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Fort Bend County 911 Communications Division
Best Practices Gap Analysis

Fort Bend County, Texas

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CONSULTANT REPORT

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EXECUTIVE SUMMARY

Fitch & Associates (*FITCH*) was engaged by Fort Bend County to provide an operational assessment and performance review of the fire related 911 dispatch services as provided by the Fort Bend County Sheriff Office 911 Communications Division (FBSO911). The focus of this review was primarily on 911 services provided to first responder departments in Fort Bend County. Because many emergencies, from the public perspective, require concurrent response from multiple disciplines, we also considered how emergency medical services (EMS) and law enforcement influenced all services provided.

FITCH's approach examined current performance from two perspectives – a qualitative review of current operations and stakeholder perceptions, as well as quantitative analysis of performance as reflected in the FBSO911 computer-aided dispatch (CAD) system.

From the qualitative analysis, the consultants conducted an onsite review of dispatch operations, interviewed 31 County Dispatch and Support Services personnel and reviewed Fort Bend Communications system data. Appendix A provides a schedule of key stakeholder interactions. *FITCH* compared Fort Bend County Communications dispatch operations to industry best practices.

Quantitatively, we collected five years of computer-aided dispatch CAD data (October 2014 to October 2019) from Fort Bend County Sheriff's Office (FBCSO) limited to fire (N=280,250) and EMS (N=60,977) related incidents alone. In this report, we primarily focused our analysis on the most recent full year from October 2018 through September 2019. We further utilized the distinct measures of call volume related to incident types and the primary station area in which the incident occurred. Finally, we were able to identify the number of responses that occurred from fire and EMS units for each incident.

An interesting dichotomy emerged in the perceptions from stakeholders, largely aligned with their discipline. Personnel working within the Sheriff's Office, and specifically those within the 911 Center, were generally engaged, exhibited positive feeling towards their work environment, and believed they provided a generally strong level of performance to frontline field personnel – including law enforcement, fire and EMS. While we did not assess perceptions of service from law enforcement first responders, there was feedback from fire and EMS responders that dispatchers made various mistakes, the overall service levels were less than required, and a number of agencies indicated they had considered obtaining dispatch services from other sources.

This qualitative difference in perceptions of performance, in addition to other factors discussed later, may be reflective of expectation differences between law enforcement, fire and EMS providers. Each discipline has their unique characteristics, and if dispatch personnel have not modified their processes to reflect all three disciplines, then perceptions of service levels will often differ as can arguably be seen here.

From a quantitative perspective, it was determined that call-processing times were elongated from those typically seen in comparable dispatch centers. Call processing time – that from when a 911 call is

received until the first unit is dispatched - for fire calls took 2:00 minutes on average and 3:22 at the 90th percentile. While NFPA 1221 recommends a 60-second performance for 90% of the incidents, most centers are typically in the 1:30 to 2:00 minute range at the 90th percentile.

The following sections provide a number of specific findings and recommendations – summarized in the Recommendations Matrix in Tables 1-4. However, the issues listed here are more properly characterized as senior management issues that should receive special attention from policymakers and senior management.

- While perceptions of performance among fire chiefs have validity and require attention, fire chiefs have not – as a group – clearly articulated expectations and established a set of uniform guidelines, policies, and/or procedures for dispatch personnel to follow. On various issues fire chiefs desire 'concierge services' – where for the same scenario, individual departments desire the call be handled differently. This process unnecessarily increases the complexity in service provision. Specific recommendations are made elsewhere in this report on the need for uniform policies across agencies.

- Presently, one dispatcher is expected to monitor six different radio channels (talkgroups) for the various fire departments. It is understandable that agencies desire to limit radio traffic on their primary channel – yet the challenge for the single dispatcher to handle simultaneous radio transmissions on multiple channels creates confusion and may lead to the danger of critical communications being missed. Radio channels must be consolidated so that a single dispatcher is monitoring only a single primary talk group. While a full analysis of channel-loading was not part of this engagement, call volumes are such that most/all fire agencies can likely be placed into a single, or perhaps two, channels. In addition, during significant incidents, a dedicated tactical operator should be used to ensure critical communications are not missed.

- Upon implementation of uniform policies/procedures related to dispatching, FBSO should undertake a root cause analysis of their dispatch/call processing flow – the intent being to reduce the time required to receive and then dispatch fire and EMS resources. FBSO should specifically look at training, accountability (supervision), and quality assurance as these issues are most often associated with weaker performance and were cited by multiple stakeholders. The target should be to process calls within a 1:30 to 1:45 period for 90% of fire and EMS incidents.

- While FBSO911 makes use of APCO's call categorization framework, the process does not lead to a differential response of unit assignments. Without a benefit from the call classification process, and unless there is a need to better manage limited resources, consideration should be given to immediate dispatch of the appropriate discipline (Sheriff, fire or EMS) upon call receipt.

- Other alternatives exist for dispatch services. In the consideration of such options, policy-makers must consider the impact call transfers have on the overall time to receive help – essentially the additional time to transfer calls from a primary PSAP to secondary PSAP. The current system does not experience this issue as FBSO911 is both the primary PSAP and dispatch provider for fire service and EMS resources.

In addition to the priority recommendations above, a number of detailed findings and recommendations follow. To provide some level of priority, a Recommendations Matrix, of these items organized by priority levels with varying levels of timeframes for completion.

Recommendations

In a review of the recommendations the consultants triaged the issues and assigned four classifications of urgency to provide options for a future strategic roadmap. Classifications are:

- **Critical Priority**— items needing immediate action to be initiated and completed by the end of the fiscal year; these issues are critical to resolve for the safety and welfare of Ft. Bend personnel and the community. Reference Table 1.
- **High Priority**—items of importance that should be completed within 12 months. Reference Table 2.
- **Medium Priority**—items to be initiated by the first quarter of the next fiscal year and/or that require ongoing attention and funding. Reference Table 3.
- **Lower Priority**— items that can be accomplished for relatively low cost but that should not interfere with completion of higher priority recommendations. Reference Table 4.

Each of the specific recommendations have been identified with a letter in the following tables. It is incumbent upon FBSO and FBSO911 managers to identify and prioritize each line item within each priority.

1-Critical Priority— items needing immediate action to be initiated and completed by the end of the fiscal year; these issues are critical to resolve for the safety and welfare of Fort Bend personnel and the community.

Table 1: Critical Priority Recommendations

#	Description	Functional Category	Priority
A	Create a SOP to deviate from established call taking protocols under pre-specified conditions.	**Workflow-**	1-Critical
B	Dedicate a dispatcher to a separate dispatch console when requested by the incident command as recommended by The National Fire Protection Association, NFPA 1221.	**Workflow**	1-Critical

#	Description	Functional Category	Priority
C	Dedicated dispatcher shall be relieved of all other duties within the communications center as recommended by The National Fire Protection Association, NFPA 1221.	**Workflow**	1-Critical
D	Institute Incident Command notification process through CAD to notify the incident commander at every 10-minute increment with the time that resources have been on the incident.	**Workflow**	1-Critical
E	Verify address/location of the incident twice as per National Emergency Number Associations recommendations. ALI display can be considered as one of the two verifications.	**Workflow**	1-Medium
F	All emergency response agencies that interact shall use common terminology and integrated incident communications	**Terminology**	1-Critical
G	Create a SOP to describe and document what is expected of personnel in the performance of backup center operations. The SOP should include dispatch operations, field operations and address both a staged (incremental) evacuation and an immediate evacuation.	**Backup Communications Center**	1-Critical
H	Training in backup center operations should be done once per calendar quarter.	**Backup Communications Center**	1-Critical
I	Institute focused call reviews to evaluate protocol compliance on high acuity calls. To include, cardiac arrest, choking, obstetrics, officer involved shooting & assaults on officers, structure fires and fire fatalities.	**Quality Assurance/ Quality Improvement (QA/QI)**	1-Critical
J	Increase the number of supervisors per group to optimize span-of-control to one supervisor to six dispatch personnel	**Staffing**	1-Critical
K	Deactivate USB ports and/or the auto-sync process on all dispatch floor CPU's to ensure virus/malware is not transferred from a personnel mobile phones or USB flash drives to mission critical computers.	**Reports, Records and Procedures**	1-Critical
L	Create and train on contingency planning best practices. Consultant recommended at least fifteen contingency planning SOPs	**Contingency SOP**	1-Critical
M	Contingency Planning SOP's shall be required knowledge for communication center Managers, Acting Managers, Supervisors, and Acting Supervisors.	**Contingency SOP**	1-Critical
N	Opportunities to streamline the fire radio dispatch position can be achieved by consolidating the six fire dispatch channels to one dispatch channel.	**Workflow**	1-Critcal

2-High Priority—items of importance that should be completed within 12 months.

