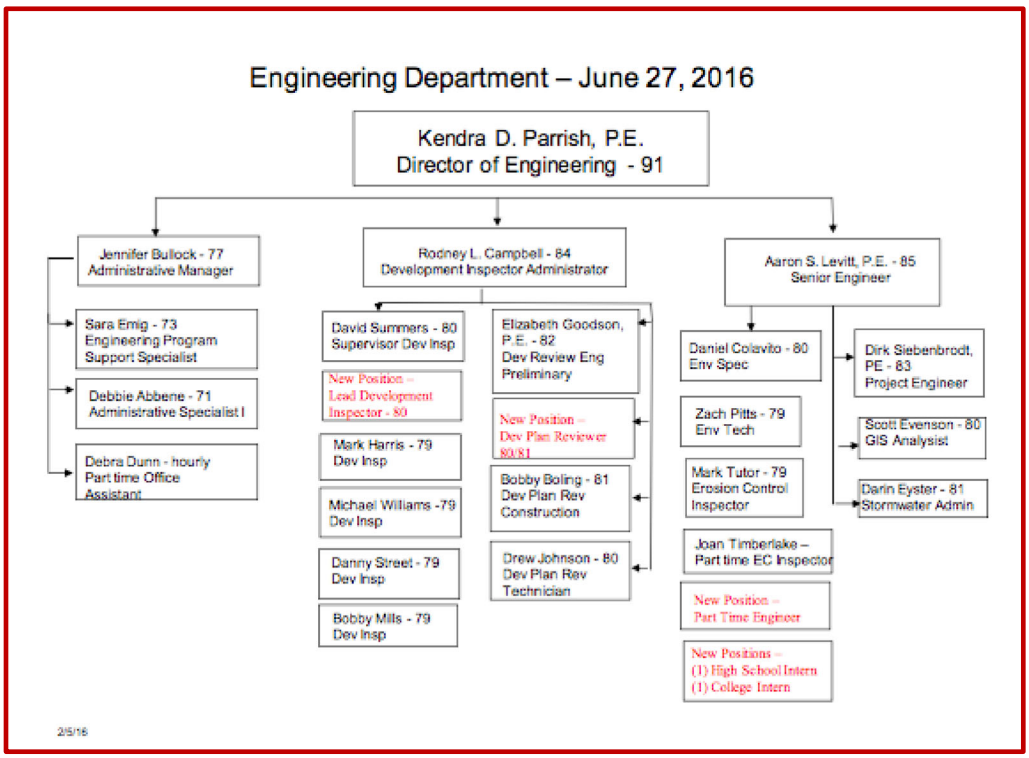


Figure 10: Engineering Department Staffing - By Category/Position[11]

Category	Count	Positions
Management/Supervision	6	Director
		Development Inspector Administrator
		Senior Engineer
		Administrative Manager
		Supervisor Development Inspector
		Environmental Specialist
Plan Review	5	Development Review Engineer
		Development Plan Review
		Development Plan Review
		Development Plan Review
		Stormwater Administrator
Inspectors	7	Lead Development Inspector
		Development Inspector
		Development Inspector
		Development Inspector
		Development Inspector
		Erosion Control Inspector
		Environmental Technician
Technical	2	Project Engineer
		GIS Analyst
Administrative Support	2	Support Specialist
		Administrative Specialist 1

Engineering staff must also track compliance with surety bond requirements submitted by developers to the Town to ensure completion of capital infrastructure projects. As noted below, the demand on administrative staff has grown over the past few years – concurrent with the pace of new development in the Town overall. Figure 11 reflects the active surety bonds in place by year. Projects extending beyond a single year must have the bond renewed annually.

Figure 11: Surety Bond Values by Year

Year	Development	Stormwater
2012	$511,833.70	$413,816.13
2013	$1,115,954.81	$57,986.00
2014	$1,660,169.40	$706,293.41
2015	$8,944,093.67	$1,261,598.93
2016	$4,761,216.26	$1,821,400.81
Sub-Total	**$16,993,267.84**	**$4,261,095.28**
Total		**$21,254,363.12**

[11] Does not include part-time positions or interns

Plan Review Workloads

As noted earlier, significant differences exist in how various communities organize and staff their engineering operations. Workload data for this analysis was obtained from the Department. Historical data from 2012 through 2016 was sufficiently detailed to allow for analysis. For purposes of this analysis, the workload for the engineering department was largely bifurcated into plan review and inspections. Figures 12 and 13, respectively, reflect the historical actual and projected workload for plan reviews. For the period from 2012 through 2016, the total number of plan reviews increased an average of 14.9% annually.

The historical increases were used to estimate, employing a basic trend analysis, the projected increase through 2020 – estimated at 8.1% annually. Thereafter we adjusted the projected increase to 2.0%, employing a smaller growth assumption based largely on population projections and adjusted slightly for a more robust non-residential growth pattern. As the Town continues to grow, typical patterns would suggest a slightly increased percentage of development will be non-residential. As noted in Figure 12, projections of future workload were made on total plan reviews only, and show an estimated total growth from 2016 thru 2030 of almost 67%.

Figure 12: Actual & Projected Workload Data for Plan Reviews

Calendar Year	Preliminary Reviews	Construction Drawing Reviews	Misc. Reviews	Utility Reviews/Permits	Total Plan Reviews	Percentage Increase	
2012	138		781	320	1,239		
2013	187		1,023	436	1,646		
2014	203	14	934	432	1,583	69.6%	
2015	221	82	1,144	442	1,889		
2016	277	86	1,238	500	2,101		**131.7%**
2017	-	-	-	-	2,282		
2018	-	-	-	-	2,479		
2019	-	-	-	-	2,675	25.9%	
2020	-	-	-	-	2,872		
2021	-	-	-	-	2,929		
2022	-	-	-	-	2,988		
2023	-	-	-	-	3,048		
2024	-	-	-	-	3,109		
2025	-	-	-	-	3,171		
2026	-	-	-	-	3,234		
2027	-	-	-	-	3,299		
2028	-	-	-	-	3,365		
2029	-	-	-	-	3,432		
2030	-	-	-	-	3,501		

Figure 13: Actual & Projected Workload Graph for Total Plan Reviews

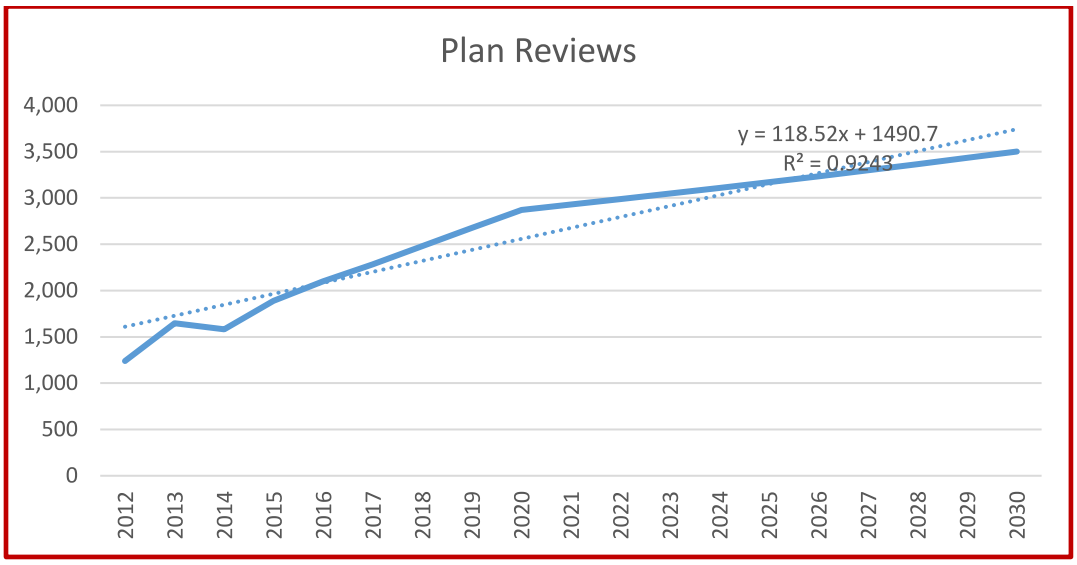
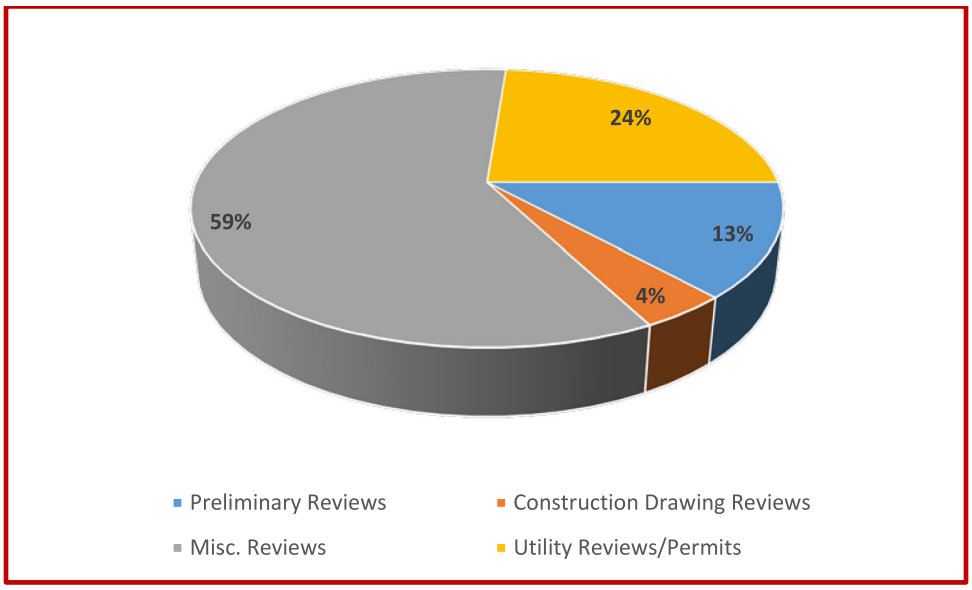


Figure 14: 2016 Plan Review Workload by Subcategory[12]



When examining actual plan review data (2012 through 2016) in more detail, we note that preliminary plan reviews average growth was 20% per year, while both miscellaneous plan reviews and utility reviews both averaged 13% per year. The 2016 data by subcategory is shown in Figure 14. Data was too limited to evaluate separately the construction plan review. However, assuming similar patterns in the projected workloads would indicate most growth would occur with preliminary plan reviews.

[12] Miscellaneous includes reviews by plan reviewers from Code Enforcement for permits (foundation, reclaimed irrigation).

Inspection Workloads

As stated earlier in the report, Holly Springs inspectors are already ahead of the peer group in workload, the inspection rate of 3,500 inspections a year per inspector means that they are doing three and a half times more inspections than the average of the six comparable communities. Even when accounting for a difference in methodology a statement can be made that very little growth capacity remains within the existing work force.

Figures 15 and 16, respectively, reflect the historical actual and projected workload for inspections. As was done for plan review workload, future projections utilized the total inspection demand alone. For the period from 2012 through 2016, the total number of plan reviews increased 20.8% annually. The projected increase through 2020, based on the trend analysis, is estimated at 9.5% annually. As with plan reviews, a more conservative adjustment of 2.0% was used through the remainder of the forecast period. As noted in Figure 15, projections of future workload were made on total plan reviews only, and show an estimated total growth from 2016 thru 2030 of 75.1%.

Figure 15: Actual & Projected Workload Data for Inspections[13]

Fiscal Year	Storm & Environmental Control Inspections*	Development Inspections	Construction Drawing Inspections*	Total Inspections	Percentage Increase	
2012	256	10,260	1,505	12,021		
2013	648	13,996	1,627	16,271		
2014	1,171	15,378	2,001	18,550	109.0%	
2015	2,214	14,525	2,924	19,663		
2016	3,978	16,834	4,306	25,118		200.1%
2017	-	-	-	27,200		
2018	-	-	-	30,159	32.6%	
2019	-	-	-	33,118		
2020	-	-	-	36,076		
2021	-	-	-	36,798		
2022	-	-	-	37,534		
2023	-	-	-	38,284		
2024	-	-	-	39,050		
2025	-	-	-	39,831		
2026	-	-	-	40,628		
2027	-	-	-	41,440		
2028	-	-	-	42,269		
2029	-	-	-	43,114		
2030	-	-	-	43,977		

[13] Storm & Environmental Control Inspections were not fully integrated into the existing inspection process until 2014. FY 2012 and 2013 data may not be fully reflective of workload.

Figure 16: Actual & Projected Workload Graph for Total Inspections[14]

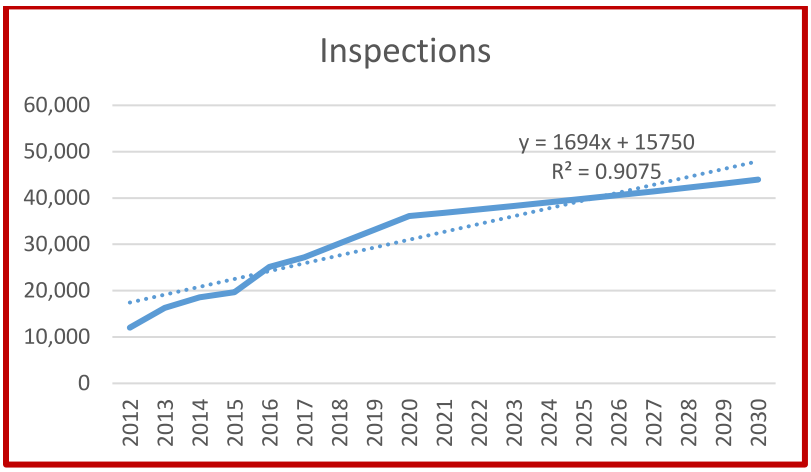
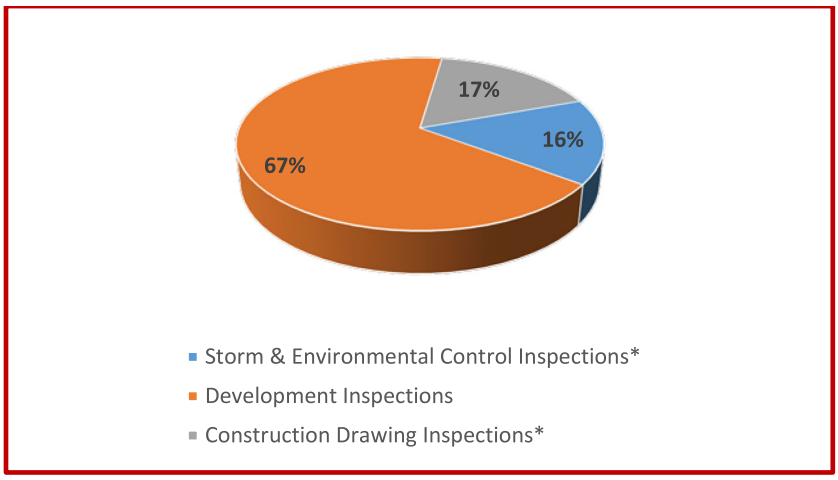


Figure 17: 2016 Inspection Workload by Subcategory[15]



When examining actual inspection data (2012 through 2016) in more detail, we note that development inspections average growth was 14% per year, while construction drawing inspections averaged 31% per year. The 2016 data by subcategory is shown in Figure 17.

Capital Infrastructure

A specialized function within the Engineering Department is related to capital infrastructure projects staffed with a single engineer. Staff has indicated that the department director must often allocate 40 to 50% of her time to this area because current staffing for this function is not adequate to ensure timely review and project management.

[14] Inspections reported to consultant on calendar year basis – allocated to fiscal years

[15] Construction drawing inspections include UDO, inspector and erosion control daily inspections, BMP, COC and COA.

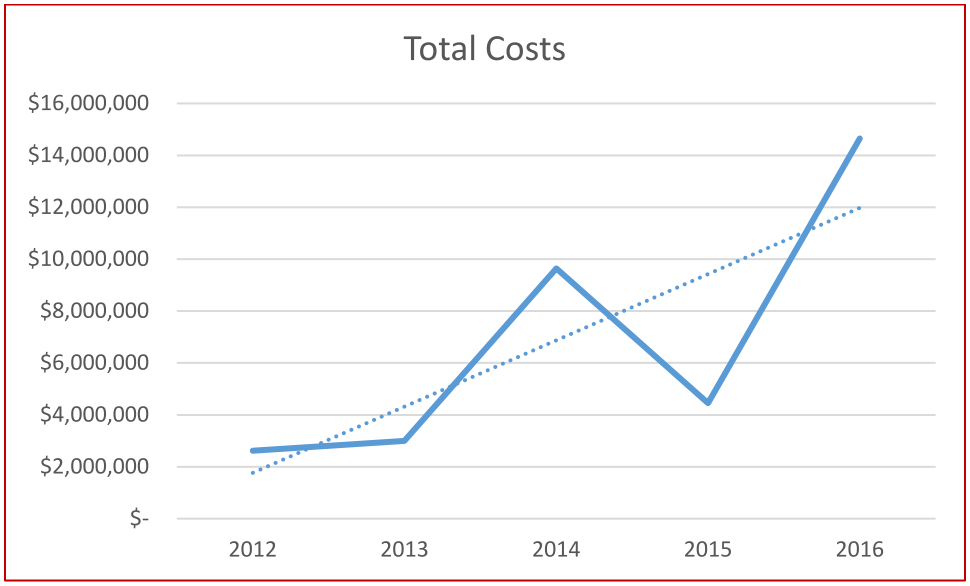
Projects

As noted in Figure 18, the variance in the dollar value for design & study, as well as for construction, has fluctuated over the past five years. Though, Figure 19 represents the trend of increased growth in this area overall.

Figure 18: Capital Infrastructure Projects

Year	Design & Study	Construction Contract	Total Costs	# Projects
2012	$704,069	$1,913,863	$2,617,932	25
2013	$1,426,865	$1,563,207	$2,990,072	25
2014	$850,930	$8,790,173	$9,641,103	27
2015	$527,783	$3,924,812	$4,452,595	26
2016	$1,326,313	$13,323,667	$14,649,980	17

Figure 19: Capital Infrastructure Project Costs Graphic



The overall demand related to capital infrastructure projects, as reflected in the figures above, along with the demands placed on the department director in order to provide timely project management, support the need for an additional engineer. The new engineering position would support this program area, and further assist the Engineering Director in overall management of increasing demands.

Optimized Organizational Future Design

The following recommendations are derived from the assessment outlined above. Current demand for services from the engineering department are quite strong, and the existing staffing does not reflect any residual capacity. The very strong growth within the community, and concurrent demand on the engineering department, will exceed the capacity of existing resources and present ongoing challenges in the goal of continuing to provide a high level of service. The following recommendations addresses the major themes – increased staffing for development activities, especially plan reviews and inspections; strengthening management oversight and reduction of senior management performing routine engineering work; reorganizing the department to focus on two major areas; and enhancing the existing technology to better capture department performance and increase efficiency among support staff.

Recommendation #1: *To address increasing demand for inspections, the Town should add an additional Development Inspector position in FY 2019, and a second new Development Inspector position in FY2020.*

These two new positions will allow the engineering department to keep existing workloads, presently at the high end of demand, at current levels. While it is noted that a new Lead Development Inspector was added in the current budget, the workload that is currently being done by the engineering staff is higher than the comparable communities, and suggests that future growth will continue to be difficult to accommodate within current staffing. With inspectors handling an average of 3,500 inspections per year, already at the highest of comparable communities, projected growth through 2020 requires additional resources in the next few budget years.

Recommendation #2: *To address increasing demand for plan reviews, the town should add an additional Development Plans Reviewer in FY 2019.*

Between 2016 and 2020, the anticipated demand for plan reviews is estimated to increase by 32.5%, an annual rate of 8.1% for the next 4 years. Thereafter an anticipated growth in demand of 2% is expected to continue for the following 10-years. While recognizing the addition in the current budget of a Development Plan Reviewer, there will still be a need for an additional Development Plan Reviewer in the following fiscal year.

Recommendation #3: *The Department should add an additional position in the FY 2018 budget year for an Assistant Director / Senior Engineer.*

A newly created Assistant Director / Senior Engineer position will accomplish two objectives. The first is to offload from the Director routine engineering work related to capital infrastructure projects. It has been estimated the director currently spends 40% to 50% of her time performing work in this area. This new position would pick-up this 40% - 50% workload of engineering work from the director. Second, this new position would spend the remainder of their time directly supervising various program areas, including the current senior engineer position and the program areas associated with the senior

engineer. This thereby allows the department director to focus on near-term issues by directly managing and having greater engagement with development activities; performing short term planning; and ensuring quality services by evaluating department services. Should the transportation bond referendum passes in November of 2017, this engineering resource will be even more critical to address the demand such an initiative would require.

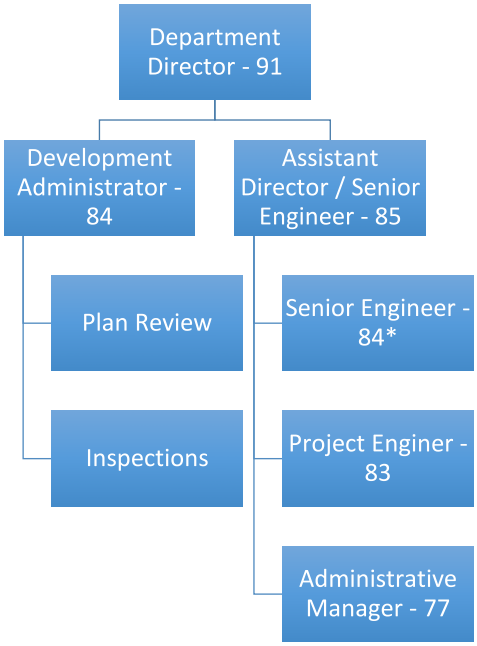
Recommendation #4: *The Engineering Department should reorganize to allow managers and leaders to focus on the appropriate time horizon.*

Managing complex organizations, and particularly organizations under growing rapid expansion, require managers and leaders to focus on the appropriate time horizon. The following recommendations focus resources to ensure the engineering department director can focus on both near-term and midterm priorities and needs of the Engineering Department.

The structure outlined in Figure 20 is from a short to mid-term time horizon and focuses on two perspectives. The first is the development needs of Holly Springs. The development administrator position, reporting directly to the department director, will have primary responsibility for all development issues – covering both plan review and the subsequent inspections. Because development activities are essential in rapidly growing communities, the town should strive to ensure that developer needs and infrastructure are in place to ensure a development friendly environment. The second focus is handled by the assistant director/Senior engineer, and focuses on environmental, erosion control, capital infrastructure projects and administrative support.

Both the development administrator and assistant director/senior engineer are responsible for the more detailed, day to day activities under their respective purview. The department director is then freed to address near-term and midterm issues, while simultaneously evaluating day-to-day performance in order to ensure community and Town priorities are being addressed. While a more direct, hands on approach may have been appropriate in past years, the rapid development and increasing population base will require managers throughout the Town to shift their focus to higher level responsibilities and away from day-to-day activities.

Figure 20: Recommended Mid-Term Future Organizational Structure - Overview



NOTE: Senior Engineer currently in salary grade 85. Adjustment to salary grade 84 should occur upon incumbent leaving position.

Recommendation #5: *The Town's technology no longer adequately supports the Engineering Department's needs. The Information Technology Department should work with the Engineering Department to identify new software that will allow for efficient management of workload by capture of key performance data.*

Town staff was extremely attentive and responsive to *FITCH's* requests for information. And typical of many projects, additional requests or clarifications were required. In that process, some challenges were noted with obtaining timely and consistent data. This problem is actually quite common in rapidly expanding organizations – technology systems often lag behind the needs of staff. Also typical of local government in the past 20 years has been to select a mainframe or mid-frame enterprise solutions for the entire Town, often based on financial and budget needs, and then utilizing the remaining 'standard' modules to support other departments, such as engineering. Fortunately, technology has improved overall, and challenges with deploying different vendor's application are not as problematic as once believed.

A new approach to managing workload is needed for the Engineering Department. Factors to consider are:

- The software captures data in a format that allows easy access and reporting utilizing standard desktop software. Databases should be developed utilizing SQL or similar database tools.
- The ability for information to be shared across departments – for example between Engineering; Planning & Zoning; Water Quality; etc.
- Workload flow tracking for submittal and review of permits, plan review and inspections

scheduling. The application should also manage contractors and vendors.

- Standardized reporting on an individual permit basis, and summary reporting of workloads, by category.
- The system should integrate with the Town's existing GIS.
- Allows vendors/contractors to track permit applications and status of plan reviews and inspections.
- Interface with the Town's financial systems to allow for efficient collections of fees.
- The ability for staff to utilize desktop reporting tools (e.g. Access; Excel) to generate ad hoc reports.

Attachment A

Benchmark Summary

FITCH
& ASSOCIATES

Apex, North Carolina

1	Population – current estimate	Approximately 50,000
2	# Engineering staff	8
3	# Inspectors	5
4	# Total Department Employees	13 - Water Resources
5	Plan reviews annually (count)	FY2015-2016 = 251
6	Inspections annually (count)	Field Inspections New Construction = 6,900+ Storm Water (complaints) = 150
7	Department Budget – please provide copy	Copy attached: _____ Please refer to Town Budget on line.
8	Fee schedule – please provide copy	Copy attached: ✓
9	Does your community provide water and/or wastewater utilities?	(YES) / NO
10	What performance measures/metrics does the department capture & report? – please provide copy	Copy attached: _____ Permits issued (Water, Sewer, Storm Water, Erosion Control) Illicit Discharges, GIS Features, Complaints, Buffer Authorization, TRC Review, IDT (plan review), Public Education and Outreach
11	What software(s) is used for managing workflow & capturing workload?	Excel Spreadsheets CityworKs BSI Online Database
	Organizational Structure:	
12	Who does department director report to?	Town/city manager ____ Assistant town/city manager ✓ Other _____

13	Town/city administration – is there a single assistant town/city manager?	YES / (NO)
14	Town/city administration – is there more than one town/assistant town manager?	(YES) / NO
15	Is there an assistant director of engineering?	YES / (NO)
16	What performance measures/metrics does the department capture & report? – please provide copy	Same as 10
17	What software(s) is used for managing workflow & capturing workload?	Same as 11
18	Please share survey results with us	(YES) / NO
19	For further information / person completing survey	Name: Marty D. Stone, PE Email: marty.stone@apexnc.org Phone: 919-249-3353

DEVELOPMENT FEE SCHEDULE

Effective 7/1/2016 to 6/30/2017
Revised 10-18-2016

Schedule subject to change upon approval by Town Council

DEVELOPMENT SUBMITTAL FEES

For Zoning/Subdivision/Site Activity - Calculated and collected by the Planning Department

Administrative Adjustment	$150	Pond Drainage Plan	$100
Administrative Approval (Small Town Character Overlay)	No Charge	Quasi-Judicial Hearing	$300
Annexation Petition	$200	Re-submittal Fees – Site and Subdivision Plans 3rd submittal)	½ Original Fee
Appeal (Board of Adjustment)	Lesser of $300 or ½ Original Fee	Rezoning/Conditional Zoning	$600/$900
Certificate of Zoning Compliance (CZC)	$100 *	Sign, Master Plan	$100
Consultant Fees	As required	Sign, Permanent	$75+$5/add'l sign
Development Name Change	$500	Sign, Temporary	$25
Exempt Site Plan – enlargement of a structure	$200		
Exempt Site Plan – all other exempt site plans	$100	Site Inspections (Non-residential lot)	$500
Home Occupation	$25	Site Inspections (Residential lot)	$35
Land Use Map Amendment	$700	Site Plan, Major	$1000+$5/acre
Late Fee – Site Plan/Subdivision Plan (and resubmittals)	$300	Site Plan, Minor	$800
Master Subdivision Plans		Special Use Permit	$600
Residential and Non-Residential	$700 + $10/lot		
Planned Unit Development (PUD)	$1500+$10/acre	Temporary Use Permits:	
PUD not requiring full TRC Review	$500	For Profit $50 / For Profit Express Review $75	
		Non-Profit $ 0 / Non-Profit Express Review $25	
Plat, Easement & Exempt	$100.00	Text Amendments (UDO)	$600
Plat , Major Subdivision	$200 + $10/lot	Tree Protection Fencing Inspection	$35
Plat , Minor Subdivision	$800	Tree Removal	$100
Plat, Recombination	$100	Variance Application	$350
Plat, Site Plan	$250	Zoning Letter	$100

*No charge for the first tenant in a new building

ACREAGE FEES (WATER & SEWER SERVICES)

The purpose of acreage fees for water and sewer service is to recover the cost of previous capital investments in the water and sewer systems and to build capital reserve funds for future investment in water and sewer collection, distribution, and treatment facilities. Each year acreage fees may be adjusted by the Town Council. In addition, the acreage fees (Water and Sewer Services) shall automatically be adjusted in correlation with the inflation rate in the previous year as reported by the US Department of Commerce Consumer Price Index. Adjustments shall be rounded to the nearest 10 dollars.