Table 2: High Priority Recommendations

#	Description	Functional Category	Priority
A	Discontinue practice of cradling 9-1-1 handset between neck and shoulder to prevent neck and shoulder injuries.	**Workflow**	2-High
B	Integrate 9-1-1 and 10-digit telephone system into noise canceling headset connection(s) at all call taking positions.	**Workflow**	2-High
C	Analyze individual call answer times, center's call answer time, abandoned calls, and other telephone analytics monthly.	**Workflow**	2-High
D	Continue to pursue installation of a digitized voice system (DVS) over the radio that will immediately dispatch resources regardless of how busy the dispatchers are.	**Workflow**	2-High
E	Analyze call taking and dispatch processing goals to ensure performance meets the FBSO911 standards.	**Workflow**	2-High
F	Continue to unify fire, law and ems terminology that is used consistently.	**Terminology**	2-High
G	Identify agencies that deviate from the unified terminology. Forward agency issues to the Fort Bend County Fire Marshal to resolve.	**Terminology**	2-High
H	Perform call reviewer variability with the primary QA/QI reviewer	**Quality Assurance/ Quality Improvement (QA/QI)**	2-High
I	Certify all call taking personnel to process fire, ems and law calls to provide maximum flexibility in call taking positions	**Staffing**	2-High

Medium Priority—items to be initiated by the first quarter of the next fiscal year and/or that require ongoing attention and funding.

Table 3: Medium Priority Recommendations

#	Description	Functional Category	Priority
A	Opportunities for efficiencies can be achieved with the integration of an Automatic Call Distributor (ACD) at all the call taking positions.	**Workflow**	3-Medium
B	Reduce the number of notifications and investigate technology that will automate dispatch floor supervisor notification.	**Workflow**	3-Medium
C	Quality Assurance/Quality Improvement section identify terminology issues of dispatch personnel including the	**Terminology**	3-Medium

#	Description	Functional Category	Priority
	incorrect mixing of like terminology of fire and law agencies. Identified, implement remedial dispatcher training, if necessary.		
D	Detailed analysis needs to be performed to solidify recommendations to increase staffing based on call intake demand.	**Call Answer Time**	3-Medium
E	Implement and conduct semi-annual and/or annual evaluations in a prompt and timely manner and recognize good performance and provide for corrective action if needed.	**Evaluations, Exist Interview & Outside Agencies**	3-Medium
F	Determine if additional QI/QA personnel are required as call reviews increase.	**Quality Assurance/ Quality Improvement (QA/QI)**	3-Medium
G	Conduct a detailed call taking processing study to provide decision makers quantifiably data driven decisions to reduce call taking times	**Staffing**	3-Medium
H	Base additional staff hours on call intake demand.	**Staffing**	3-Medium
I	Correct deficiencies in ISO report communications section to attain maximum credit in all categories.	**ISO Rating, Accreditations and Certifications**	3-Medium
J	Attain training certifications from APCO and Accreditation in Public Safety Communications from CALEA.	**ISO Rating, Accreditations and Certifications**	3-Medium

4-Lower Priority— items that can be accomplished for relatively low cost but that should not interfere with completion of higher priority recommendations.

Table 4: Low Priority Recommendations

#	Description	Functional Category	Priority
A	If GIS data is not processed into CAD in a timely manner, FBSO will need to increase GIS staffing.	**Workflow**	4-Lower
B	Conduct Radio Traffic Study to quantify the volume of radio outbound transmissions and received transmission at each console. This will provide data to decision makers to validate any changes in operation.	**Terminology**	4-Lower
C	Continue and refine exit interviews to improve aspects of the organization, identify training and attitude issues, and better retention.	**Evaluations, Exist Interview & Outside Agencies**	4-Lower
D	Annual reports should depict detailed workload, quantify performance and provide trend analysis of the Center.	**Reports, Records and Procedures**	4-Lower

#	Description	Functional Category	Priority
E	Consider creating and distributing a daily report of Communication Center activity.	**Reports, Records and Procedures**	4-Lower
F	Repair FBSO website “Active Emergency Calls” page	**Reports, Records and Procedures**	4-Lower
G	Emergency Generator shall be located in a secure enclosure concealed from public view	**Facility**	4-Lower
H	Emergency generators shall be equipped with an intrusion detection system complying with NFPA 731	**Facility**	4-Lower
I	Reevaluate parking clearance next to the exterior wall of the communications center. Does not meet NFPA Standards 1221	**Facility**	4-Lower

POLICE, FIRE AND MEDICAL DISPATCH NEEDS

Emergency communication centers were originally simple structures that performed only two functions: complaint-taking and gathering the location of the complaint. Dispatch centers then broadcasted the information and field personnel decided on the response needed. This method is often called the taxi model of call taking.

Over time, the emergency services branches, fire, emergency medical and law enforcement, recognized that dispatch centers could serve two additional functions: 1) as an initial filter to distinguish calls of more and/or less critical nature, and, 2) to provide for more efficient resource distribution to prevent clustering of response units.

Each of the emergency services use these functions differently, and while all dispatch centers fundamentally perform the functions noted above, the reality is that they implement them in a very different manner. More recently, the advent of specific technologies to assist with dispatch tasks and the adoption of specific practices, legislation, and guidelines have raised the performance and quality bar for dispatch centers. From the dispatch viewpoint; police, fire and ambulance services have evolved differently to accomplish their specific missions, mandates, and to provide for the best service outcomes.

Different Dispatcher Focus

The police service dispatch centers are focused on officer safety and legalistic review. This means that the number of questions and the time required to get to a satisfactory determination of the situation is not measured. It is paramount that a responding officer is fully aware of the situation and the potential for danger. In keeping with this philosophy, there are no national, international, or even local response time requirements for police service responses.

A second and growing concern is that case law is starting to build on voluntary disclosure at the point of dispatch. Clearly, if a person calls 911 to report a domestic issue (or any call) in which they are implicated, then the person taking the call should caution the caller to their right to council (the sixth amendment in the United States). This right has to be given to the person by a peace officer and it has to be done in a timely fashion. Admissions at the point of 911 calls, which often launch investigations and are used as evidence in court, are becoming increasingly problematic.

In contrast, speed is paramount for both emergency ambulance and fire service responses. Medical emergencies benefit from medically driven pre-arrival instructions to the caller while the ambulance is enroute. Medical responders can be updated with medical information while enroute. Fire event assessments are typically conducted on scene, which means that fire dispatch is less interested in gathering additional information from the caller about the event.

Different CAD Infrastructure Needs

Computer aided dispatch companies recognize the difference between the three public safety systems and have tailored the technologies to suit the specifics of each service.

Police CADs became records management oriented and heavily involved in officer safety with the first call taking screen dedicated to officer safety. Also, because of the problem detail needed, the Police CAD has many free text fields that require strong data entry skill sets for the Police call takers.

EMS technologies evolved around vehicle locations and optimized placement of vehicles against historical call demand, resulting in dynamic unit deployment. EMS relies heavily on technology to achieve response times and optimize resources.

Fire CADs are similar to EMS CADs except the principal function is managing apparatus complexity. Unlike EMS, fire has a multitude of static units that are stationed throughout the system and must be inventoried and placed at strategic locations depending on incidents. Managing ladders, pumpers, and support vehicles is the principle function of a fire CAD. The deployment of apparatus to effect move ups of units is an essential function a fire CAD.

The dispatch needs for law enforcement, fire, and medical emergencies are significantly different. Trying to find a singular technology that embraces all concepts well and delivers optimal performance for all three services has not generally been achieved. Fire and EMS would not require the heavy records management back end of a police CAD; police do not need the deployment capabilities of an EMS or Fire CAD; EMS and police do not require the complex deployment plans and move ups of Fire.

911 EMERGENCY CALL PROCESSES AND STANDARDS

The processing of a 911 call is the key component of effective dispatching as well as cost efficiency. Each dispatch task is complex and requires different talents and training. Structures and technologies that recognize both the differences and similarities in different dispatching tasks are able to maximize efficiencies. Those that do not tend to run slower and cost more.

The natural anatomy of a call starts with an individual observing the need for an emergency intervention; the individual initiates a 911 call; a 911 call taker receives the call and identifies the primary agency required to treat or handle the call (ambulance, police or fire) and transfers the call to that agency. The call taker from the responding agency uses experience, guidelines or protocols (considered best practice) to define both the category of call and the urgency of the call, and finally the information is handed to a dispatcher to dispatch the appropriate response units.

Two organizations, the National Fire Protection Association (NFPA) and the National Emergency Number Associations (NENA), set standards for emergency call processing. NFPA norms/standards on dispatch (NFPA 1221) define both the flow of calls and the allotted time for high performance dispatching. A summary of relevant NFPA standards regarding dispatch process and performance is provided in the table below. Appendix B provides NFPA recommended Call Flow and Call Answering Times and Appendix C provide expanded NFPA 1221 Call Answer Time Standards.

Table 5. NFPA 1221 Dispatch Standards[1]

NFPA 1221 Section #	Standard
Section 7.4.1* Ninety- percent of events received on emergency lines shall be answered within 15 seconds, and 95 percent of alarms shall be answered within 20 seconds. *(For documentation requirements, see 12.5.2.).*	
Section 7.4.1.1 Compliance with 7.4.1 shall be evaluated monthly using data from the previous month.	
Section 7.4.2* Call processing time shall include the time from the call answer to initial notification of the responding ERU(s) [emergency response units].	
Section 7.4.3 Emergency alarm processing for the highest prioritization level emergency events listed in 7.4.3.1 through 7.4.3.2 shall be completed within 10 seconds, 90 percent of the time.	
Section 7.4.4* For law enforcement purposes, the AHJ [authority having jurisdiction] shall determine time frames allowed for completion of dispatch.	

NENA standards are consistent with NFPA 1221 with some additional detail as noted in the table below.

[1] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 7 Operations, 7.4 Operating Procedures, Sub-Section 7.4.1*, A.7.4.1.1, 7.4.2*, 7.4.3, 7.4.4* Operating Procedures, 2019 Edition, p. 21,47. Quincy, MA: National Fire Protection Association.