Calculated and collected by the Planning Department with required plat approval.

Zoning District	Per Gross Acre	Zoning District	Per Gross Acre
CB (Conservation Buffer)	$2,570	B1 (Neighborhood Business)	$4,870
RA (Residential Agricultural)	$2,870	B2 (Downtown Business)	$5,340
RR (Rural Residential)	$2,870	PC (Planned Commercial)	$4,870
LD (Low Density Residential)	$3,180	MORR (Mixed Office, Residential, Retail)	$5,180
MD (Medium Density Residential)	$3,830	MEC (Major Employment Center)	$4,870
HDSF (High Density Residential Single-Family)	$4,480	LI (Light Industrial)	$5,880
HDMF (High Density Residential Multi-Family	$4,580	TF (Tech/Flex)	$5,100
MH (Manufactured Housing Residential)	$3,830	PUD (Planned Unit Development)	$4,480
MHP (Mobile Home Park)	$3,830	SD (Sustainable Development)	$5,410
O&I (Office & Institutional)	$4,870	TND (Traditional Neighborhood District)	$4,480

RECREATION FEES

For New Residential Developments Assessed after 1/1/2016-Collected by the Planning Department

Housing Type	Fee Per Unit	Acreage Per Unit	Decimal Multiplier
Single Family Detached	$3,221.90	1/30 acre	0.03329
Single Family Attached	$2,157.44	1/45 acre	0.0223
Multi-Family Attached	$1,899.55	1/51 acre	0.01964

Existing Town ordinances require either the dedication of open space for public recreation or the payment of a fee in lieu per unit. The requirement regarding land dedication or fee in lieu will be based, in large part, on the Town's adopted Parks, Recreation, Greenways, and Open Space Master Plan. Recommendations regarding the acceptance of land or fee in lieu are made to the Town Council by the Parks, Recreation, and Cultural Resources Advisory Commission. For more information, contact John M. Brown, Director of Parks, Recreation and Cultural Resources Department @ 249-3344.

DOCUMENT / COPY FEES

Photocopying up to 11" x 17" (black and white)	$0.10 per sheet
Photocopying and maps up to 11" x 17" (color)	$0.40 per sheet
Photocopying larger than 11" x 17" (black and white)	$5 per sheet
Photocopying larger than 11" x 17" (color)	$20 per sheet
Printed 24" x 36"	$20 per sheet
Printed 36" x 48" maps	$40 per sheet
3 ring or spiral bound documents/plans	$35
Unified Development Ordinance	$40
Design and Development Manual	$15
DVD Copy	$0.50 per disc

SOLICITOR/PEDDLER/PARK CONCESSIONER*

Obtain Permit from the Town of Apex Police Department

30-day Permit	$ 50.00
90-day Permit	$100.00
180-day Permit (Park Concessions Only)	$175.00

* Anyone selling anything, including food, in a Town of Apex Park must obtain a Park Concessions Permit.

TRANSIENT/MOBILE FOOD VENDORS

Obtain Permit from the Town of Apex Police Department

Annual Permit	$150.00

Solicitor - Anyone going door-to-door to take orders for products, share information or seek donations.

Peddler – Anyone transporting goods door-to-door for sale (i.e. ice cream truck).

Park Concessioner – Anyone selling merchandise, food, and or beverages in a town park.

Transient Vendor - Anyone selling goods or services from a temporary business location (i.e. parking or vacant lot).

Mobile Food Vendor - Anyone selling food and/or beverages from a readily movable food unit

PUBLIC RIGHT-OF-WAY CLOSURE

Submit request and fees to Administration

Right-of-Way Closure Application Fee	$100	Right-of-Way Closure Processing Fee	$600
Due with request/application/non-refundable		Due prior to Council considering request; refundable if request is withdrawn prior to advertising.	

TRANSPORTATION DEVELOPMENT FEES

Calculated and collected by the Planning Department

The purpose of Transportation Development Fees is to recover a portion of the costs associated with building major road improvements in the Apex Planning Area. These planned road improvements will be required to service new residential and commercial developments as these same developments create additional demands on the road systems. The fee schedule provides for new developments to pay a prorated share of future road construction costs proportional to the projected impact of that particular type of development.

LAND USE CATEGORY	CRITERIA	FEE
Residential		
Single Family	Units	$ 295.00 (Collected by Building Inspections)
Multi-Family	Units	$ 200.00 (Collected by Building Inspections)
Mobile Homes	Units	$ 148.00 (Collected by Building Inspections)
Congregate Care	Units	$ 66.00
Hotel/Motel	Rooms	$ 268.00
Recreation		
Stadiums/Racetracks	Acre	$1,177.00
Racquet Clubs	Courts	$1,323.00
Golf Courses	Holes	$1,159.00
Parks	Parking Spaces	$ 47.00
General Outdoor Recreation	Acre	$2,292.00
Indoor Recreation	1000 sq. ft.	$ 617.00
Industrial		
Manufacturing, Warehousing/Storage	1000 sq. ft.	$ 119.00
Wholesale/Distribution	1000 sq. ft.	$ 151.00
Truck Terminal	1000 sq. ft.	$ 304.00
Mini Warehousing	1000 sq. ft.	$ 81.00
Institutional		
Church	1000 sq. ft.	$ 288.00
Hospital	1000 sq. ft.	$ 518.00
Daycare	Students	$ 84.00
Elem. & Middle Schools	Students	$ 34.00
High School	Students	$ 43.00
Junior College	Students	$ 41.00
College	Students	$ 73.00
Retail		
<50,000 sq. ft.	1000 sq. ft.	$1,616.00
50,000 to 99,999 sq. ft.	1000 sq. ft.	$1,262.00
100,000 to 199,999 sq. ft.	1000 sq. ft.	$1,067.00
>200,000 sq. ft.	1000 sq. ft.	$ 833.00
Office		
<100,000 sq, ft.	1000 sq. ft.	$ 433.00
100,000 to 199,999 sq. ft.	1000 sq. ft.	$ 366.00
>200,000 sq. ft.	1000 sq. ft.	$ 332.00

ENCROACHMENT AGREEMENT

Submit to Development Services

Encroachment agreement preparation and recording	$150.00

CONSTRUCTION FEES/BONDS

Calculated and collected by Development Services

Construction Plan Submittal Fees	$ 500.00 + $10.00/Sheet (electronic submittal)
Re-submittal Fees – Construction Plans (3rd submittal and every other subsequent submittal (3rd, 5th, 7th, etc.)	½ Original Fee
Late Fee – Construction Plan Submittal and Resubmittal	$ 300.00
Construction Plan Revisions (after initial approval)	$50.00/sheet
Water Extension Permit Application	$ 200.00
Sewer Extension Permit Application	$ 200.00

Construction Inspection Fees:

Water Lines	$1.30 per linear foot	Fire Lanes	$ .75 per square yard
Sewer Lines	$1.30 per linear foot	Sidewalks	$ 1.80 per square yard
New Streets (public)	$ .75 per square yard	Infill/Outparcel Lots	$ 350.00/lot
Curb & Gutter (public)	$ 1.50 per linear foot	Driveway, residential	$75.00 Inspection fee – includes 1 re-inspection
Storm Drains (public)	$ 1.30 per linear foot		
Maintenance Bonds	25% of cost of installed and approved Infrastructure		
Performance Bonds	125% of cost of uninstalled Improvements		

STORMWATER PLAN REVIEW FEES/BONDS

Submit to Development Services

Project Size (disturbed acres)	Stormwater Plan Review Fee
< 1 acre	$ -0-
1 - 5 acres	$500.00
5 - 50 acres	$500.00 + $50.00 per additional disturbed acre

$500 base review fee for projects disturbing up to 5 acres. Add $50 per additional disturbed acre beyond 5 acres. Development projects that disturb less than 1 acre of land are not subject to the stormwater plan review fees since they are exempt from stormwater controls. The stormwater plan review fee will be limited to a maximum of 50 acres.

BMP Maintenance Bond	25% of cost of installed and approved Infrastructure
BMP Performance Bond	125% of cost of uninstalled Improvements

SOIL AND EROSION CONTROL FEES/GUARANTEES

Submit to Development Services

Application for S&E Plan Approval	$500.00 per disturbed acre
Future Lot Grading*	$50.00 per acre of remaining building lot acreage
S&E Performance Guarantee**	$2,500.00 per disturbed acre

*The future lot grading fee provides coverage under an erosion control permit and ensures compliance with NPDES stormwater regulations. Only the additional land disturbance associated with future building lots needs to be included.

**Performance guarantee must be in the form of a certified check, cash, or irrevocable letter of credit approved by the Town. The performance guarantee is due prior to the Town issuing a Letter of S&E Plan Approval and may be fully refunded after the issuance of the certificate of completion.

ELECTRICAL UNDERGROUND AND SERVICE LATERAL FEES

Calculated by the Electric Department

Primary Facilities:
Collected by Electric Department

Based on cost difference of normal overhead facilities and the requested underground facilities.

Single-Family	$445.00/lot
Townhomes	$445.00/unit
Apartments	$445.00/point of delivery

Service Laterals:
Collected by Building Inspections Permitting

Charges are for the first 100 feet of service length. An excess footage charge, if applicable, is billed separately by the Electric Utilities Division at $3.00/foot over 100 feet.

Single-Family	$475.00/service lateral
Townhomes	$475.00/service lateral
Apartments	Apartments are typically served with multiple meter bases at approved locations; service laterals are usually installed in conjunction with the primary facilities and service lateral charges do not apply.

WATER TAPS AND METER FEES

Submit Water Tap fees to Water Resources and Water Meter fees to Building Inspections and Permitting

Fees are based on 60 foot right-of-way roads and lateral lengths less than 100 feet. Special cases, wider rights-of-way, special or complex boring and items not shown shall be at cost.

Size	Base Cost	Add Bore	Add Street Cut	Meter Only*
¾ inch	$ 1,550.00	$ 550.00	$ 800.00	$ 215.00
1 inch	$ 1,750.00	$ 550.00	$ 800.00	$ 325.00
1 ½ inch	N/A	N/A	N/A	$ 650.00
2 inch	N/A	N/A	N/A	$ 830.00
3 inch	N/A	N/A	N/A	$ 3,255.00
4 inch	N/A	N/A	N/A	$ 4,265.00

***If meter setter is not readily accessible or not functional when town staff arrives onsite, the meter will not be installed. Owner will be required to reschedule and pay fee as noted under "Inspection Fees" section on Pages 6 and 7 of this document. The Town will reschedule work within 7 days of receipt of the "Inspection Fees".**

WATER BACTERIOLOGICAL SAMPLE FEE

Samples collected by Water Resources Department. Fees collected by Development Services	$75.00

SEWER TAPS

Submit to Water Resources Department

Size	Base Cost	Add Bore	Add Street Cut
4 inch	$ 1,450.00	Not available	$ 800.00

SEWER AND STORMWATER RE-INSPECTION FEES

Submit to Water Resources Department

Sewer and Storm drain re-inspection fee	$325 remobilization fee plus $0.25 per linear foot over 1000'

IRRIGATION METERS

Submit to Building Inspections & Permitting

Single-Family Residential - Includes duplex and townhomes (Irrigation meter ***required*** *for ALL irrigation systems*)

Irrigation Meter Size	System Demand Basis	Rate Per Gallon	Water Capacity	Meter	Permit	Total
¾ "	200 gallons per day	$10.47	$2,094.00	$600.00	$75.00	$2,769.00

Multi-Family and Commercial (Irrigation meter ***required***)

Irrigation Meter Size	System Demand Basis	Rate Per Gallon	Water Capacity	Meter	Permit	Total
¾ "	500 gallons per day	$10.47	$5,235.00	$215.00	$75.00	$5,525.00
1"	850 gallons per day	$10.47	$8,899.50	$325.00	$75.00	$9,299.50
1 ½ "	1,370 gallons per day	$10.47	$14,343.90	$650.00	$75.00	$15,068.90
2"	1,975 gallons per day	$10.47	$20,678.25	$830.00	$75.00	$21,583.25

Conditions:

1. All irrigation meters will require payment of capacity fees.
2. All in-ground irrigation systems shall be protected by an approved backflow preventer.
3. A plumbing permit is required for installation of the system from the meter to the backflow preventer.
4. A notarized encroachment agreement is required with each permit application (except single-family homes).
5. All associated fees will be collected by the Building Inspections & Permitting Department prior to issuance of a permit.
6. N.C.G.S. requires a second meter for irrigation systems.
7. All other non-single family customers (subdivision entrances and commercial sites) require a second meter.
8. The Water Resources – Water & Sewer Utility Operations Division will only install the tap for meters for existing single-family customers; all other taps must be installed by a private contractor and inspected by the Infrastructure Inspections Division.
9. Fees are based upon current rates and are subject to change.
10. Single family meter charge includes Town installing a split tap at an existing meter.

COMMERCIAL BUILDING PERMIT FEES

Calculated and collected by Building Inspections and Permitting

NEW STRUCTURES, ADDITIONS AND ALTERATIONS (Base Fee) 1,2,3

Total Gross Building Floor Area of Construction	Fee Computation
0 - 500	Per Trade (see schedule below)
501 - 5,000	A x B = Permit Fees
5,001 - 10,000	(A x B X .80) + (1,000 X B) = Permit Fee
10,001 - 15,000	(A x B X .70) + (3,000 X B) = Permit Fee
15,001 - 20,000	(A x B X .60) + (4,500 X B) = Permit Fee
20,001 - above	(A x B X .50) + (6,500 X B) = Permit Fee

1. Alterations to existing structures, with no footprint increase, are charged at a rate of .60 of the Permit Fee or the minimum per trade fee based upon the Single Trade Fee Schedule, whichever is greater.
2. Permits for "shell" buildings are charged at a rate of .60 of the Permit Fee, based upon a Business Occupancy, or the minimum per trade fee based upon the Single Trade Fee Schedule, whichever is greater. Area within the building shell, which is intended to be occupied, will have the permit fees for the occupied area computed per footnote #1 above.
3. Additional Miscellaneous Fees, listed below, will be added to the permit fees as applicable.