Table 6. NENA Call Taking Operational Standards

NENA 56-005.1[2]	**Standard**
Page 8 of 12 Standard for answering 9-1-1 Calls. Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour[3] (the hour each day with the greatest call volume, as defined in the NENA Master Glossary). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) seconds.	

The standards summarized above will be referenced in the review of Fort Bend 911 Communications Division performance.

[2] NENA Call Answering Standard/Model Recommendation NENA 56-005.1, June 10, 2006, Revised 8/31/2017, Page 8.
[3] NENA Master Glossary of 9-1-1 Terminology NENA-ADM-000.22-2018, 04/13/2018, page 35.

FORT BEND COUNTY 911 COMMUNICATIONS

Background

Fort Bend Sheriff's Office 911 Communications Division is one of several public safety answering points (PSAP) in the County. Additionally, after normal business hours, and during weekends and holidays, FBSO911 answers calls for County Animal Control and the City of Meadows Place. Of note is that Fort Bend EMS resources are dispatched by FBSO911.

FBSO911 is not the only primary PSAP in Fort Bend County. Several cities have their own PSAP's that receive, and process calls, as well as, dispatch fire and law enforcement resources. There are six other PSAPs within the County's borders and two out-of-county PSAPs that frequently receive and transfer calls. Out-of-county agencies are the Cypress Creek Communications Center and Houston Police Department PSAP, resulting in a total of eight PSAPs with which FBSO911 interacts. The table below lists the other PSAPs that interact with FBSO911 and Appendix D lists PSAP responsibilities within Fort Bend County.

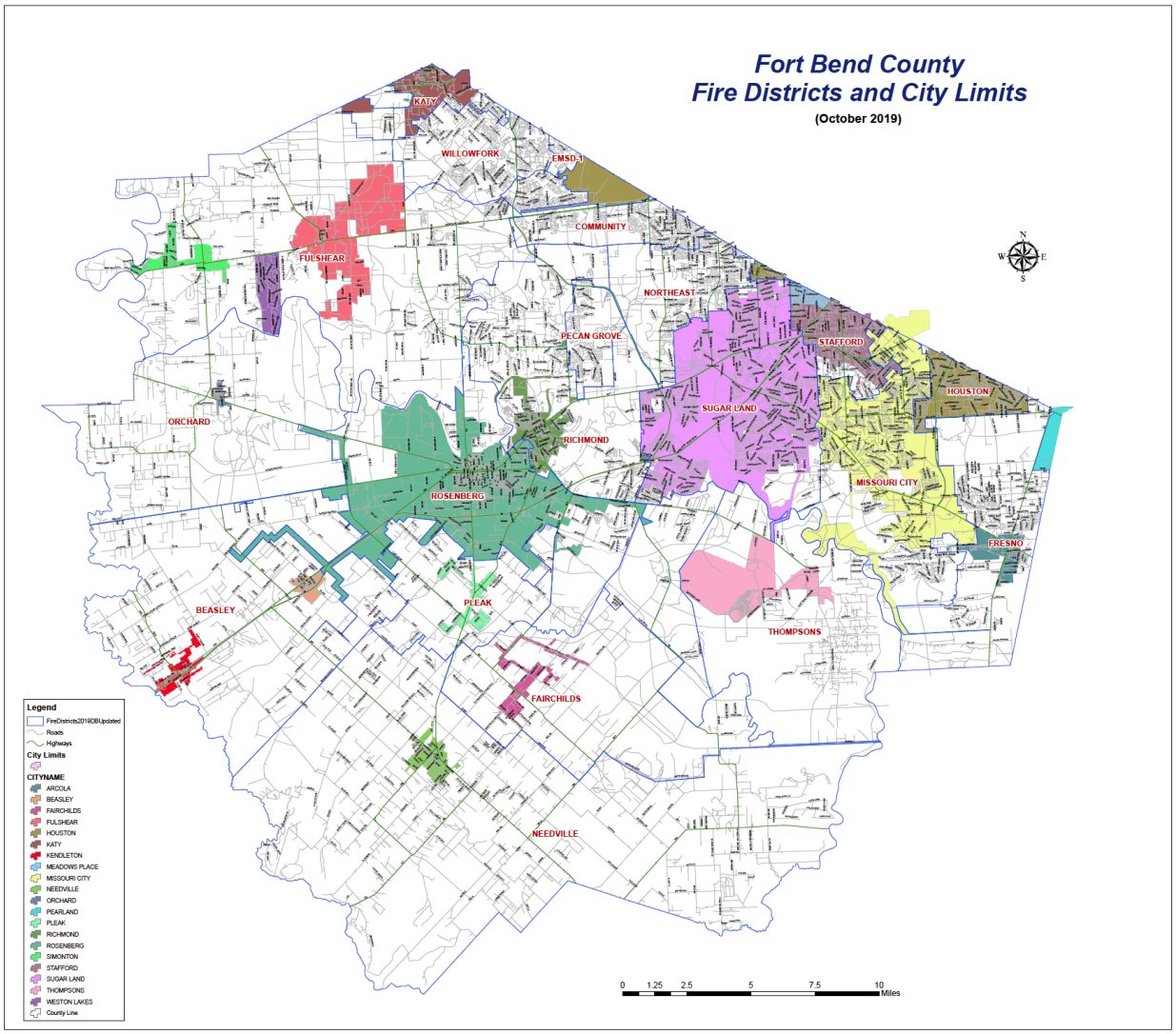
Table 7. Other PSAPs That Interact with FBSO911.

Fort Bend County	Harris County
Katy Police Department	Cypress Creek Communications Center
Missouri City	Houston Police Department
Richmond Police Department	
Rosenburg Police Department	
Stafford Police Department	
Sugarland Police Department	

EMS, law, and fire call routing is dependent on the location of the caller, type of telephone instrument used by the caller (cell phone or landline telephone), the PSAP receiving the call, and/or agency agreements. It is possible that an emergency 9-1-1 caller could be routed through as many as three PSAPS. Fort Bend's call flow and dispatch routing, because of its potential complexity, may result in delays in emergency response.

FBSO911 dispatches for 11 of the 21 fire agencies within Fort Bend County. The others either have their own city PSAP to provide dispatch services or employ a PSAP outside Fort Bend County. The figure below reflects fire districts within Fort Bend County.

Figure 1: Fire Districts & City Limits



ISO Rating, Accreditations and Certifications

Insurance Services Office (ISO) Rating

The ISO review focuses on the community's facilities and support for handling and dispatching alarms for structure fires. Virtually all U.S. insurers of homes and business property use ISO's Public Protection Classifications in calculating insurance premiums.[4] The ISO analyzes three specific categories and awards points based on compliance for the communications center. Categories and maximum points:

- Emergency (9-1-1) reporting and fire dispatch protocol: **3 Points**
- Telecommunicator performance based on call detail analysis, training, certifications, and quality assurance: **4 Points**
- Dispatch circuits and emergency power supply: **3 Points**

[4] https://www.verisk.com/insurance/about/faq/the-public-protection-classification-ppc-program/, accessed October 2019.

The Insurance Service Office (ISO) rating for the Fort Bend County Communications Center is 9.26 out of a possible 10[5]. Data was not provided to *FITCH* to analyze specific FBSO911 deficiencies and make detailed recommendations. Appendix E provides the detail of ISO requirement for a communication center.

Accreditation/Certifications

High performing communications centers attain accreditations or certifications from organizations that are recognized as industry best practices or "Gold Standards" in public safety. Below are the industry best practice certification and accreditation organizations.

- The Association of Public-Safety Communications Officials (APCO) Project 33 Agency Training Program Certification is a formal mechanism for public safety agencies to certify their training programs as meeting APCO American National Standards (ANS).[6]

- The Commission on Accreditation for Law Enforcement Agencies, Inc. (CALEA®), The Public Safety Communications Accreditation Program.[7]

FBSO911 has not attained accreditations or certifications.

[5] Letter to Mr. Herc Meier, Fire Chief of Weston Lakes FPSA, Fulshear, Texas, Texas Department of Insurance, State Fire Marshal's Office- February 15, 2017.

[6] https://www.apcointl.org/training-and-certification/comm-center-training-programs/apco-project-33-training-program-certification/, Accessed October 2019.

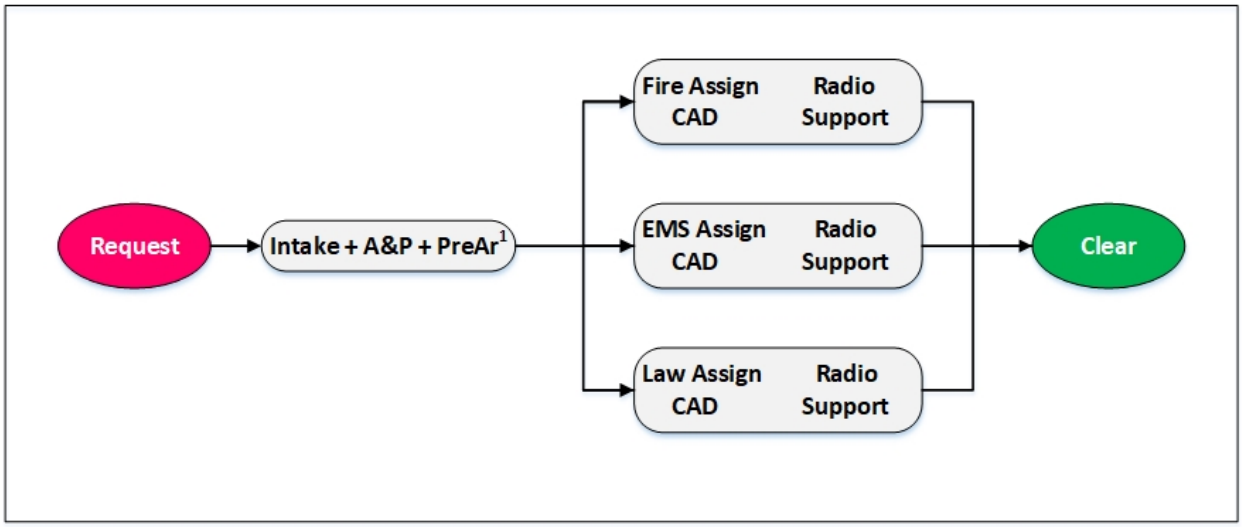
[7] https://www.calea.org/communications, Accessed October 2019.

FBSO911 CALL PROCESSING MODEL

If a call is within FBSO911 responsibility for law, fire, or EMS, the call flow process is straightforward. The 911 intake/call taker workstations are the first type of workstation. There are also a group of law assignment, fire assignment, and EMS assignment workstations. These are the second, third, and fourth types of workstations. Additionally, law enforcement dispatch consoles are subdivided into three geographic areas.

The organization of workflows is diagrammed below.

Figure 2. Workflows and Workstations in the FBSO911 Dispatch System



[1]Pre-ArrivalInstructions only EMS Calls

The rounded rectangles above, represent types of workstations. The text inside each rounded rectangle represents the functions that are executed at that type of workstation. "Intake" refers to the function of determining what is the emergency and where is it located. "A&P" refers to assessment of acuity and prioritization of response. "Fire Assignment" is the function of identifying a suitable unit through CAD for the response and notification of that unit. "Radio Support" refers to radio communication with units in the field on incidents in progress. "EMS Assignment" is the function of identifying a suitable unit through CAD for the response and notification of that unit. "Radio Support" refers to radio communication with units in the field on incidents.

Dispatch floor console configuration is composed of eleven call taking consoles, eight radio dispatch consoles, and one dispatch supervisor console. Normal staffing will use five radio dispatch consoles and six call taking consoles with one dispatch supervisor console. All consoles are configured as sit-stand consoles.

Personnel/Staffing

FBSO911 staffing includes five administrative positions and 56 dispatch personnel for a total of 61 individuals. Administrative personnel include the following:

- Communications Center Manager
- Training Coordinator
- Training Personnel
- Quality Assurance/Quality Improvement
- Time Keeping Personnel

Dispatch personnel are organized into four groups/shifts (A, B, C, and D). Each group includes 13 dispatch/call takers and one supervisor. FBSO911 operates with using two 12-hour shifts and with the staff divided as evenly as possible among the four groups. Day shift hours are 5:45 a.m. to 6:00 p.m.; night shift hours are 5:45 p.m. to 6:00 a.m.

A daily staffing assignment is as follows:

- One Supervisor
- Thirteen dispatch/call takers
- Staffing of positions
    - Five radio positions (1 Fire, 1 EMS, 3 Law)
    - Eight call takers
    - One person can be approved off per shift and often one or more call in sick
        - Minimum is five call takers, anything below that is backfilled

All groups are evenly divided with the same number of qualified personnel:

- Fully qualified and certified in call taking and fire, law, and EMS dispatch positions,
- Partially qualified and certified in call taking and one or two of the dispatch positions,
- Call taker qualified and certified to process 9-1-1 based on protocol certification.

Not all call takers are fully certified to process fire, EMS, or law calls. Training has been delayed for some protocols resulting in the possibility of call processing delays while waiting for a certified call taker in that specific protocol.

Dispatch personnel rotate positions periodically based on the individual's qualifications, thereby providing opportunities for personnel to maintain skills in fire, law, and EMS radio dispatch positions.

FBSO911 staffing is static and does not consider changes in call demand.

FBSO911 span-of-control is one supervisor to thirteen call taker/dispatchers. 911 center operations are extremely stressful and frequently must address unusual or intense incidents. The recommendations regarding supervisory span-of-control are based on the dual roles of dispatch floor supervisors. First, a floor supervisor plays an active quality assurance role in real time. Dispatch processes involve

complicated scenarios, and, in this role, a floor supervisor provides immediate support and adherence to policy/protocols. The second role is that of an active liaison with their equivalent level field personnel. When this role is fulfilled, field supervisors and dispatch supervisors are well informed regarding any issues of the day and that information is passed seamlessly from shift to shift. Characteristics such as these require higher levels of supervision than may be found in other disciplines. Optimal span-of-control is one supervisor to six dispatch personnel.

Call Intake

A call is received at FBSO911 through the region's 9-1-1 routing system and is received at *all* FBSO911 call taker positions. The first call taker to manually connect into the call will process the request using a traditional telephone handset.[8]

Location of the incident is first verified only once.[9] If the call is FBSO911's responsibility, discipline specific protocols (fire, law, EMS) will be used based on the primary chief complaint and acuity of the caller. Some calls are multi-discipline such as traffic accidents, assaults with injuries, or shootings. The call taker will select the most appropriate protocol based on FBSO911 policy and first responder safety. FBSO911 uses both a commercial and internally created protocols for caller interrogation. The table below identifies types of Fire, EMS, and Law protocols.

Table 8. Call Taker Protocols for Fire, EMS and Law

Discipline	Protocol
EMS	APCO Emergency Medical Dispatch Program
Fire	Internally Created
Law	Internally Created

Processing non-English speaking callers are handled by conferencing the call with a "language line" or transferring the caller to a bilingual call taker on the dispatch floor.

At a predetermined point within the protocol, the call taker, through CAD, will route the call to the appropriate dispatch console. If the call is a multi-discipline request, it is routed to up to three consoles. For multi-discipline calls, a separate incident number will be assigned: E# for EMS, F# for fire and P# for police/Law.

[8] The telephone handset is cradled between the call taker's neck and shoulders during data entry. Great American Insurance Group, Loss Prevention, Workstation Ergonomics, recommends use of a headset during data entry to prevent neck and shoulder injuries. Page 24. https://www.greatamericaninsurancegroup.com/docs/default-source/loss-prevention/ergonomics-program-guide.pdf- access November 2019.

[9] NENA Call Answering Standard/Model Recommendation, NENA 56-005.1, June 10, 2006, revised 8/31/2017, page 9 of 12. 3.6.1 Address verification, Recommends the address be verified twice. If the address provided by the caller matches the ALI display, the address may be considered verified. ttps://cdn.ymaws.com/www.nena.org/resource/resmgr/standards/NENA_56-005.1_Call_Answering.pdf-accessed November 2019.

Dispatch Process

Once the request is received at the dispatchers' console(s), the dispatcher selects the request and CAD will automatically assign the most appropriate resource(s) based on unit response plans created by each responding agency. Resources will be toned-out on the radio and station alerting systems will open audios at individual fire stations. Dispatchers monitor and receive audio or mobile data terminal (MDC) acknowledgements from each unit enroute.

Different dispatch times occur and are problematic due to resource dispatch time variations based on how busy the radio dispatchers are. For example, if an EMS dispatcher is not immediately available to dispatch the call and fire and law are immediately available, the same request will have different dispatch times. Dispatched resource status is normally accomplished by Mobile Data Computers (MDC) for the resources that are equipped with the MDC. Unfortunately, resource status is still performed verbally even for resources with MDCs. FBSO911 is in the process of implementing a Digitized Voice Dispatch system that should alleviated this issue, however, the implementation date is undetermined.

As per standard operating procedure (SOP), each radio dispatch person is responsible for adding and distributing special instructions or hazards via CAD entries. Special instructions are received over the radio or additional information from the caller to all incident disciplines, if applicable. Failure to distribute special instructions could jeopardize first responder safety. Several fire and EMS managers mentioned that special instructions are not consistently distributed and note this as a concern.

In situations of extreme over-capacity in a communications center, the call taker may need to deviate or suspend specific areas within the protocol to answer calls waiting in the telephone queue. Specific policies should be required to suspend or deviate from call taker protocols. The benefits of protocols are standardization, the ability to provide uniformed instructions, and to prioritize responses. The FBSO911 does not have an SOP to deviate or suspend from the structure fire, law, or EMS protocols. It is recommended the organization develops an SOP to deviate from or bypass structural protocol policies under pre-specified conditions. The SOP must be readily accessible to all call takers and supervisors and training to take place at least annually.

Radio Channels

Radio channel overloading contributes to critical messages being delayed or missed and having to wait to transmit a critical message over the radio. The dispatcher's function has been to dispatch apparatus, receive and forward messages, prioritize messages from several units all desiring to speak at the same time, and otherwise to manage the radio network. As the complexity of fire related incidents evolved, the role of the dispatcher has evolved, to a point where the dispatcher essentially functioned as a "backup" to the Incident Commander (IC) during fireground operations.

The critical importance of the role of a dispatcher as an "insurer" that fireground messages are received, is evident by looking at fire incidents in Syracuse, Hackensack, Blackstock Lumber, and Regis Tower fires.[10]

The assistance that dispatchers provide to Incident Commanders operating at incident scenes, goes beyond monitoring the channel for distress messages and facilitating message transfers. Dispatchers routinely transmitted emergency notifications and messages, made building evacuation announcements, and conducted emergency roll calls to account for the safety and location of operating units. Each of these roles played by the dispatcher serves to ease the burden on the IC and improve firefighter safety.