A=Total Gross Building Floor Area B= Fee Per Square Foot Based Upon Occupancy

Single Trade Fee Schedule	
Building	$160.00
Electrical	$ 75.00
Mechanical	$ 75.00
Plumbing	$ 75.00
Grading	$ 75.00

Fee Per Square Foot of Floor Area Based on Occupancy

Occupancy	Fee	Occupancy	Fee	Occupancy	Fee
Assembly	0.55	Factory/Industrial	0.40	Mercantile	0.50
Business	0.60	Hazardous	0.50	Residential	0.55
Educational	0.60	Institutional	0.60	Storage/Utility	0.30

MISCELLANEOUS FEES

Change of Contractor	$ 50.00
Conditional Electrical Power Inspection (Apex and Duke)	$ 75.00
Conditional Mechanical Systems Inspection	$ 75.00
Demolition (All Trades)	$ 120.00
Dumpster Enclosure	$160.00 (Single Trade Building)
Elevator	$ 50.00/per elevator
Fire Pumps, each	$ 250.00
Fire Sprinkler System	$ .03 per square feet
Fire Suppression	$ 50.00
Grease/Oil Interceptor	$ 50.00
Irrigation System	$ 75.00 permit fee + capacity fee shown on page 4
Sales/Construction Trailer/Modular Classroom	Per Single Trade Fee Schedule
Sign – New	$160.00 + $75 if electrical needed
Sign – Replacement	$ 50.00
Solar Panels	$235.00 ($160.00 Building + $75.00 Electrical)
Spray Paint Booth, each	$ 150.00
Storage Tank, each	$ 50.00 Plus Associated Single Trade Fees
Swimming Pool	$ 50.00 Plus Associated Single Trade Fees
Temporary Power (Town of Apex)	$125.00
Water and Sewer Capacity Fees and Water Meters	Refer to Capacity Fee Schedule
Work Without a Permit	Double Fees

PLAN REVIEW FEES (Non-refundable)

Per Trade- (Not applied toward cost of permit)	$ 100.00
Plan Modification (Not applied toward cost of permit)	½ Review Fee or ½ per trade fee for single trade modifications
Re-review fee (Not applied toward cost of permit)	½ Review Fee @ 3rd , 5th, 7th, etc.
Re-stamp Plans, Per Trade	$ 75.00

EXPRESS PLAN REVIEW (2 HOUR MINIMUM) - when service is available

First Hour	$600.00	$150.00 each additional 15 minutes
Cancellation Fee (3 days prior notice)	$200.00	

ADMINSTRATIVE FEES

Duplicate Building Record Card	$ 10.00
General Records Research, Archive Files	$ 3.00/page
General Records Research, Current Files over 10 pages	$ .50/page

INSPECTION FEES

Standard re-inspection fee	$ 75.00
Job not ready for inspection or installation of tap, meter, etc.	$150.00
Eight or more code violations, Per Trade	$150.00

ONE AND TWO FAMILY DWELLING PERMIT FEES

Calculated and collected by Building Inspections and Permitting

NEW STRUCTURES (Single Family/Duplex/Townhomes)	$/SQ.FT	MIN/ $/UNIT
3,000 Gross SF and Less	0.35	$500.00
>3,000 Gross SF:(3000SFx $0.35/SF)+(Additional SFx $0.35/SF x.75) = Permit Fee	Per Formula	

ADDITIONS /ALTERATIONS 800 SQUARE FEET AND GREATER	$/SQ.FT	MIN/ $/UNIT
Building	$0.13	$150.00
Electrical	$0.04	$ 60.00
Plumbing	$0.04	$ 60.00
Mechanical	$0.04	$ 60.00

ADDITIONS /ALTERATION LESS THAN 800 SQUARE FEET	MIN/ $/UNIT
Building	$ 100.00
Electrical	$ 50.00
Plumbing	$ 50.00
Mechanical	$ 50.00

ACCESSORY STRUCTURES	$/SQ.FT	MIN/ $/UNIT
Decks and Sheds, 400 sq. ft. or less		$ 60.00
Decks and Sheds, > 400 sq. ft.	0.13	$ 90.00
Roof Addition	0.13	$ 60.00
Screened Decks	0.13	$ 90.00
Trellis (Attached to a structure)	0.13	$ 40.00

SINGLE TRADE FEE SCHEDULE	
Building	$160.00
Electrical	$ 75.00
Mechanical	$ 75.00
Plumbing	$ 75.00
Fire (included w/ Plumbing)	$ 0.00
Grading	$ 75.00

MISCELLANEOUS	
Change of Contractor	$ 50.00
Change of Lot	$ 50.00
Construction Trailer	Per Single Trade Fee Schedule
Demolition (All Trades)	$120.00
Driveway	$ 75.00
House Moved	$ 279.00
Irrigation	$75.00 permit fee + capacity fee shown on page 4
Mobile Home (All Trades)	$ 100.00
Modular Home (All Trades)	$ 279.00
Stop Work Order	May Require Additional Trip Fee
Temporary Power (Town of Apex Only)	$ 125.00
Transportation Impact Fee	$ 295.00
Work Without Permit	$200.00 + permit fees

PLAN REVIEW FEES (Non-refundable)	
Initial Fee For New Single Family and Townhome Construction (Not applied to cost of permit)	$110.00
Initial Fee All Other Construction (Not applied toward cost of permit)	$100.00
Plan Modification Fee (Not applied toward cost of permit)	½ Review Fee
Re-review Fee (Not applied toward cost of permit)	½ Review Fee @ 3rd, 5th, 7th, etc.
Re-stamp Plans	$ 60.00

ADMINISTRATIVE FEES	
Duplicate Building Record Card	$ 10.00
General Records Research, Current Files Over 10 Pages	$.50/page
General Records Research, Archive Files	$3.00/page

INSPECTION FEES	
Standard re-inspection fee	$75.00
Job not ready for inspection or installation of tap, meter, etc.	$150.00
Eight or more code violations, Per Trade	$150.00

EXPRESS PLAN REVIEW (2 HOUR MINIMUM) – When service is available	
First Hour	$600.00 + $150.00 each additional 15 minutes
Cancellation Fee (3 days prior notice)	$200.00

WATER AND SEWER CAPACITY FEES

Calculated and collected by Building Inspections and Permitting

The purpose of Capacity Fees is to recover a portion of the costs associated with building water and wastewater treatment facilities. These treatment facilities provide the system capacity that each new development will demand when connected to the water and sewer systems. Additional capacity fee assessments shall be required of nonresidential customers who, after paying a capacity fee, expand their service requirements.

A 75% grant may be available in the Central Business District.

Combined water and sewer service: $20.94 **per GPD*** **For water only or sewer only:** $10.47 **per GPD***

*Minimum 50 GPD

LAND USE CATEGORY	GALLONS PER DAY (GPD)	COST PER UNIT $20.94	UNIT
Airports (no food service)	5	$104.70	Passenger
Auditoriums	5	$104.70	Seat
Barber Shops	50	$1,047.00	Chair
Bars, cocktail lounges (no food service)	20	$418.80	Seat
Beauty Shops	50	$1,047.00	Chair
Bowling Alleys	50	$1,047.00	Lane
Bus Terminal (no food service)	5	$104.70	Passenger
Business (Not listed in this table)	25	$523.50	Employee
Camps - Construction or Work	60	$1,256.40	Person
Camps - Summer	60	$1,256.40	Person
Camps - Campgrounds w/out water/sewer	100	$2,094.00	Campsite
Camps-Travel Trailer, RV Parks, with water/sewer	120	$2,512.80	Campsite
Car Washes	3000	$62,820.00	Site
Car Washes – with at least 50% recycled water	1500	$31,410.00	Site
Churches (No food service, day care, or camps)	3	$62.82	Seat
Country Clubs – Resident Members	60	$1,256.40	Person
Country Clubs – Non-resident members	20	$418.80	Person
Day Care Facilities	15	$314.10	Person
Factories – per shift (no industrial waste)	25	$523.50	Employee
Factories – per shift with showers	35	$732.90	Employee
Food Service (restaurants)	25	$523.50	Seat
Hospitals	300	$6,282.00	Bed
Laundries – self service	500	$10,470.00	Machine
Marinas – with bathhouses	30	$628.20	Boat Slip
Marinas – without bathhouses	10	$209.40	Boat Slip
Meat Markets	50 + 25	$1047.00 + $523.50	100 sq. ft.+ Employee
Motels/Hotels – with cooking facilities	175	$3,664.50	Room
Motels/Hotels – without cooking facilities	120	$2,512.80	Room
Multi-family (Apartments, condos)	250	$5,235.00	Unit
Nursing/Rest Homes – with laundry	120	$2,512.80	Bed
Nursing Rest Homes – without laundry	60	$1,256.40	Bed
Offices (per shift)	25	$523.50	Person
Rail Terminal (no food service)	5	$104.70	Person
Residential Care Facilities	60	$1,256.40	Person
Resorts	200	$4,188.00	Room
Schools - Day	10	$209.40	Student
Schools - Day (with cafeteria)	12	$251.28	Student
Schools - Day (with cafeteria, gym & showers)	15	$314.10	Student
Schools - Boarding	60	$1,256.40	Student
Service Stations – vehicles	250	$5,235.00	Water Closet
Single-Family (1 & 2 family dwellings, townhomes, duplexes, mobile homes)	300	$6,282.00	Dwelling Unit
Stadiums/auditoriums/theaters/drive-ins	5	$104.70	Seat or Space
Swimming Pools & Bathhouses	10	$209.40	Per Person Specified by Health Department

Cary, North Carolina

Engineering Department Study

Town of Cary

See answers below. Completed 10/20/16

1	Population	As of October 1st, 2016 – 158,437
2	# Engineering Staff	**34** - All engineering positions (with Engineer or Engineer Manager is in the title, including both PE and EIs and excluding engineering technicians PEs in non-engineering roles) in either the of the following department: Transportation & Facilities (17); Water Resources (17)
3	# Inspectors	**53**- All inspection position (with inspector or field service or civil design technician in the title)in either of the following department: Transportation & Facilities (6); Water Resources (13); Inspections & Permits(34)
4	# Total Department Employees	**92 -** All positions (including those in permitting, modeling and administrative roles) in either the of the following department: Transportation & Facilities (51); Water Resources (41)
5	Plan Reviews annually (count)	• 3,627 individual plan reviews were completed by engineering staff (WR and T&F departments only) for FY16. • 6,039 individual plan reviews were completed for site and subdivision plans for FY16 (for all staff in all departments);
6	Inspections annually (count)	• We completed 1,514 engineering (ENG) inspections for FY16. • We completed 27,286 Building, Electrical, Mechanical, Plumbing, and Fire inspections for FY16.
7	Department Budget	Water Resources - $5,306,849 Transportation & Facilities - $5,661,955 Copy attached: • Approved FY17 Budget WR • Approved FY17 Budget T&F
8	Fee schedule	Copy attached: FY+2017+Fees+Charges
9	Does your community provide Water and/or wastewater utilities	Yes
10	What performance measures/metrics does the department capture & report	Copy attached: • Planning Zoning and Development Report September 2016 • Construction Activity September 2016 • WR Report 2016 Q3
11	What software(s) is used for managing workflow and capturing workload	None currently
12	Who does the department director Report to?	Assistant town manager
13	Town administration – is there a single assistant town manager?	No (more than 1)

14	Town administration – is there more than one assistant town manager?	Yes (2 filled and 1 vacant position)
15	Is there an assistant director of engineering?	No
16	What performance measures/metrics does the depart capture & report	See question 10
17	What software is used for managing workflow and capturing workload	See question 11
18	Please share survey results with us	Yes
19	For further information/person completing survey	Name: Sarah Braman; Email: sarah.braman@townofcary.org Phone: 919-462-3846

Garner, North Carolina

THE TOWN OF *Holly Springs*

October 6, 2016

Town of Garner
Engineering Department
Attn: Tony Chalk
900 7th Avenue
Garner, NC 27529

Town of Garner
Human Resources
900 7th Avenue
Garner, NC 27529

Re: Town of Holly Springs, North Carolina
Engineering Department Study - Benchmark Survey

The Town of Holly Springs is currently evaluating our Engineering Department to ensure we can address future community needs. We have selected a small number of similar communities to benchmark against, therefore your participation will greatly assist us developing a meaningful assessment of current and future performance. We will be pleased to share our results with you.

Attached is a short survey instrument – if you could, please attempt to complete this survey within 10 days, that effort will be greatly appreciated. Please attach additional sheets if needed. Thank-you for your participation.