The NFPA 1221 standard has cited the National Institute of Occupational Safety and Health (NIOSH) as to the importance of assigning a telecommunicator for specific incidents. Section A.7.3.2 states:

> ***A.7.3.2*** *The issue of communication capabilities and/or failures is cited by the National Institute for Occupational Safety and Health (NIOSH) as one of the top five reasons for fire fighter fatalities. The importance of an assigned telecommunicator for specific incidents is a critical factor in incident scene safety. The assignment process should be outlined in specific SOPs within each agency represented in the communications center. This assignment process is further assisted when a command/communications vehicle is being staffed at the incident scene.*[11]

FBSO911 radio console configuration is based on discipline, (fire, law, and EMS) with law sub-divided into three individual consoles by geography. Each of the radio consoles are assigned a single or a group of radio channels to monitor, transmit, and receive radio messages.

Several of the Fort Bend fire agency managers expressed a strong desire for FBSO911 to provide dispatch personnel or a tactical radio operator, who is dedicated to handling only agency-specific incidents at the request of an Incident Commander. The National Fire Protection Association, NFPA 1221 publication recommends that call centers dedicate a dispatcher to a separate dispatch console at the request of an incident commander. The dispatcher shall be relieved of all other duties within the communications center. A separate SOP should identify circumstances under which a dedicated dispatcher is assigned, following NFPA 1221 recommendations. [12]

FBSO911 current practice is to assign a dedicated dispatcher to incidents only when it is convenient.

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[10] J. Curtis Varone, FIREGROUND RADIO COMMUNICATIONS AND FIREFIGHTER SAFETY, March 1996, https://www.hsdl.org/?view&did=804689, accessed November 2019.

[11] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 7 Staffing, Sub-Section 7.3.2 & A7.3.2 Operating Procedures, 2019 Edition, p. 20, 45. Quincy, MA: National Fire Protection Association.

[12] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 7 Staffing, Sub-Section 7.3.2 & 7.3.3 Operating Procedures, 2019 Edition, p. 20. Quincy, MA: National Fire Protection Association.

The following table depicts the console/radio configuration in FBSO911.

Table 9. Radio Channel/Console Configuration

Discipline	Radio Channels	Number of Radio Consoles	Radio Channel	Area of Operation
EMS	1	1	EMS Primary 1	All of Fort Bend County
Law	3	3	PAT 1	• S.O. Districts 2,5 and 7; Fulshear PD, PCT 3 constables
			PAT2	• S.O. Districts 3, 1, 8 and 9, Needville PD PCT 1 & 3 constables
			PAT3	• S.O. Districts 4, 6; Arcola PD, Meadows Place PD, PCT 2 & 4 constables
			PAT 1,2, or 3	• All other units are dispatched on radio channel based on their geographic location.
Fire	6	1	FIREDISP	• Needville, Orchard, Fresno, Fairchild, Pleak and Thompson
			FIREDISP	• Beasley
			FIREDISP	• Fulshear
			FIREDISP	• Northeast
			FIREDISP	• Pecan Grove
			FIREDISP	• Willowfork

The fire dispatch position is responsible for eleven agencies dispatched on six separate radio channels. When a large event occurs, NFPA 1221 recommends a separate dedicated dispatcher for the incidents. Current practice, due to staffing shortages, is for the fire dispatch position to monitor a seventh radio channel. To alleviate radio channel overloading, the EMS radio position will monitor and communicate with the fire agencies on their primary dispatch channel. This creates a cascading chain of events. The EMS radio position will monitor and receive radio traffic over the primary EMS radio channel, but now must take over the responsibility of the six fire radio channels for a total of seven radio channels.

The potential for multiple field units attempting to communicate with a single fire dispatcher at the same time increases risk to field personnel. FBSO911 should modify the fire radio dispatch position by consolidating the six fire dispatch channels to one or two dispatch channels.

Law dispatch consoles monitor a single radio channel. Anecdotal comments by many of the dispatch staff, strongly recommend one of the law dispatch consoles be subdivided into two separate channels based on the volume of radio traffic. Further in-depth analysis will be required for decision makers to quantify adding an additional law dispatch console.

Other Areas Reviewed

Agency Specific Standard Operating Procedures

First responder agencies within Fort Bend County have created agency specific response plans and procedures. Radio dispatchers and call takers must manage dispatch operations based on a multitude of SOPs. Anecdotal conversations with dispatch personnel, fire, and EMS managers have raised the issue of either dispatcher personnel not following agency specific protocols or dispatcher confusion due to the number of SOPs and conflicting information. Unifying SOPs will reduce confusion and errors overall and more importantly, during critical incidents.

Geographic Information System Support

FBSO has their own internal GIS section within Support Services. The section updates mapping as information as street GIS data is received from the County's lighting section. If dispatch personnel cannot pinpoint the address, they will use the nearest intersection and note in CAD where the incident is in reference to the intersection. Dispatch personnel notify the Communications Center Manager of the discrepancy, who then forwards the notification to the Support Services GIS Section. Should the GIS functions for FBSO911 be outsourced for the County's GIS section, there may be an issue of priority setting as different County agencies compete for their own GIS needs. GIS data must be processed into the CAD in a timely manner regardless of which agency provides the service.

Radio Terminology

Based on interviews with dispatch personnel and first responder managers, fire radio terminology continues to challenge dispatchers. A consistent unified terminology policy accompanied with periodic training would resolve many of these issues. Notwithstanding, it is incumbent on the dispatch personnel to not intermix law, ems, and fire terminology. For example, an "air unit" in fire terminology is a unit with an air compressor to fill Self-Contained Breathing Apparatus and an "air unit" in law enforcement terminology is a helicopter. Radio quality assurance should identify and document issues with terminology along with training and agency clarification. NFPA 1221 addresses terminology and recommends:

> 7.4.12* All emergency response agencies that interact shall use common terminology and integrated incident communications.[13]

Incident Commander Notifications

Time tends to work against a decision maker in high stress situations. The time that is available to make decisions passes very quickly, while the time it takes for information to be gathered and reported seems

[13] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 7 Operations, 7.4 Operating Procedures, Sub-Section 7.4.12*, A.7.4.12 Operating Procedures, 2019 Edition, p. 21,47. Quincy, MA: National Fire Protection Association.

to take forever. It is easy to lose track of time in a stressful situation. A system that reminds the incident commander when each ten or twenty minute period has elapsed is a valuable addition to an incident management system.[14]

Best practices recommended by the National Fire Protection Association, NFPA 1500 publication states, the dispatch center shall notify the incident commander at every 10-minute increment with the time that resources have been on the incident.[15] This process should be automated into the CAD. Time notification for fire incidents in Fort Bend is not currently accomplished manually or automated in CAD.

Supervisor Notifications

Supervisors are required to make manual notifications as per policy. Making manual notifications is laborious and distracts supervisors from obtaining situational awareness as well as providing leadership during dispatch operations. Automated systems save time and are programmable to a variety of scenarios. Efficiency in the automation of notification will allow supervisors to provide leadership and direction instead of spending time on the telephone making notifications.

Automatic and Mutual Aid Plans

Each agency's resource deployment plan includes a list of automatic aid resources. Based on the data provided, the unit recommendation is five to twelve stations deep. Mutual aid operations are accomplished by the field commanders instructing the communications center which fire department to contact and the resources needed at the incident. There were no issues related to the consultant regarding the current auto and mutual aid operations.

Deployment and Move Up Plans

Fire, EMS, and law management oversee the deployment and move up of resources. Dispatch personnel will notify agency managers if a move up is recommended. Agency managers will notify FBSO911 which unit(s) to deploy. FBSO911 mentioned current process is working well.

Mayday SOP and Radio Device Identification

FBSO911 has a detailed process when a "Mayday" request is broadcasted, or the emergency trigger button is activated on either field personnel's portable or apparatus radio. An updated searchable data base of all portable radios is accessible at all consoles. Support services/Harris County Motorola maintains the programming and updating of the field radio ID system.

[14] Page 85 https://www.usfa.fema.gov/downloads/pdf/publications/FA-166.pdf, accessed November 2019.
[15] NFPA [2018]. National Fire Protection Association, NFPA 1500: Standard on Fire Department Occupational Safety, Health, and Wellness Programs Communications Systems, Chapter 8 Emergency Operations, Sub-Section 8.2 Communications 8.2.5.1 5.2.5.2 & A.8.2.5.1, 2018 Edition, p. 27 & 52. Quincy, MA: National Fire Protection Association.

FBSO911 PHYSICAL FACILITY

Current Facility

The FBSO911 Communications Center is not a purposed built structure. The current facility was converted from administrative offices and meeting rooms to the current communications center. Parking is adjacent to one of the exterior walls of the center. NFPA 1221 recommends an eighty-two (82) foot clearance around the center.[16] An alternative to this requirement is the exterior walls constructed to be blast resistant.[17] The consultant inquired if the exterior wall was blast resistant as recommended by the NFPA 1221 Standards. Support Services personnel determined the walls were not blast resistant.

Electrical power is provided by two independent power sources, one primary and one emergency. In addition to the two power sources, FBSO911 has a means for connecting a portable or vehicle mounted generator. The emergency generator is tested once a month for one hour. The location of the emergency generator does not conform to best practices of the NFPA. The emergency generator is located in an unsecured parking lot, not concealed from public view[18] and does not have an intrusion detection system.[19]

The uninterrupted Power Supply (UPS) is tested annually to ensure adequate power is available until alternative power source can provide power. All UPS outlets are color coated to denote UPS circuit.

Backup Communications Center

Rosenburg Police Department is used as the FBSO911 primary backup communications center. Secondary backup locations are other dispatch centers or activation of mobile command vehicles

In an evacuation scenario, FBSO911 will set up operations at Rosenburg PD. Rosenberg PD has allocated two consoles. Current Fort Bend operations utilize five radio consoles and six call taking consoles. Fort Bend County 9-1-1 calls will be rerouted to Rosenburg PD and dispatch processes will be reduced to pen and paper for all incident creation, resource tracking and dispatching.

Rosenburg PD is a short distance from the current FBSO911 dispatch center, however, the critical issue is not the distance, but it is how long it takes personnel to become operational. Elapse time to become

[16] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 4, Security, Sub-Section 4.6.6 2019 Edition, p. 13. Quincy, MA: National Fire Protection Association.

[17] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 4, Security, Sub-Section 4.7.4.6 2019 Edition, p. 13. Quincy, MA: National Fire Protection Association

[18] Ibid.

[19] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems, Chapter 4, Security, Sub-Section 4.7.4.6.3 2019 Edition, p. 13. Quincy, MA: National Fire Protection Association.

operational could not be determined nor could it be determined which field resources would initiate area command in the interim.

There appears to be no written standard operating procedures for dispatch personnel to reference regarding backup facility operations. An SOP should be developed that documents what is expected of personnel in the performance of backup center operations and should address dispatch operations, field operations for both a staged (incremental) evacuation and an immediate evacuation.

Currently, FBSO911 train on a backup facility scenario once every two years. Instead, training should be accomplished once per calendar quarter.

Contingency Planning (Continuity of Operations Plans)

FBSO911 lacks sufficient contingency planning procedures for the agency to carry out their mission during adverse conditions. Contingency planning provides guidance to fulfill the essential mission of Communications Centers/PSAP Authorities, requires that daily operations continue regardless of physical, environmental or operational circumstances. It is, therefore, imperative that PSAPs have plans and procedures for manmade and natural circumstances that have the potential to adversely affect the ability of the staff to perform their duties, independently of the time of day.[20]

Contingency planning should address:

- Redundant and Resilient Systems
    - Electrical Power and HVAC
    - Telephone Services
    - Public Safety Radio Network
    - Computer-Aided-Dispatch (CAD) including Manual Mode Operations at back-up center
- Evacuation
    - Rationale for Evacuation
    - Uninhabitable Environment
    - Infrastructure Failure
    - Evacuation Pre-Plans
    - Evacuation Procedures
    - Shelter In-Place-Lockdown
- Return to Normal Operations
- Communications Center and Field Responder's Responsibilities and Actions in an Area Command
- Operational Impacts
- Technical Impacts
- Security Impacts-Cyber Attacks
- High Profile Incidents
    - Standards for an Active Shooter/Hostile Event Response (ASHER)
- SOP during extreme manmade or weather events to deviate from fire/EMS/law protocol policy

[20] NENA Communications Center/PSAP Disaster and Contingency Plans Model Recommendation NENA-INF-017.3-2018, September 28, 2018.

- Contingency Planning of Standard Operating Procedures should follow NENA Standards[i], APCO/NENA ANS 1.102.2-2010 [26]: Public Safety Answering Point (PSAP)-Service Capability Criteria Rating Scale[21]
- NFPA 3000 Standard for an Active Shooter/Hostile Event Response (ASHER) Program. [22]

Cyber Security Policy

FBSO911 has a Cyber Security Policy which prohibits dispatch personnel from connecting a portable telephone into any USB port. The USB ports on the computer central processing units (CPUs) have not been deactivated. It is highly recommended to the USB port and/or the auto-sync process to ensure virus/malware is not transferred from a personnel mobile phone to computers.

[21] APCO/NENA ANS 1.102.2-2010 [26]: Public Safety Answering Point (PSAP)-Service Capability Criteria Rating Scale, July 2010.
[22] NFPA [2018]. National Fire Protection Association, NFPA 3000: Standard for an Active Shooter/Hostile Event Response (ASHER) Program, 2018 Edition, Quincy, MA: National Fire Protection Association.

CALL TAKING AND DISPATCH PERFORMANCE

The FBSO911 call taking processing goal is under one minute. Dispatch processing time mirrors call taking time of under one minute.

Call answer time performance is benchmarked to the NENA Standards:

> Page 8 of 12 Standard for answering 9-1-1 Calls. Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour[23] (the hour each day with the greatest call volume, as defined in the NENA Master Glossary). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) seconds.[24]

Calculating call processing times in Fort Bend is challenging due to the number PSAPs within the boundaries of the County. NFPA 1221 recommends:

> 7.4.2 Transfers, especially multiple transfers, have the impact of making compliance with the overall processing time standard nearly impossible. Given the life safety implications for critical incidents, PSAPs should make every effort to reduce/eliminate transfers, thereby reducing the amount of time required to answer, process, transfer, and dispatch alarms. Potential strategies to reduce transfers include consolidation, either physical or virtual, CAD to CAD integrations, improved wireless call routing, and improved compliance with call answering standards.

Nevertheless, *FITCH* reviewed performance reports provided by FBSO911. These two analyses focus on performance during the busiest hour and one reflects overall call answer time performance. Data was obtained from FBSO911 PSAP Answer Time reports and may not directly align with *FITCH's* calculations of performance derived directly from CAD data.

- Call answer time during "busiest hour"[ii]
- Overall call answer time performance.

The first analysis was for "busiest hour" call answering times. The table below highlights the challenges in meeting the best practices call answering time standards of 10 seconds or less 90% of the time.

Table 10. Call Answering Time at Busiest Hour

Busiest Hour Call Answer Time					
		Number of Calls Answered		% Answered	
Month	Busiest Hour	0-10 Secs	16-20 Secs	≤ 10 Secs	≤ 20 Secs
October 2018	17:00	610	36	80.37	96.57
November 2018	17:00	604	19	87.28	98.27
December 2018	18:00	624	19	84.21	96.63

[23] NENA Master Glossary of 9-1-1 Terminology NENA-ADM-000.22-2018, 04/13/2018, page 35.

Busiest Hour Call Answer Time					
January 2019	18:00	673	24	86.84	97.42
February 2019	16:00	642	19	86.29	97.98
March 2019	17:00	644	14	98.2	98.06
April 2019	16:00	673	13	87.52	95.95
May 2019	18:00	734	26	86.66	98.11
June 2019	17:00	707	25	85.08	97.73
July 2019	18:00	741	12	91.82	97.4
August 2019	17:00	778	16	88.71	98.63

Conversely, as the table above shows, FBSO911 consistently meets the standard of answering the call 95% of the time within twenty seconds or less.

Regarding overall call answering time performance, FBSO911 struggled to meet the NENA call answering time standards 10 seconds or less 90% of the time. Yet the agency maintains the standard of answering calls 95% of the time within twenty seconds or less.

Table 11. Overall Performance Including "Busiest Hour"

Overall Call Answer Time Performance including Busiest Hour				
	% Answered Overall		% Answered Busiest Hour	
Call Hour	≤ 10 Secs	≤ 20 Secs	≤ 10 Secs	≤ 20 Secs
October 2018	87.23%	98.50%	80.37	96.57
November 2018	89.34%	98.67%	87.28	98.27
December 2018	95.48%	97.70%	84.21	96.63
January 2019	91.37%	98.42%	86.84	97.42
February 2019	89.82%	98.24%	86.29	97.98
March 2019	90.95%	98.20%	98.2	98.06
April 2019	89.98%	98.08%	87.52	95.95
May 2019	80.80%	97.77%	86.66	98.11
June 2019	90.79%	98.37%	85.08	97.73
July 2019	93.64%	98.87%	91.82	97.4
August 2019	93.44%	99.04%	88.71	98.63

Busiest hour performance compared to overall performance varies between just over 1% to 7%. The table above represents the overall performance and that of "Busiest Hour".

COMMUNITY RESPONSE HISTORY

First the number of requests for service, or incidents, are also defined as either "dispatches" or "calls". Dispatches/calls are the number of times a distinct incident or event was created. Conversely, "responses" are the number of times that an individual unit (or units) responded to a call. Responses are reported based on the primary station level, as individualized unit response information was not included in the dataset. We classified call types using incident description as reflected within FBCSO's CAD.

Incidents

In the study year from October 2018 through September 2019, fire departments and EMS responded to a total of 59,218 CAD incidents. EMS calls represent approximately 61% of total incidents while fire reflects approximately 39%. This is reflected in the table below.

Table 12. Incident Counts by Discipline (Fire & EMS)

Discipline	Count	Percentage
EMS	36,035	60.9%
Fire	23,183	39.1%
Grand Total	**59,218**	**100.0%**

EMS incidents across the US typically represent 60% and more of overall call volumes.

The distribution of incident types reported below may not correlate with analysis derived from the agency's records management system (RMS). CAD records reflect what is known about the incident prior to assignment of field personnel. RMS reports reflect what first responders found upon their arrival. For this reason, the distribution of incident types will often vary between the two systems. When evaluating 911 communication centers, we evaluate the CAD data, as dispatch decisions must be made earlier in the process and often without perfect information. Accordingly, the types of incidents as reflected upon dispatch and captured by CAD are reflected in the table below.