Please send your completed survey to:

Dr. Bruce Moeller
Fitch & Associates
bmoeller@fitchassoc.com
Mobile: 727-580-0279
FAX: 816-431-2653

For additional information:

Kendra D Parrish, PE, CFM
Director of Engineering
Town of Holly Springs
Kendra.Parrish@hollyspringsnc.us
919-557-3935

Sincerely,

Kendra Parrish

Kendra D. Parrish, P.E., CFM
Director of Engineering

1	Population – current estimate	29,000 Residents
2	# Engineering staff	6 = 3 Engineers 1 Admin. 1 Tech. 1 Construction Mgmt./ Inspector
3	# Inspectors 11 =	5 full-time Inspectors 1 director 3 Part-time Inspectors 2 Permit clerks/Admin.
4	# Total Department Employees (3 separate departments)	6 Engineering 11 Inspections 6 Planning = 23
5	Plan reviews annually (count)	75
6	Inspections annually (count)	6,000, 800 Fire Maintenance, 300 Pre+ Final lot driveways = 7,100
7	Department Budget – please provide copy	Copy attached: YES
8	Fee schedule – please provide copy	Copy attached: YES
9	Does your community provide water and/or wastewater utilities?	YES (NO) City of Raleigh
10	What performance measures/metrics does the department capture & report? – please provide copy	Copy attached: YES
11	What software(s) is used for managing workflow & capturing workload?	none
	Organizational Structure:	
12	Who does department director report to?	Town/city manager X Assistant town/city manager X Other N/A

13	Town/city administration – is there a single assistant town/city manager?	(YES) / NO Temporarily, normally two asst. Town Mgr's.
14	Town/city administration – is there more than one town/assistant town manager?	(YES) / NO 1 Town Manager 2 Assistant Town Manager's
15	Is there an assistant director of engineering?	(YES) / NO
16	What performance measures/metrics does the department capture & report? – please provide copy	Attached
17	What software(s) is used for managing workflow & capturing workload?	none
18	Please share survey results with us	(YES) / NO
19	For further information / person completing survey	Name: Morgan King - Engineering Admin Email: mking@garnernc.gov Phone: (919) 773-4425

(Departmental Budget)

FOR 2017 13

ACCOUNTS FOR: 10 General Fund		ORIGINAL APPROP	TRANFRS/ ADJSTMTS	REVISED BUDGET	YTD EXPENDED	ENC/REQ	AVAILABLE BUDGET	PCT USED
48 Engineering								
4810 Community Engineering								
10481000 510200	Salaries	413,026	0	413,026				
10481000 510236	Longevity	8,986	0	8,986				
10481000 510500	FICA	31,970	0	31,970				
10481000 510600	Group Insurance	58,632	0	58,632				
10481000 510700	Retirement	51,569	0	51,569				
10481000 521100	Postage	227	0	227				
10481000 521150	Telephone	2,106	0	2,106				
10481000 521200	Printing	200	0	200				
10481000 521400	Travel and Trainin	4,764	0	4,764				
10481000 521700	Auto Maintenance &	600	0	600				
10481000 522100	Equipment Rental	9,571	0	9,571				
10481000 523100	Fuel	2,400	0	2,400				
10481000 523300	Departmental Suppl	1,940	0	1,940				
10481000 523580	Stormwater Educati	4,729	0	4,729				
10481000 523600	Uniforms	135	0	135				
10481000 524300	Contract Services	4,260	0	4,260				
10481000 525300	Dues and Subscript	1,558	0	1,558				
TOTAL Community Engineering		596,673	0	596,673				
TOTAL Engineering		596,673	0	596,673				

ENGINEERING DEPARTMENT

Fiscal Year 2015-2016 Accomplishments

- Timber Drive sidewalk project began in the fall
- Annual street resurfacing project completed
- Buffaloe Road sidewalk project construction began in Spring 2016
- Main Street/Highway 50 sidewalk project construction began in Summer 2015
- Police Building construction completed
- New concession stands and restroom facilities constructed at Garner Recreation Park and South Garner Park
- Town Hall and Indoor Recreation Center design completed and projects bid

Goals

1. Manage all construction projects within the established budget and time constraints, while recognizing opportunities to combine projects in order to maximize efficiency. (FR3,SD3)
2. Provide timely, thorough inspections of public and private projects that help insure quality construction of the Town's infrastructure. (SD2,SD4)
3. Provide data and guidance to structure financing of stormwater infrastructure maintenance. (OD2,OD4)
4. Continue sharing the status of the bond projects to the public as they move towards completion. (QL4, QL7)
5. Continue providing direction to the development community and insuring regulatory compliance through the plan review process. (QL3,OD1,SD1)

Objectives for Fiscal Year 2016-2017

1. Complete review of stormwater infrastructure needs and institute plan to address maintenance needs.
2. Timely review of plans and inspections of projects.
3. Begin revamping of filing system to prepare for merging of files with Planning in 2017/2018.
4. Implement new Capital Project Budget and tracking system for construction projects.

Program Changes for FY 2016-17

The FY 2016-17 budget includes the moving the Town's Annual Street Resurfacing Program from the Engineering Department to the Public Works-Powell Bill division budget. While the Engineering Department still retains the management and of this program, directives from the North Carolina General Assembly make it clear that Powell Bill funds are to be used primarily for resurfacing.

Authorized Positions

Category	FY 2016	Positions Requested	FY 2017
Town Engineer	1	-	1
Assistant Town Engineer	1	-	1
Senior Administrative Support Specialist	1	-	1
Stormwater Engineer	1	-	1
Engineering Inspector	1	-	1
Engineering Technician	1	-	1
Total	6	*0.0*	6

Performance Measures

Measure	Actual FY 2014-15	Estimated FY 2015-16	Target FY 2016-17
% of Projects Completed On-Time and Within Budget	75%	80%	100%
% of Projects Within 10% of Pre-Bid Estimate	66%	75%	75%
% of Plans Reviewed Within 7 Days	100%	100%	100%
% of Employees Obtaining Additional Training in Areas Outside Job Duties	80%	80%	100%

Workload Indicators

Indicators	Actual FY 2014-15	Estimated FY 2015-16	Projected FY 2016-17
# of Projects Bid	7	5	5
Value of Public Properties Constructed	$10 million	$9 million	$10 million
# of Development Plans Reviewed	30	35	4
# of Lots Inspected	125	150	160

Town of Garner
Fiscal Year 2016 – 2017
Adopted Fee Schedule

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Section 1. Executive, Finance and Administrative Charges	
Miscellaneous	
Return Check Fee	$ 25.00
Other Fees & Charges	
Vehicle Decal Fee	$ 15.00
Annual fee charged with vehicle taxes billed by NC Division of Motor Vehicles.	
Business Registration Fee	
All In-town Business *(annual registration fee)*	$ 25.00
Itinerant Merchant *(mobile vendor or solicitor)*	$ 100.00
Peddler	
On Foot	$ 10.00
With Vehicle	$ 25.00
Farm Products Only	$ 25.00
Precious Metal Dealer *(initial application)*	$ 180.00
Precious Metal Dealer *(renewal)*	$ 3.00
Taxicab Service *(per cab)*	$ 15.00

Business Activities Exempt by the State of NC from Business Registration Fee

Note: Although the Privilege License system has been repealed, a Business Registration Program still precludes the following activities from paying a business registration fee.

Accountants	Distributing Motor Fuel at Wholesale	Optometrists
Alarm System Installation	Embalmers	Osteopaths
Alarm System Monitoring	Engineers	Pest Control Applicators
Appliances-Retail and Rental	Flea Market Vendors	Photographer
Architects	Healers	Physicians
Art Festivals	Installment Paper Dealer	Private Investigator/Detective
Attorneys	Insurance Companies	Railway Companies
Auctioneers	Landscape Architects	Real Estate Agent
Banks	Land Surveyors	Real Estate Appraisers
Bondsmen	Merchandising Machines	Real Estate Loan Broker
Breweries	Morticians	Savings and Loan Associations
Bus Companies	Motion Picture Making	Soft Drink Manufacturer
Chiropodists	Newspapers	Surgeons
Chiropractors	Non-Profit Organizations	Telephone Companies
Computer Hardware-Retail and Rental	Office Equipment-Retail and Rental	Vending Machine Corporation
Coop Markets	Ophthalmologist	Veterinarian
Dentists	Opticians	Winery

Fees Regulated by the State of NC for the Sale of Beer and Wine	
Beer on Premises	$ 15.00
Beer off Premises	$ 5.00
Wine on Premises	$ 15.00
Wine off Premises	$ 10.00
Wholesale Dealer - Beer Only	$ 37.50
Wholesale Dealer - Wine Only	$ 37.50
Wholesale - Beer and Wine Under Same License	$ 62.50
Section 2. Community Services Charges	
Land Use Application Permit Fees	
Voluntary Annexation Petition	$ 150.00
Board of Adjustment Application	$ 125.00
Rezoning Application *(Zoning Amendment)*	$ 250.00 + $ 10.00 per acre
Zoning Ordinance Amendment	$ 150.00
Zoning Interpretation Amendment	$ 50.00
Variance	$ 125.00
Petition to Close Street	$ 450.00
Change of Use Permit	Fee of such initial application
Conditional Use Permit (site plan)	$ 252.00
Conditional Use Permit (subdivision)	$ 250.00 + $ 10.00 per lot
Final Subdivision Plat	$ 125.00
Long Range Plan Amendment	$ 100.00
Special Use Permit (site plan)	$ 250.00
Special Use Permit (subdivision)	$ 250.00 + $ 10.00 per lot
Temporary Use Permit	$ 27.00
Final Plat Petitions	
Major Subdivision	$ 250.00 + $ 5.00 per lot
Minor Subdivision	$ 102.00

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Planned Development *(must file a rezoning application and CUP Master Plan)*	See above for specific fee
Reapplication	Actual cost, not to exceed original fee charged
Sign Permit	$ 50.00
Political Sign Permit *(refundable)*	$ 200.00
Temporary Sign Permit	$ 25.00
Temporary Off-Premise Subdivision Sign Permit	$ 100.00
Temporary On-Premise Construction Identification Signs	$ 100.00
Master Site Plan Review	$ 100.00
Administrative Site Plan Review	$ 150.00
Administrative Site Plan Modification	$ 50.00
Subdivision Exemption, Recombination or Easement	$ 50.00
Zoning Compliance Permit *(fence or storage building less than 12' in any dimension)*	$ 25.00
Miscellaneous Land Use Permit *(fences or storage buildings with dimensions under 12sq.ft.)*	$ 25.00
Plan Review Fees	
Residential Single – Family Plans	No Charge
Commercial Plans	
Under 25,000 sq.ft.	$ 100.00
25,001 – 50,000 sq.ft.	$ 150.00
50,001 – 100,000 sq.ft.	$ 200.00
Over 100,000 sq.ft.	$ 250.00
Resubmittals for Same Project	$ 50.00
Single Trade Renovations	$ 50.00
Sprinkler/Fire Alarm Plans	
Sprinkler Systems	$ 25.00 plus $ 1.00 per head count
Fire Pumps	$ 50.00
Fire Alarm Systems	$ 50.00
Construction Fees	
Residential	
New Single Family Detached & Townhomes *(per unit) (includes all trades)*	
Up to 1,200 sq.ft.	$ 604.00
Over 1,200 sq.ft.	$ 604.00 + $ .25 per sq.ft. over 1,200 sq.ft.
Residential Addition *(includes all trades)*	
Up to 400 sq.ft.	$ 330.00
401 – 600 sq. ft.	$ 500.00
Over 400 sq.ft.	$ 500.00 + $ .25 per sq.ft. over 600 sq.ft.
Multi-Family	See Non-Residential Comprehensive Fees
Residential Interior Renovations	50% of Residential Addition Fees
Manufactured Home *(includes all trades)*	$ 330.00
Construction/Sales Office *(when not part of a building permit) (all trades)*	$ 200.00
Modular Homes/Dwellings *(includes all trades)*	$ 500.00
Residential Accessory Structures *(with dimensions greater than 12' on any side)*	Trade Inspections Fee + $ .18 per sq.ft.
Temporary Service Poles	$ 80.00
Temporary Power	$ 80 first meter plus $ 40 per meter additional
Non-Residential Comprehensive *(trades and sprinkler as independent, with building trade including site work). Based on project cost.*	
Up to $5,000	Trade Fees as Noted in Trade Inspections
$5,001 - $12,500	$ 200.00
$12,501 - $25,000	$ 441.00
$25,001 - $50,000	$ 678.00
$50,001 - $100,00	$ 1,258.00
$100,001 - $200,000	$ 2,252.00
$200,001 - $350,000	$ 3,810.00
$350,001 - $500,000	$ 5,037.00
$500,001 - $750,000	$ 7,011.00
$750,001 - $1,000,000	$ 8,766.00
Greater than $1,000,000	$ .30 per $ 100.00 or fraction thereof
Miscellaneous Construction Fees	
Sign Permits with Electrical or Footings Required	$ 100.00
Wall Sign Permits with Electrical	$ 50.00 per sign, $ 80.00 minimum
Exhaust Hoods with Ansul System	$ 75.00
Demolition Permit *(when not part of construction)*	$ 100.00
Change of Occupancy	$ 150.00
Change of Occupancy *(between Business and Mercantile, less than 50,000 sq.ft.)*	$ 75.00
Change of Tenant, Same Use	$ 75.00
Mandatory Fire Permits	$ 80.00
Daycare Inspection for License	$ 80.00
ABC License	$ 100.00
Change of Contractor on Permit	$ 50.00
Administrative Fee on Cancelled Permits without an Inspection	$ 25.00

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Trade Inspections *(Includes two trips)*	
Building	$ 80.00
Electrical	$ 80.00
Mechanical	$ 80.00
Plumbing	$ 80.00
Additional Trips not for Re-inspection	$ 60.00
Fire Inspection Fees *(For periodic inspections)*	
Initial and One-Time Follow-up Inspection	$ 50.00
Trade Re-inspection Fees	
Second Re-inspection	$ 80.00
Third Re-inspection *(same trade)*	$ 150.00
Fourth Re-inspection and Each Thereafter *(same trade)*	$ 250.00
Not Ready Charge	$ 80.00
Weekend or After Hours Inspection *(per hour)*	$ 240.00 for up to 3 hours
Weekend of After Hours Inspection *(over three hours)*	$ 240.00 plus $ 80.00 per hour
Emergency Inspections	Fee to be determined by Inspections Director
Commencement of Work Before Permit is Obtained	Double Fee

Note: Per NCGS 153-354 and 160A-414, if the valuation of a building or service system appears to be under estimated on the application, the Inspections Department shall determine the project cost based on the most recent edition of the ICC "Building Valuation Data," or the applicant can show detailed estimates to meet the approval of the Inspections Department. Permit valuations shall include total cost, such as electrical, gas mechanical, plumbing equipment, fire protection, other systems, material and labor.