Table 13. Incident Types

Row Labels	Count of Call Type
ABPAIN	1132
ACCI	2
ACHE	185
AIRRAL	4
ALLERG	367
ALRMC	79
ALRME	1720
ALRMF	1204

Row Labels	Count of Call Type
ARSON	1
ASLTI	819
AUTPED	112
BACKPN	465
BCKIN	87
BITE	193
BLEED	913
BREATH	4833
BURN	27
CARBON	12
CARDI	109
CHEMEX	7
CHEST	3063
CHOKE	349
CITSUI	720
COVER	5351
CP	828
CPR	161
CRM	20
DEPLOY	1
DIABET	1021
DOA	303
DOWN	260
DROWN	16
ELETRO	9
EMSTAG	325
ENVIRO	135
EVENT	31
EXPLOS	1
EYE	46
FALL	6615
FIRAPT	42
FIRCHK	1
FIRGRA	130
FIROTH	410
FIRSTU	545
FIRVEH	108
FLEETI	11
FRACTU	17
FSRAI	1
GSLEAK	221
HAZMAT	21

Row Labels	Count of Call Type
HEAD	50
HEART	965
HELP	2
HOTCLD	9
INDUST	73
INVEST	1
LACER	94
LOCK	44
LOCKOC	260
MEDIC	6313
MENT	96
MUTUAL	260
MVA	4927
OCSPRA	3
OVDOSE	429
PLINE	84
POISON	46
PREG	303
RESCUE	1
RESELE	1
RESWTR	16
ROBI	26
SEIZ	2074
SICK	5817
SRM	103
STBGUN	122
STING	3
STROKE	1114
SUICA	60
TEST	23
TRANS	6
TRAUMA	706
UNCONC	2127
WASHDN	25
WEATH	2
(blank)	
Grand Total	**59,218**

As part of the policies review recommended elsewhere in this report, fire chiefs should review and refine the number of fire incident types used within the CAD. Incorporating feedback from 911 personnel, the intent should be to enhance the call processing workflow and reduce complexity by employing a similar run card across all fire agencies, rather than agency-specific response plans.

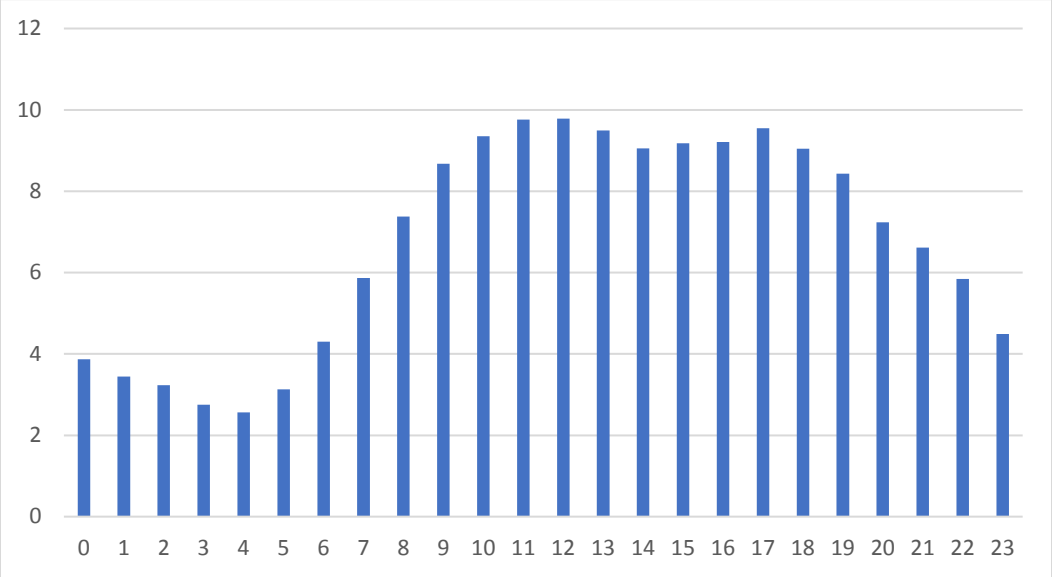
FBSO911 reports for EMS calls, they currently employ the APCO call types. However even with EMS, fire chiefs should use agreed-upon run cards in consultation with EMS.

The time of day, or temporal distribution of incidents was also evaluated. The following table and figure reflect the average number of incidents by hour of day.

Table 14. Average Incidents by Hour of Day

Hour of Day	Avg/Day
0	3.87
1	3.44
2	3.23
3	2.75
4	2.56
5	3.13
6	4.30
7	5.87
8	7.38
9	8.67
10	9.35
11	9.76
12	9.78
13	9.49
14	9.05
15	9.18
16	9.21
17	9.55
18	9.05
19	8.43
20	7.24
21	6.61
22	5.85
23	4.49
Grand Total	**162.24**

Figure 3. Incidents by Hour of Day



In total, there are 162 incidents per day, with 12 noon being the busiest with an average of 9.78 incidents per hour. This pattern is fairly typical of those found in other systems across the nation.

CAD data also provided the station area in which an incident occurred. The tables below reflect fire and EMS incidents by the respective station area where the incident occurred.

Table 15. Fire Incident by Primary Station Area

Station Area	Count
BF01	370
CF01	76
EB01	25
FF01	196
FL01	655
FL03	1193
FL04	359
FR51	1703
HF01	12
KT01	51
KT03	85
MD07	77
MF01	3058
NE01	1659
NE02	1573
NF01	655
NFWD	73
OF01	135

Station Area	Count
PF01	364
PG01	681
PG02	309
RF01	1443
RF02	306
RF03	581
RO01	1926
SF01	2150
SL01	309
SLMD	43
TF01	60
WI02	13
WL01	1490
WL02	692
WL03	421
Grand Total	**22,743**

The tables above and below are reflective of incidents only, not responses. By employing three 'layers' within CAD, stakeholders must decide if this framework works best to understand demands by primary station and incident type (e.g. fire vs. EMS).

Table 16. EMS Incident by Primary Station Area

Station Area	Count
COFD	46
ESD48	5
HFD	12
KTY	12
MD01	2702
MD02	2182
MD03	2410
MD04	2183
MD05	1965
MD06	2729
MD07	3622
MD08	2493
MD09	1990
MD10	2176
MD11	2170
MD12	1635
MD13	2232
MD14	946
MD15	1057
MD31	1906

Station Area	Count
PLND	1
SLMD	436
(blank)	
Grand Total	**34,910**

Responses

The table below reflects the number of responses by discipline. Repeated here also is the number of incidents for each discipline and the calculated average number of units that respond to a single incident.

Table 17. Response Counts by Discipline (Fire & EMS)

Discipline	Count of Responses	Count of Incidents	Avg. Units per Response
EMS	43,902	36,035	1.22
Fire	31,813	23,183	1.89
Grand Total	**75,715**	**59,218**	**1.28**

Information regarding number of unit responses per incident are helpful in determining cases of over-deployment or under-deployment. The average number of units per EMS and fire incidents are fairly typical of those seen in comparable systems.

As with incidents above, CAD data also provided the station area in which a response occurred. Similar to those reported above for incidents, the tables below reflect fire and EMS responses by the respective station area where the incident occurred.

Table 18. Fire Responses by Station Area

Station Area	Count
BF01	621
CF01	91
EB01	38
FF01	336
FL01	969
FL03	1765
FL04	526
FR51	2575
HF01	13
KT01	70
KT03	88
MD07	149
MF01	3094

Station Area	Count
NE01	3177
NE02	3052
NF01	945
NFWD	135
OF01	184
PF01	439
PG01	1310
PG02	459
RF01	1616
RF02	321
RF03	675
RO01	1978
SF01	2174
SL01	327
SLMD	66
TF01	84
WI02	15
WL01	2235
WL02	989
WL03	677
(blank)	
Grand Total	**31,193**

Table 19: EMS Responses by Station Area

Station Area	Count
COFD	56
ESD48	7
HFD	13
KTY	14
MD01	3302
MD02	2668
MD03	2854
MD04	2487
MD05	2283
MD06	3147
MD07	4048
MD08	2906
MD09	2464
MD10	2467
MD11	3166
MD12	1953
MD13	2618
MD14	1887

Station Area	Count
MD15	1218
MD31	2553
PLND	2
SLMD	511
(blank)	
Grand Total	**42,624**

As reflected below, the total number of responses for both fire and EMS units increased from 56,446 to an estimated 77,387 over a four-year period – representing a 37.1% total increase in responses or a 9.3% increase annually. Typically, call volumes increase 3% to 5% per year in many comparable systems. The rate of increases here should be assessed by fire chiefs and EMS managers to understand better the underlying reasons. In addition, while advanced workload measures within the 911 dispatch center were not included in this project, 911 managers should assess if workloads remain manageable under current conditions and when, if needed, additional resources should be employed.