Miscellaneous	
Sign Return Fee	$ 5.00
Homeowner Recovery Fund Fee* *(per permit)*	$ 10.00

** Homeowner Recovery Fund Fees are collected on behalf of and remitted to the NC Licensing Board for General Contractors.*

Nuisance Abatements*	
Initial Inspection plus One Follow-up	$ 50.00
Each Additional Inspection Over Two	$ 25.00
Inspections Department Administrative Fee	$ 100.00
Public Works Department Administrative Fee	$ 75.00
Finance Department Administrative Fee	$ 25.00

** The above fees will be charged to the property owner in addition to the actual cost of the nuisance abatement.*

Rental Registration Fees	
Annual Rental Registration *(per unit)*	
Up to 3 Units	$15 .00
4 to 20 Units	$ 25.00
Over 20 Units	$ 50.00
Penalty for Failure to Register by the Due Date	$ 250.00
Penalty for Failure to Register within 90 Days of the Due Date	$ 1,000.00
Engineering Inspection Fees	
Street Inspections	$ 1.27 per linear foot
Sidewalk Inspections	$ .51 per linear foot
Water Supply Watershed Inspection	$ 160.00
Weekend or After Hours Inspections *(per hour)*	$ 80.00 minimum, 3 hours
Public Utility Fees	
Capacity Replacement Fees* *(Effective 04-19-2016)*	
Water (Residential & Non-Residential)	$ 1.00 per gallon for new construction reserved or projected
Sewer (Residential & Non-Residential)	$ 1.00 per gallon for new construction reserved or projected

** The above Fees are due when Building Permit Application is filed.*

Utility Development Fees *(Effective 04-19-2016. See Acreage Fees chart below.)*	
Water (Residential & Non-Residential)	Fee has been SUSPENDED
Sewer (Residential & Non-Residential)	Fee has been SUSPENDED

Acreage Fees *(Effective 04-19-2016. Fees below are per each acre developed.)*

Zoning Districts	Acreage Fee - Water	Acreage Fee - Sewer
R-40, R-20, R-15, R-12, R-9, RCD-1, RCD-2	$ 1,750.00	$ 1,750.00
MR-1	$ 1,990.00	$ 1,990.00
R-5 or RMH	$ 2,745.00	$ 2,745.00
MF-1	$ 2,690.00	$ 2,690.00
MF-2	$ 3,195.00	$ 3,195.00
NO, O&I, NB, CB, SB, MXD	$ 4,180.00	$ 4,180.00
I-1, I-2	$ 4,575.00	$ 4,575.00

NOTE: Includes new construction reserved or projected. The above Fees are due when Building Permit Application is filed.

Maps and Reports	
Unified Development Ordinance	Hardcopy purchased through American Legal Purchasing
Code of Ordinances Supplement	Hardcopy purchased through American Legal Purchasing
Engineering Standards *(water, sewer, streets, sidewalks, and drainage)*	$ 5.00
Comprehensive Growth Plan	$ 40.00
Comprehensive Plan Roster	$ 10.00
Growth and Development Report	$ 10.00
Capital Improvements Plan	$ 10.00

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Monthly Building Permit Report	$ 5.00
Standard Maps (3' x 4')	$ 20.00
Standard Maps (2' x 3')	$ 10.00
Standard Maps (11" x 17")	$ 5.00
Standard Maps 8 1/2" x 11" or 8 1/2" x 14")	$ 1.00
Electronic Media	$ 2.00
Copies – Black/White *(more than 20)*	$ .10 per page
Copies – Color *(more than 20)*	$ .25 per page
Copies – Black/White or Color *(less than 20)*	No Charge
Fee in Lieu of Sidewalks *(Fees are due at plat recording)*	$ 25.00 per linear foot
Fee in Lieu of Parkland Dedication *(Fees are due at building permit submittal)*	
Single Family Detached	$ 1,147.00 per unit
Multi-Family *(townhomes, apartments)*	$ 895.00 per unit

Section 3. Public Works

Containers*

Mobile Refuse Containers	$ 85.00
Mobile Recycling Containers	$ 40.00

** Containers remain property of the Town and are provided and assigned for the health, safety, convenience and general welfare of occupants. Containers that are damaged, destroyed or stolen through abuse neglect, or improper use shall be replaced by the Town at the expense of the owner or occupant. For more information, please refer to Town of Garner Code of Ordinances, Part 1, Chapter 5, Section 5.5 "Residential Garbage Collection."*

Special Collection Charges

Trash in Excess of Six Cubic Yards Per Week	$ 38.35 per six cubic yards
Yard Waste in Excess of Six Cubic Yards Per Week	$ 16.44 per six cubic yards
Bulky Waste in Excess of 60 Pounds	$ 38.35 per item

For more information, please refer to Town of Garner Code of Ordinances, Part 1, Chapter 5, Section 5.6.1 "Special Collections."

Improperly Prepared Waste

Small Load	$ 40.00
Medium Load	$ 80.00
Large Load	$ 120.00 per load

For more information, please refer to Town of Garner Code of Ordinances, Part 1, Chapter 5, Section 5.5 "Residential Garbage Collection."

Section 4. Public Utility Fee Charges - City of Raleigh

A list of all fees and charges related to deposits, monthly rates, late charges, delinquent fee, reconnection fees, meter tampering, etc., can be found on the City of Raleigh's website at: http://www.raleighnc.gov/services/content/FinUtilityBilling/Articles/UtilityBillingDeppsitFees.html

Tap Fees

3/4" Water*	$ 2,710.00
1" Water*	$ 2,979.00
3/4" Split Water *(new application)*	$ 542.00
3/4" Split Water *(existing application)*	$ 1,116.00
1" Split Water *(new application)*	$ 923.00
1" Split Water *(existing application)*	$ 1,495.00
4" Sewer Service*	$ 3,388.00
Sewer Only Disconnection Fee	$ 1,368.00
Sewer Only Reconnection Fee	$ 1,368.00

** The City of Raleigh does not install taps across divided roadways, or across roadways/streets measuring 45 feet or longer as measured from back of curb to back of curb. When no curb exists, the measurement shall be marked from the edge of pavement.*

Meter Installation Fee

5/8" Meter	$ 245.00
3/4" Meter	$ 224.00
1" Meter	$ 323.00
1 1/2" Meter	$ 470.00
2" Meter	$ 596.00
4" Meter	$ 3,345.00
6" Meter	$ 4,910.00
6" Meter with Fire Protection	$ 7,510.00
8" Meter	$ 4,310.00
8" Meter with Fire Protection	$ 10,030.00
10" Protectus III Meter	$ 13,381.00
Not Ready Fee*	$ 50.00

** A Not Ready Fee shall be collected by the City of Raleigh only if the City has attempted to initially install the water meter and determined that the water service stub was either not installed to the property or the water service stub was not installed in accordance with City of Raleigh standards. The 'Not Ready Fee' must then be paid to the City prior to the City proceeding to install the meter again after the initial failed attempt and prior to any water being provided to the property.*

Capital Facility Fees*

Water Capital Facilities Fee

5/8" Connection	$ 1,492.00
3/4" Connection	$ 2,238.00
1" Connection	$ 3,730.00
1 1/2" Connection	$ 7,459.00
2" Connection	$ 11,935.00
4" Connection	$ 37,296.00
6" Connection	$ 74,592.00

Department & Fee Description	FY 2016 – 2017 Adopted Fees
8" Connection	$ 119,348.00
10" Connection	$171,563.00
12" Connection or Greater	Quoted by the City of Raleigh
Sewer Capital Facilities Fee	
5/8" Connection	$ 1,567.00
3/4" Connection	$ 2,350.00
1" Connection	$ 3,916.00
1 1/2" Connection	$ 7,833.00
2" Connection	$ 12,533.00
4" Connection	$ 39,165.00
6" Connection	$ 78,329.00
8" Connection	$ 125,327.00
10" Connection	$ 180,157.00
12" Connection or Greater	Quoted by the City of Raleigh
Sewer Only Connection (4")	$ 1,337.00

** For redevelopment projects, the amount of the capital facilities fee shall take into account and provide credit for the number of units and meter sizes on the property that were connected to the utility system prior to the redevelopment of the property. In no case shall the credit for the existing connections exceed the amount of the new capital facilities fee.*

Capital Facility Fee-Mobile Restroom Unit*	$ 50.00 per plumbing fixture

** Per plumbing fixture within the unit for each water and sewer connection*

All other Utility Connection Fees billed directly by and paid directly to the City of Raleigh, can be found on the City of Raleigh's Website at http://www.raleighnc.gov/content/extra/Books/PlanDev/DevelopmentFeeSchedule/#17

Section 5. Parks, Recreation & Cultural Resources Charges

Activity Fees *(Fee Reductions for Underprivileged Youth)*

Variable Cost Activities

Activities whose costs increase or decrease due to participation levels shall be reviewed by the Town Council on a biannual basis. This review shall consist of a comparison of current Town fees with current market rates and review of the Town's anticipated expenses for the activities.

Adult Open Basketball	$ 450.00 per team plus $ 32.00 per non-resident
Adult Individual - Resident	$ 68.00
Adult Individual - Non Resident	$ 90.00
Adult Softball	$ 450.00 per team plus $ 32.00 per non-resident
Youth Basketball (12 and Under) - Resident	$ 58.00
Youth Basketball (12 and Under) - Non Resident	$ 80.00
Youth Basketball (13-17) - Resident	$ 65.00
Youth Basketball (13-17) - Non Resident	$ 84.00
Day Camps – Resident	$ 82.00 per week
Day Camps – Non Resident	$ 108.00 per week

Activities with Fixed Costs

Activities whose costs to the Town are fixed regardless of participation levels shall have fees set according to the following guidelines:

Adult Activities	Fee shall recover 100% of direct costs
Youth Activities, ages 13-18	Fee shall recover 85% of direct costs
Youth Activities, ages 12 and under	Fee shall recover 60% of direct costs
Preschool Activities	Fee shall recover 75% of direct costs
Family Activities	Fee shall recover 100% of direct costs
Non Resident	Resident fee plus 30%, maximum $ 25.00 additional

Direct costs may be waived at the discretion of the Parks, Recreation & Cultural Resources director for first-time programs.

Activities Not Requiring Pre-Registration

Adult Activities	Fee shall recover 110% of direct costs
Youth Activities, ages 13-18	Fee shall recover 85% of direct costs
Youth Activities, ages 12 and under	Fee shall recover 60% of direct costs
Preschool Activities	Fee shall recover 75% of direct costs
Family Activities	Fee shall recover 75% of direct costs
Preschool Open Art or Open Gym – Resident	$ 2.00
Preschool Open Art or Open Gym – Non Resident	$ 3.00
Non Resident	Resident fee plus 30%, maximum $ 25.00 additional

Direct costs may be waived at the discretion of the Parks, Recreation & Cultural Resources director for first-time programs.

Open Gym

Adult – Resident	$ 2.00 for length of activity
Adult – Non Resident	$ 3.00 for length of activity
Youth or Family	No Charge

Garner Senior Center Activities

Annual Fitness Pass-Resident (Jan. 1 – Dec. 31)	$ 20.00
Fitness Pass-Resident (July 1 – Dec. 31)	$ 10.00
Annual Fitness Pass-Non Resident (January 1 – Dec. 31)	$ 35.00
Fitness Pass-Non Resident (July 1 – Dec. 31)	$ 18.00
Instructional Classes	Fee to recover direct costs, minimum $ 5.00
Special Events	Fee to recover direct costs, minimum $ 5.00
Trips	Fee to recover direct costs
Non Resident Instructional Classes, Events & Trips	Resident fee plus 30%, maximum $ 25.00 additional

Senior Center Fitness Room*

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Adults (ages 18-54) – Resident	$ 13.00 per month
Adults (ages 18-54) – Non Resident	$ 16.00 per month
Senior Adults (ages 55 or older) – Resident	$ 11.00 per month
Senior Adults (ages 55 or older) - Non Resident	$ 13.00 per month
** The above allows for access Monday-Thursday, 8:00am-8:00pm and Friday, 8:00am-5:00pm*	
Bus Use Charges	No change
Shelter and Facility Fees	
Lake Benson Park - Resident	
Shelter 1 (max 150 people)	$ 30.00 per hour, 2 hour minimum
Shelter 2 (max 50 people)	$ 20.00 per hour, 2 hour minimum
Shelter 3 (max 20 people)	$ 10.00 per hour, 2 hour minimum
Shelter 4 (max 20 people)	$ 10.00 per hour, 2 hour minimum
Gazebo *(requires Special Event Application)*	$ 20.00 per hour
Gazebo with Lawn Space *(requires Special Event Application)*	$ 35.00 per hour
Amphitheater	$ 40.00 per hour
Earth Stage	$ 20.00 per hour
Earth Stage with Lawn Space	$ 100.00 per hour
Camping Fee	$ 50.00 per night plus $ 25.00 refundable key deposit
Full Park	$ 325.00 per hour
Lake Benson Park - Non Resident	
Shelter 1 (max 150 people)	$ 40.00 per hour, 2 hour minimum
Shelter 2 (max 50 people)	$ 30.00 per hour, 2 hour minimum
Shelter 3 (max 20 people)	$ 20.00 per hour, 2 hour minimum
Shelter 4 (max 20 people)	$ 20.00 per hour, 2 hour minimum
Gazebo *(requires Special Event Application)*	$ 30.00 per hour
Gazebo with Lawn Space *(requires Special Event Application)*	$ 53.00 per hour
Amphitheater	$ 60.00 per hour
Earth Stage	$ 30.00 per hour
Earth Stage with Lawn Space	$ 150.00 per hour
Camping Fee	$ 75.00 per night plus $ 25.00 refundable key deposit
Full Park	$ 473.00 per hour
Lake Benson - Lawn Space in Addition to Shelters	
Shelter 1	$ 20.00 per hour
Shelter 2	$ 10.00 per hour
Shelter 4	$ 10.00 per hour
White Deer Park - Resident	
All Shelters	$ 20.00 per hour
Front Lawn *(adjacent to Aversboro Rd.)*	$ 40.00 per hour
Nature Center Lawn	$ 40.00 per hour
White Deer Park - Non Resident	
All Shelters	$ 30.00 per hour
Front Lawn *(adjacent to Aversboro Rd.)*	$ 60.00 per hour
Nature Center Lawn	$ 60.00 per hour
Centennial Park	
All Shelters – Resident	$ 20.00 per hour
All Shelters – Non Resident	$ 30.00 per hour
Creech Road Elementary School Park	
All Shelters – Resident	$ 20.00 per hour
All Shelters – Non Resident	$ 30.00 per hour
White Deer Nature Center – Resident*	
Indoor Classroom	$ 50.00 per hour, 2 hour minimum
Indoor Classroom with Learning Deck	$ 70.00 per hour, 2 hour minimum
After Hours-Indoor Classroom	$ 60.00 per hour, 2 hour minimum
After Hours-Indoor Classroom with Learning Deck	$ 80.00 per hour, 2 hour minimum
White Deer Nature Center - Non Resident*	
Indoor Classroom	$ 50.00 per hour, 2 hour minimum
Indoor Classroom with Learning Deck	$ 70.00 per hour, 2 hour minimum
After Hours - Indoor Classroom	$ 60.00 per hour, 2 hour minimum
After Hours - Indoor Classroom with Learning Deck	$ 80.00 per hour, 2 hour minimum
** $150.00 refundable security deposit applies to all rentals of White Deer Nature Center.*	
Garner Senior Center*	
Multipurpose Room (max 150 people)	$ 65.00 per hour, 3 hour minimum
Fitness Annex (max 214 people)	$ 70.00 per hour, 3 hour minimum
Food Fee (includes use of Warming Kitchen)	$ 50.00 per event
** $150.00 refundable security deposit applies to all rentals of the Garner Senior Center*	
Avery Street Recreation Center*	
Gymnasium	$ 70.00 per hour, 2 hour minimum
Gym Floor Cover Fee	$ 200.00 per event

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Single Multi-purpose Room	$ 40.00 per hour, 2 hour minimum
Both Multi-Purpose Rooms	$ 60.00 per hour, 2 hour minimum
Meeting Room	$ 30.00 per hour, 2 hour minimum
Entire Facility	$ 150.00 per hour, 2 hour minimum
Avery Street Annex*	
Classroom	$ 40.00 per hour, 2 hour minimum
** $150.00 refundable security deposit applies to all rentals of Avery Street Recreation Center and Annex.*	
Athletic Rental Facility*	
Baseball Field	$ 30.00 per hour
Baseball Field with Lights	$ 55.00 per hour
Soccer Field - Youth	$ 35.00 per hour
Soccer Field - Adult	$ 45.00 per hour
Soccer Field with Lights - Youth	$ 70.00 per hour
Soccer Field with Lights - Adult	$ 80.00 per hour
** Facility supervision is included in the rental price.*	
*** $150.00 refundable security deposit applies to all field rentals.*	
Thompson Road Park	
Multipurpose Field	$ 30.00 per hour
Lake Benson Boathouse Rentals*	
Jon-boats without Motors	$ 4.00 per hour, $ 20.00 per day
Jon-boats with Motors	$ 8.00 per hour, $ 40.00 per day
Canoes	$ 5.00 per hour
** Senior citizens age 55 or over will be charged 50% of the above rates for full day rentals only.*	
Garner Performing Arts Center Auditorium and Lobby – Regular Rates	
Auditorium	$ 125.00 per hour
Rehearsal Fees (Monday-Thursday)	$ 55.00 per hour
Rehearsal Fees (Friday-Sunday)	$ 125.00 per hour
Back Lobby (max 30 people)	$ 40.00 per hour
Front Lobby (max 60 people)	$50.00 per hour
Auditorium Hold Day with Dressing Rooms (Monday-Thursday)	$140.00 per day
Auditorium Hold Day with Dressing Rooms (Friday-Sunday)	$300.00 per day
Garner Performing Arts Center Auditorium and Lobby – Non Profit Group Rates*	
Auditorium	$100.00 per hour
Rehearsal Fees (Monday-Thursday)	$ 50.00 per hour
Rehearsal Fees (Friday-Sunday)	$ 100.00 per hour
Back Lobby (max 30 people)	$ 40.00 per hour
Front Lobby (max 60 people)	$ 50.00 per hour
Auditorium Hold Day with Dressing Rooms (Monday-Thursday)	$ 90.00 per day
Auditorium Hold Day with Dressing Rooms (Friday-Sunday)	$ 240.00 per day
** Non-profit groups are defined as follows: all IRS tax exempt and non-profit groups, or non-tax exempt group activities such as private parties, family activities, family reunions, weddings and receptions, etc., for which no money is collected for participation.*	
** All rentals of the Garner Performing Arts Center require a $ 200.00 per day refundable security deposit.*	
Garner Performing Arts Center Miscellaneous Fees (applies to all groups)	
Sound and Lighting Technician	$ 20.00 per hour
Facility Attendant	$ 15.00 per hour
Security	Based on personnel cost
Piano Tuning	Based on personnel cost
Pre-event Setup and Post-event Cleanup	Based on personnel cost
Concession Stand	$ 50.00 per day
Lake Benson Trails*	
Dual Meets (two teams)	$ 7.00 per hour, 2 hour minimum
Meets with Three to Five Teams	$ 11.00 per hour, 2 hour minimum
Meets with Six to Nine Teams	$ 16.00 per hour, 2 hour minimum
Meets with 10 or More Teams	$ 21.00 per hour, 2 hour minimum
** The above fees would be assessed in addition to reimbursement of any additional Town expenses arising from the event above normal operations.*	
Christmas Parade	
Parade Floats	10% above Town cost
Special Events & Facility Rentals Policy	
Application Fee	$ 25.00 non-refundable fee
Police Officer	$ 35.00 per hour
Staff Assistance	$ 15.00 per hour, 3 hour minimum
Parking Attendants (2 attendants)	$ 30.00 per hour, 3 hour minimum
Street Closure – Resident	$ 80.00 per event
Street Closure – Non Resident	$ 120.00 per event
Use of Park Trails – Resident	$ 40.00 per day
Use of Park Trails – Non Resident	$ 60.00 per day
Event with Admission Fees or Ticket Sales – Resident	$ 270.00 per day
Event with Admission Fees or Ticket Sales – Non Resident	$ 405.00 per day
Event with Sales of Food or Merchandise – Resident	$ 200.00 per day

Department & Fee Description	FY 2016 – 2017 Adopted Fees
Event with Sales of Food or Merchandise – Non Resident	$ 300.00 per day
Photo and Video Shoot – Resident	$ 50.00 per day
Photo and Video Shoot – Non Resident	$ 75.00 per day
Sanitation Deposit – Class A or B Special Events	$ 1,000.00 per event
Sanitation Deposit – Class C Special Events	$ 500.00 per event
Sanitation Deposit – Class D Special Events	No Charge
Section 6. Public Safety Charges	
Accident/Criminal Investigation Report	
First 20 Copies	No Charge
Above 20 Copies	$ .10 per page
CD/DVD Production	$ 22.00
Miscellaneous	
Storage of Seized Vehicle	$ 5.00 per day
Off-Duty Officer	
Officer Only	$ 35.00 per hour
Removal of Recreational Devices	
First Violation	$ 25.00
Second Violation	$ 50.00
Third Violation	$ 100.00
Parking Violation Fee*	
No Parking Zone	$ 30.00
Parking Too Close to Intersection	$ 30.00
Parking on Sidewalk	$ 30.00
Parking Too Far Away from Curb or Street Edge	$ 30.00
Double Parking	$ 30.00
Parking in a Loading Zone	$ 30.00
Parking in a Restricted Time Zone	$ 30.00
Residential Parking Permit Zone	$ 30.00
Parking on Wrong Side of Street Facing Traffic	$ 30.00
Emergency Zone Parking	$ 50.00
Parking in Fire Lane	$ 50.00
Parking in Front of Fire Hydrant	$ 50.00
Obstructing Traffic	$ 50.00
Parking in a Handicapped Zone	$ 100.00
All Other Parking Violations Not Noted Above	$ 30.00
** Parking fines must be paid within 30 days from issuance to avoid additional penalty. Fines not paid within 30 days will be subject to the violator to double the amount of the original fine.*	
Animal Control Charges*	
Licensing (one-time fee)	
Not Spayed or Neutered	$ 25.00
Spayed or Neutered	$ 10.00
** Animal control charges are applied to dogs and cats.*	
Animals at Large and Animals Creating a Nuisance	
First Violation	$ 50.00
Second Violation	$ 100.00
Third or Subsequent Violation	$ 150.00
Number of Dogs Above Limit	$ 100.00 per dog
Dangerous Animal Toward Human Being	
First Violation	$ 500.00
Second or Subsequent Violation	$ 1,500.00
Dangerous Animal Toward Domestic Pet	
First Violation	$ 250.00
Second or Subsequent Violation	$ 500.00
Other General Penalties Not Specified Above	$ 100.00
Fines and penalties listed above do not include shelter reclaim fees, which also must be paid by owner.	
False Alarm Penalties	
First Three False Alarms	No Charge
Fourth and Fifth False Alarms	$ 50.00 per alarm
Sixth, Seventh, and Eighth False Alarms	$ 100.00 per alarm
Ninth and Tenth False Alarms	$ 150.00 per alarm
All False Alarms in Excess of 10	$ 250.00 per alarm
Taxicab Permit	
Application Fee	$ 10.00
Section 7. Penalty Fee	

Penalty Fee: The fee or penalty to be paid to the Town for any one violation of an ordinance as above set out is hereby fixed as noted. Offenses denominated a misdemeanor pursuant to NCGS 14-4 shall be punishable as infractions; offenses not denominated as misdemeanors under the State's penal laws are not punishable as misdemeanors under administering ordinances within the Town.

Huntersville, North Carolina

THE TOWN OF *Holly Springs*

October 6, 2016 OCT 17 2016

Town of Huntersville
Engineering & Public Works Dept.
Attn: Max Buchanan
~~101 Huntersville-Concord Rd.~~ P.O. BOX 6664
~~Huntersville, NC 28078~~ Huntersville NC 28070

Town of Huntersville
Human Resources
101 Huntersville-Concord Rd.
Huntersville, NC 28078

Re: Town of Holly Springs, North Carolina
Engineering Department Study - Benchmark Survey

The Town of Holly Springs is currently evaluating our Engineering Department to ensure we can address future community needs. We have selected a small number of similar communities to benchmark against, therefore your participation will greatly assist us developing a meaningful assessment of current and future performance. We will be pleased to share our results with you.

Attached is a short survey instrument – if you could, please attempt to complete this survey within 10 days, that effort will be greatly appreciated. Please attach additional sheets if needed. Thank-you for your participation.

Please send your completed survey to:

Dr. Bruce Moeller
Fitch & Associates
bmoeller@fitchassoc.com
Mobile: 727-580-0279
FAX: 816-431-2653

For additional information:

Kendra D Parrish, PE, CFM
Director of Engineering
Town of Holly Springs
Kendra.Parrish@hollyspringsnc.us
919-557-3935

Sincerely,

Kendra Parrish

Kendra D. Parrish, P.E., CFM
Director of Engineering

1	Population – current estimate	55,000
2	# Engineering staff	4
3	# Inspectors	1- Construction Engineer
4	# Total Department Employees	16 and 1 vacancy - Engineering & Public Works
5	Plan reviews annually (count)	See attached
6	Inspections annually (count)	only final inspections (2-5 per week) Mecklenburg does mostly all inspections
7	Department Budget – please provide copy	Copy attached: ✓
8	Fee schedule – please provide copy	Copy attached: ✓
9	Does your community provide water and/or wastewater utilities?	YES / (NO) The County does → Mecklenburg
10	What performance measures/metrics does the department capture & report? – please provide copy	Copy attached: ✓
11	What software(s) is used for managing workflow & capturing workload?	PubWorks Software Version 5.9.09 1.888.920.0380 x2 Support.pubworks.com
	Organizational Structure:	
12	Who does department director report to?	Town/city manager ✓ Assistant town/city manager ✓ Other _____

13	Town/city administration – is there a single assistant town/city manager?	(YES) / NO
14	Town/city administration – is there more than one town/assistant town manager?	YES / (NO)
15	Is there an assistant director of engineering?	YES / (NO)
16	What performance measures/metrics does the department capture & report? – please provide copy	refer to Question # 10 and copy of Performance Review
17	What software(s) is used for managing workflow & capturing workload?	PubWorks - Engineering + Public Works Munis - Finance/Payroll
18	Please share survey results with us	(YES) / NO
19	For further information / person completing survey	Name: Candice Tatu Admin Asst. Email: ctatu@hunterswille.org Phone: (704) 875-7007

Plan Reviews

County LD Reviews Report

Date Range : Oct 01, 2015 to Oct 01, 2016
Filters: Agency = Huntersville Public Works
Report Generated On: 10/13/2016 4:15:27 PM

Project No.	Review Cycle	Project Name
339771	4	Bryton Subdivision - Phase 1
342851	7	Caldwell Station Apartmetns Ph 1
349188	6	LAKEMONT COMMONS SUBDIVISION
349188	7	LAKEMONT COMMONS SUBDIVISION
350530	2	Boundary and Division Survey of 14931 Holbrooks Rd
350530	3	Boundary and Division Survey of 14931 Holbrooks Rd
351717	4	Huntersville Mini Storage
351717	5	Huntersville Mini Storage
352884	2	Air Crafters Heating and Cooling
352884	3	Air Crafters Heating and Cooling
352884	4	Air Crafters Heating and Cooling
352974	3	Bryton East/West Parkway
353039	3	Bryton East/West Parkway
353039	4	INGLESIDE - PHASE I
355032	3	INGLESIDE - PHASE I
355032	4	INGLESIDE - PHASE I
355032	5	Courtyards at Kinnamon Park
355900	3	Courtyards at Kinnamon Park
355900	4	JSF Huntersville
356267	3	Burkert Contromatic Corp.
356360	1	Burkert Contromatic Corp.
356360	2	Walden Subdivision - Phases 1 and 2
356464	2	Walden Subdivision - Phases 1 and 2
356464	3	Parkside at Skybrook North Phase 1 Map 7
356934	3	Commerce Center at Northcross Map 5 rev
356940	3	Commerce Center at Northcross Map 5 rev
356940	4	Commerce Center at Northcross Map 5 rev
356940	5	Famous Toastery
357026	3	JM Alexander Middle School
357798	2	JM Alexander Middle School
357798	3	JM Alexander Middle School
357798	4	Bryton (LSTAR) Single Family Sketch Plan Revision
357836	2	INGLESIDE - PHASE 2
357836	3	INGLESIDE - PHASE 2
357836	4	Nutec - New Manufacturing Facility
357873	2	Nutec - New Manufacturing Facility
357873	3	Xoom Energy
357934	2	Mirabella - Ph. 2 Map 3 Mirabella at Vermillion
357934	3	Mirabella - Ph. 2 Map 3 Mirabella at Vermillion
357948	3	Mirabella - Ph. 2 Map 3 Mirabella at Vermillion
357951	2	Valencia Phase ID Map 1
357951	3	Valencia Phase ID Map 1
357951	4	THE OAKS AT HUNTERSVILLE PH 1 MAP 1
357957	2	THE OAKS AT HUNTERSVILLE PH 1 MAP 1
357957	3	Skybrook West Ph 1 Map 2
358395	2	Skybrook West Ph 1 Map 2

358395	3	Skybrook West Ph 1 Map 1
358435	2	Skybrook West Ph 1 Map 1
358435	3	Skybrook West Ph 1 Map 3
358437	2	Skybrook West Ph 1 Map 3
358437	3	Parkside at Skybrook North Ph 3 Map 1
358438	2	Parkside at Skybrook North Ph 3 Map 1
358438	3	VILLAGES OF MECKLENBURG LOTS 1, 2 & 3
358440	2	Valencia Phase IF Ph 1 Map 2
358440	3	Bryton NVR Parcel 6
358465	3	Bryton NVR Parcel 6
358472	2	Bryton NVR Parcel 6
358595	2	Centennial Ph. 5 Map 1
358595	3	Centennial Ph. 5 Map 1
358595	4	A RECOMBINATION PLAT OF LOTS 3-6, BLOCK J OF BILTM
358596	2	Torance Subdivision Ph. 1 Map 1
358596	3	Chick-fil-A
358636	2	Chick-fil-A
358781	2	Huntersville UMC Access & Maint. Easement Plat
358801	2	Huntersville UMC Access & Maint. Easement Plat
358801	3	Huntersville UMC Access & Maint. Easement Plat
358805	1	MACK WINSLOW, LISA KEMO & VIRGINIA PRICE
358805	2	Sam`s Xpress Car Wash - Bryton
358805	3	Sam`s Xpress Car Wash - Bryton
359110	2	Sam`s Xpress Car Wash - Bryton
359124	1	Sam`s Xpress Car Wash - Bryton
359124	2	Sam`s Xpress Car Wash - Bryton
359124	3	Skybrook West RTAP
359124	4	Skybrook West RTAP
359124	5	Arbormere Ph 2 Map 1
359151	1	Arbormere Ph 2 Map 1
359151	2	Bryton (AAC) Apartments
359194	2	Bryton (AAC) Apartments
359194	3	McDONALDS BRYTON TOWN CENTER
359352	1	McDONALDS BRYTON TOWN CENTER
359352	2	CPCC Merancas Campus Driveway Realignment
359410	1	CPCC Merancas Campus Driveway Realignment
359410	2	CENTENNIAL Ph 6 Map 1 Revision
359455	1	Beckett Subdivision Phase 1 Map 3 Revision
359455	2	Beckett Subdivision Phase 1 Map 3 Revision
359690	1	Northcross Shopping Center
359824	1	Northcross Shopping Center
359824	2	Courtyards at Huntersville
359852	1	Courtyards at Huntersville
359852	2	Crosswinds - Phase 3 Map 1
359854	1	Crosswinds - Phase 3 Map 1
359854	2	Exempt Subdivision For: Kenneth Craig Spry
360260	1	Exempt Subdivision For: Kenneth Craig Spry
360260	2	Dreaming Tree
360313	1	Dreaming Tree
360313	2	Cashion Site
360445	1	Cashion Site
360445	2	Cashion Site
360482	1	Centennial Phase 2
360482	2	Valencia 1F Ph. 1 Map 1 rev
360482	3	Robert C Bradford Park

360539	1	Circle K
360578	1	Lake Norman Charter School Driveway
360630	1	Lake Norman Charter School Driveway
360779	1	Lake Norman Charter School Driveway
360810	1	Parkside at Skybrook North Phase 1
360810	2	James W. Kidd Exempt Subd./Recombination Plat
360810	3	James W. Kidd Exempt Subd./Recombination Plat
360826	1	James W. Kidd Exempt Subd./Recombination Plat
360832	1	Roland Pierce Division
360832	2	The Pavilion Lot 2 Revised Plat
360832	3	The Pavilion Lot 2 Revised Plat
360879	1	Courtyards at Huntersville Condo Ph.1 Map 1
361142	2	Courtyards at Huntersville Condo Ph.1 Map 1
361142	3	BIRKDALE GROVE SUBDIVISION, REVISION TO LOTS 8, 11
361176	1	BIRKDALE GROVE SUBDIVISION, REVISION TO LOTS 8, 11
361176	2	Mirabella Phase 2 (lots 164-196) erosion control
361240	1	The Pavilion - Lot 9 Plat Rev
361240	2	The Pavilion - Lot 9 Plat Rev
361542	1	Reginald L. Clark
361585	1	Reginald L. Clark
361585	2	The Oaks at McIlwaine, Map 1 RTAP
361668	1	The Oaks at McIlwaine, Map 1 RTAP
361668	2	Northcross III
361686	1	Northcross III
361686	2	Northcross III
361833	1	Lake Norman Charter Elementary School
361833	2	Lake Norman Charter Elementary School
361833	3	Cato Subdivision
361979	1	Cato Subdivision
361979	2	Cato Subdivision
362026	1	Cato Subdivision
362026	2	Bryton East/West Parkway Revision
362026	3	Bryton East/West Parkway Revision
362026	4	Boren St. McDonalds
362110	1	Boren St. McDonalds
362110	2	Chick-fil-A BMP Easement Plat
362110	3	Chick-fil-A BMP Easement Plat
362206	1	McDONALDS BRYTON TOWN CENTER
362206	2	Elizabeth Circle Erosion Control
362212	1	Elizabeth Circle Erosion Control
362212	2	Elizabeth Circle Erosion Control
362276	1	Beckett Phs 2 Map 1 Revision - Lot 145
362465	1	Beckett Phs 2 Map 1 Revision - Lot 145
362465	2	Bryton East/West Parkway
362465	3	Blackwood Knoll Subdivision
362539	1	Blackwood Knoll Subdivision
362539	2	Blackwood Knoll Subdivision
362704	1	Mirabella Amenity center
362738	1	Mirabella Amenity center
362738	2	Mirabella Amenity center
362738	3	LAKEMONT COMMONS SUBDIVISION RTAP
362902	1	GILEAD MEDICAL PARK CONDOMINIUM
362902	3	GILEAD MEDICAL PARK CONDOMINIUM
362902	4	GILEAD MEDICAL PARK CONDOMINIUM
363002	1	LIV Huntersville Apartments

363030	1	Lot 4D, Bryton Town Center Subdivision
363030	2	Lot 4D, Bryton Town Center Subdivision
363030	3	POLY-TECH INDUSTRIES, INC. BLDG ADDITION
363038	1	POLY-TECH INDUSTRIES, INC. BLDG ADDITION
363110	1	Gemini Estates
363110	2	Gemini Estates
363143	1	Arbormere Ph 2 Map 2
363143	2	Arbormere Ph 2 Map 2
363249	1	Arbormere Ph 2 Map 2
363249	2	The Oaks at Huntersville Ph.1 Map 2
363267	1	The Oaks at Huntersville Ph.1 Map 2
363267	2	THE PAVILION LOT 22 Rev Plat
363267	3	Kern`s Meadow lot 2 EC only
363345	1	McIlwaine Road Subdivision
363345	2	McIlwaine Road Subdivision
363404	1	McIlwaine Road Subdivision
363433	1	Birkdale Grove Lot 3 Rev
363596	1	Birkdale Grove Lot 3 Rev
363596	2	Valencia Phase IF Map 2 Rev.
363596	3	LOT 2A of MARKET SQUARE
363608	1	LOT 2A of MARKET SQUARE
363608	2	Echopark Huntersville
363650	1	Echopark Huntersville
363708	1	Echopark Huntersville
363708	2	Walden Subdivision Early Grading Plan
363850	1	Villages of Mecklenburg
363850	2	Huntersville Health and Rehab plat
363850	3	Huntersville Health and Rehab plat
364036	1	Arbormere Ph 2 Map 3
364050	1	Arbormere Ph 2 Map 3
364051	1	Arbormere Ph 2 Map 4
364051	2	Arbormere Ph 2 Map 4
364081	1	Arbormere Ph 2 Map 4
364081	2	Toastery of Huntersville
364097	1	Toastery of Huntersville
364097	2	Mirabella Phase 2 Map 5
364097	3	Mirabella Phase 2 Map 5
364104	1	Mirabella Phase 2 Map 5
364104	2	Mirabella Phase 2 Map 5
364148	1	Courtyards at Kinnamon Park RTAP
364148	2	Courtyards at Kinnamon Park RTAP
364148	3	Courtyards at Kinnamon Park RTAP
364148	4	NVR Asbury Chapel
364367	1	NVR Asbury Chapel
364367	2	Bryton NVR Townhomes Parcel 6 Ph 1A Map 1
364367	3	Bryton NVR Townhomes Parcel 6 Ph 1A Map 1
364450	1	Bryton Parkway Map 1
364450	2	Bryton Parkway Map 1
364508	1	Valencia Phase IF Map 2 Rev 2
364508	2	Bojangles - 10321 Cane Creek Dr
364510	1	Bojangles - 10321 Cane Creek Dr
364510	2	Bojangles - 10321 Cane Creek Dr
364570	1	Valencia Phase ID Map 2
364636	1	Valencia Phase ID Map 2
364636	2	Transco Main Line Valve Addition - 8529 Sam Furr

364636	3	Transco Main Line Valve Addition - 8529 Sam Furr
364726	1	Lake Norman Charter Elementary School
364726	2	Lake Norman Charter Elementary School
364793	1	Nutec - New Manufacturing Facility
364793	2	Nutec - New Manufacturing Facility
364883	1	LAKEMONT COMMONSPH. 1 MAP 1
364883	3	LAKEMONT COMMONSPH. 1 MAP 1
365109	1	lots 4&5 of Biltmore Park, map 2
365109	2	Greenway Waste Solutions, LLC
365382	1	Greenway Waste Solutions, LLC
365382	2	Greenway Waste Solutions, LLC
365406	1	Ervin Cook Road Site
365454	1	Ervin Cook Road Site
365454	2	Ervin Cook Road Site
365454	3	Valencia Phase IF Ph 1 Map 3
365463	1	Valencia Phase IF Ph 1 Map 3
365463	2	Hollins Grove
365463	3	Hollins Grove
365540	1	Courtyards at Huntersville- Amenity Center
365540	2	Courtyards at Huntersville- Amenity Center
365564	1	Community Pregnancy Center of Lake Norman
365564	2	Community Pregnancy Center of Lake Norman
365571	1	Village at Skybrook North Phase 4
365571	2	Village at Skybrook North Phase 4
365578	1	Village at Skybrook North Phase 4
365578	2	Greenway Waste Solutions, LLC
365597	1	Greenway Waste Solutions, LLC
365597	2	Greenway Waste Solutions, LLC
365597	3	Valencia Phase 1D, 1F-1I
365598	1	Valencia Phase 1D, 1F-1I
365598	2	Arbormere Ph 2 Map 1Revised
365598	3	The Charity House
365637	1	Olmsted Phase 1C Map 1 Lots 157-160 Revision
365637	2	Elizabeth Circle Erosion Control Phase 2
365649	1	Elizabeth Circle Erosion Control Phase 2
365660	1	Town and Country Storage Ph. 2
365699	1	Town and Country Storage Ph. 2
365721	1	Torance Ph. 1 Map 2
365721	2	Torance Ph. 1 Map 2
365768	1	LIV Huntersville Apartments RTAP
365768	2	Guardian Rental,LLC
365831	1	Guardian Rental,LLC
365831	2	Walden Subdivision Early Grading Plan
365843	1	Walden Subdivision Early Grading Plan
365845	1	Bryton (AAC) Apartments
365845	2	Bryton (AAC) Apartments
365864	1	Skybrook West Ph 1 Map 1
365864	2	Air Supply Office
365987	1	Air Supply Office
365987	2	Air Supply Office
365992	1	Centennial Phase 5, Map 2
366212	1	Centennial Phase 5, Map 2
366212	2	The Oaks at Huntersville Amenity
366212	3	The Oaks at Huntersville Amenity
366302	1	The Commons at Monteith Park

366302	2	The Commons at Monteith Park
366319	1	The Oaks at Huntersville Ph. 1 Map 3
366319	2	The Oaks at Huntersville Ph. 1 Map 3
366332	1	Savory Moments Parking Lot Addition
366332	2	Savory Moments Parking Lot Addition
366359	1	Courtyards of Huntersville Condominium, Ph1,Map 2
366359	2	Courtyards of Huntersville Condominium, Ph1,Map 2
366373	1	Adam Brotherton
366373	2	LAKEMONT COMMONS - PH 1 MAP 2
366475	1	LAKEMONT COMMONS - PH 1 MAP 2
366475	2	Skybrook North Rezoning
366487	1	Nutec Inc
366518	1	Skybrook North Concept
366518	2	JOESPH HAGER
366542	1	JOESPH HAGER
366587	1	The Pavilion lot 4 revised plat
366626	1	The Pavilion lot 4 revised plat
366726	1	Courtyards at Kinnamon Park Amenity Center
366726	2	Courtyards at Kinnamon Park Amenity Center
366824	1	The Pavilion Lot 18 Revised Plat
366824	2	The Pavilion Lot 18 Revised Plat
366847	1	The Charity House
366847	2	Mecklenburg County Recombination
366907	1	Mecklenburg County Recombination
366907	2	Melbourne Ph1 & Ph 2 Map 1 rev
366916	1	Melbourne Ph1 & Ph 2 Map 1 rev
366918	1	Asbury Chapel Road
366918	2	Asbury Chapel Road
366997	1	Asbury Chapel Road
366997	2	Sam Furr Road Mini Storage
367070	1	Sam Furr Road Mini Storage
367070	2	Shoppes at The Park
367070	3	Blackwood Knoll Subdivision
367240	1	Mirabella Phase 1 - Sand Filter Retrofit
367240	2	Mirabella Phase 1 - Sand Filter Retrofit
367540	1	Biltmore Park EC for 5 Lots
367541	1	Crosswinds - Phase 3 Map 2 plat
367563	1	Seagle Street Homes
367563	2	Seagle Street Homes
367619	2	Seagle Street Homes
367623	1	Courtyards at Kinnamon Park Condominium - Ph1,Map1
367658	1	Courtyards at Kinnamon Park Condominium - Ph1,Map1
367658	2	Bryton Town Center
367658	3	Huntersville Sports Village
367718	1	Zamora Recombination Plat
367718	2	Zamora Recombination Plat
367781	1	Vermillion Phase 4
367946	1	Rich Hatchett Center/Shops at Northcross
368085	1	Rich Hatchett Center/Shops at Northcross
368085	2	Blythe Elementary School Mobile Classroom Addition
368105	1	BLYTHE LANDING MINI STORAGE
368131	1	Beckett Subdivision Phs 4 Revision
368131	2	LIV Huntersville Apartments RTAP
368141	1	East Huntersville Substation
368156	1	Frankie`s Fun Park, Huntersville NC