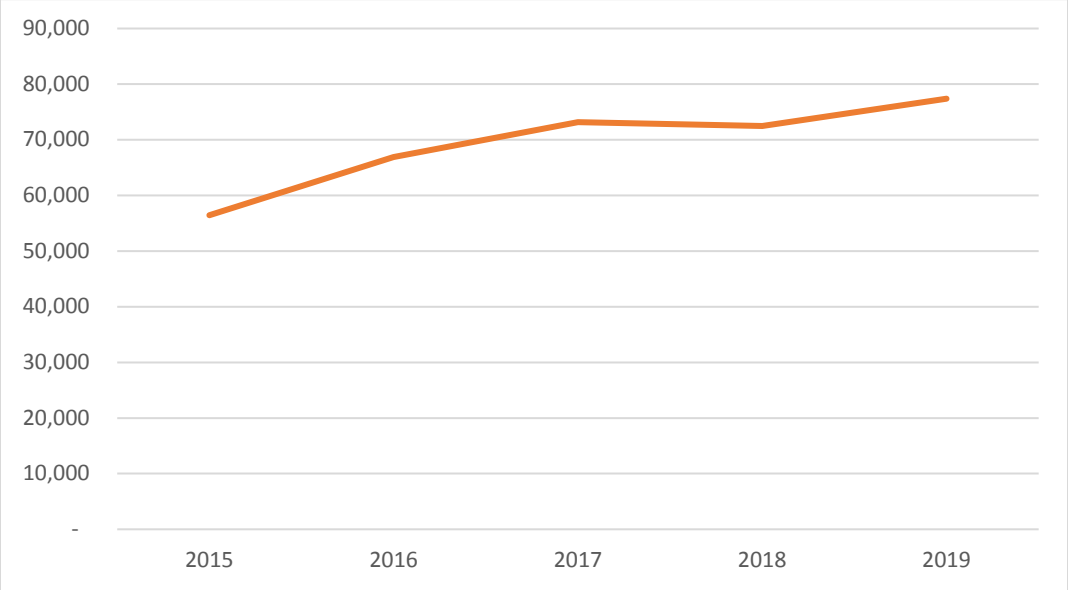
Table 20: Total Responses by Year

Year	Responses
2015	56,446
2016	66,906
2017	73,165
2018	72,454
2019[25]	77,387

The figure below is a graphic reflection of the total responses by year.

[25] Annualized based on 59,471 response through October 9, 2019

Figure 4. Total Responses by Year



RESPONSE TIME PERFORMANCE

Best practice is to measure at the 90th percentile. In other words, 90% of all performance is captured expecting that 10% of the time the department may experience abnormal conditions that would typically be considered an outlier. For example, if the department were to report an average response time of six minutes, then in a normally distributed set of data, half of the responses would be longer than six minutes and half of the responses would be less than six minutes. The 90th percentile communicates that 9 out of 10 times the department performance is predictable and thus more clearly articulated to policy makers and the community.

Call Processing Performance

Analysis for call processing time included any unique incidents where both the call received time and initial dispatch times were captured. In addition, outliers were excluded when the call processing interval exceeded 10 minutes. This may often happen for incidents where law enforcement was on-scene first before the need for medical or fire resources were identified.

The performance for call processing (dispatch) time at the 90th percentile was similar between fire and EMS related responses. These are reflected in the two tables below.

Table 21. Call Processing Performance for Fire Calls

Fire Call Processing Performance	
Count	22,523
Avg	00:02:00
90th	00:03:22

Table 22. Call Processing Performance for EMS Calls

EMS Call Processing Performance	
Count	28,638
Avg	00:01:55
90th	00:03:04

NFPA 1221 (2016 Edition) recommended the call processing interval be accomplished within 64 seconds for 90% of incidents when dealing with fire related calls. The recommended performance increases to 90 seconds under a variety of circumstances, including for "calls requiring emergency medical dispatch questioning and pre-arrival instructions." In that measuring performance at the 90th percentile is considered a best practice, NFPA 1221 makes no recommendations regarding average performance. In addition, NFPA 1221 is a fire-based recommended practice and no comparable performance target is generally accepted for law enforcement or EMS agencies.

Based on hundreds of studies conducted across the nation – in agencies both large and small; fully career, combination, and volunteer; disciplines including law, fire, or EMS – *FITCH's* experience is that

call processing times infrequently meet the recommendations in NFPA 1221. However, these evaluations typically see performance closer to 1:30 or 1:45 at the 90th percentile. At performance of 2:00 at the 90th percentile, processes, technology, and staffing are often found to be impeding the overall dispatch center's performance. The performance noted above – with averages of approximately 2 minutes and 90th percentile performance close to 3 minutes – reflect opportunities for improvement which management should address immediately.

Turnout & Travel Time Performance

Similar to call processing times, NFPA 1710 offers recommended performance for fire-based responses to fire and EMS calls. Within the NFPA document, the time after initial dispatch of first responders is bifurcated into turnout time (the time from dispatch or alert until the vehicle is moving towards the emergency incident), and travel time (from enroute until arrival on-scene). Recommended turnout times are 60 seconds for 90% of EMS related incidents and 80 seconds for 90% of fire-related incidents. Travel time targets for both fire and EMS related incidents are the same – 240 seconds, or 4 minutes, at the 90th percentile.

A second national process also offers a different set of target response time performance. The Commission on Accreditation International (CFAI). This group recognizes the differences that exist between urban, suburban, and rural jurisdictions.

The CAD data available to the consultants did not provide this level of granularity. Accordingly, here we provide the combination of turnout and travel times together with the actual performance reflected below.

Table 23. Fire Dispatch to Arrival Performance

Fire Dispatch to Arrival Performance	
Count	11,682
Avg	00:07:26
90th	00:11:53

Table 24. EMS Dispatch to Arrival Performance

EMS Dispatch to Arrival Performance	
Count	30,777
Avg	00:06:29
90th	00:11:54

The Commission on Fire Accreditation International (CFAI) Accreditation model acknowledges total response times at the 90th percentile of up to 13 minutes for rural areas inclusive of call processing and travel time. Overall the current Fort Bend fire system does not meet that baseline performance.

QUALITY ASSURANCE/QUALITY IMPROVEMENT

QA/QI Processes

It is crucial in the 9-1-1 communications center environment to monitor the quality of emergency communications to reduce problems, limit liability, and improve performance. The goal of Quality Assurance (QA/QI) is to objectively evaluate telecommunicator call processing, an individual's ability to navigate through CAD, and comply with protocols, all of which is to ensure that the standard of care is provided. FBSO911 QA/AI follows APCO/NENA ANS standards.[26] APCO's objective Quality Assurance Evaluation Procedures are used to evaluate Fire/Police/EMS calls. Internally, SOP Policy #205 states that ". . . All telecommunicators shall follow protocols set forth by the Emergency Communications division."

The FBSO911 QI/AI Unit conducts 560 to 565 call evaluations a month. Of these, approximately 210 are emergency medical dispatch (EMD) calls that require strict adherence to protocols. The review equates to 6% of EMS calls reviewed each month. APCO/NENA ANS 1.107.1.2015 Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points[iii] recommends a review of at least 2% of the service calls standards. FBSO911 exceeds the standard. Additionally, approximately 144 Radio transmissions are reviewed with 210 related to Fire/Police.[27]

Focused case reviews make up a smaller portion of the total case reviews conducted by the Quality Assurance Unit. These reviews are differentiated from random case reviews by the fact that they are specifically selected for review based on agency-identified criteria. Reasons to conduct focused case reviews include, but are not limited to, the following:

- Infrequently used Chief Complaint Protocols
- Specific categories of pre-arrival instructions (PAIs) as requested by a Medical Director or Senior Fire or Police Administrators (choking, active shooter, structure fire, etc.)
- Specific areas of protocols that are of a particular interest to the agency
- High-risk/low-volume incident types
- Specific call takers who did not come up in the random sample
- Call takers (e.g., supervisors, field providers, or part-time employees) who only occasionally take calls to cover shifts (Note: These call takers must be certified to use the protocols)
- Specific call takers who require an increased number of reviews (Performance Improvement Plan, new employee, etc.)[28]

Currently, FBSO911 rarely conducts focused case reviews. The consultants were advised that focused reviews are not possible due to the workload of the single QI/QA evaluator.

[26] APCO/NENA ANS 1.107.1.2015 Standard for the Establishment of a Quality Assurance and Quality Improvement Program for Public Safety Answering Points, final approval April 2, 2015.
[27] Ibid.
[28] Emergency Dispatch Quality Management Quality: Quality Assurance Course Manual, IAED, 6th Edition, International Academy of Emergency Dispatch.

At the point when the FBSO911 QI/QA Unit is sufficiently staffed, it is recommended that QI/QA variability be performed on evaluators. In this process, QA/QI members must strive to develop and maintain consistency in their case review process. Selecting a "calibration case" is an effective way to create and maintain QI/QA consistency and accuracy. A calibration case can be any case (random or focused) that has interesting or complex circumstances that may highlight specific case review challenges. Calibration cases should be assigned to each ED-Q for independent review. Once each of the QI/QA members has reviewed the case, all reviewers should get together to discuss it and identify areas of agreement and disagreement. Differences in the reviews should be clarified and discussed to ensure that, in the future, all ED-Qs will review similar cases in the same way. Conducting regular calibration cases will result in a higher level of call taker trust in the QI/QA unit.[29] FBSO911 currently does not perform QI/QA variability on their one reviewer.

Employee Performance Evaluations

Evaluation of employee performance is a basic tenant of good management practices. Periodic and annual performance evaluation processes benefit organizations as follows:

- Promotes cross communication
- Facilitates better working relationships
- Provides useful feedback about job performance
- Contributes to professional development
- Provides a historical record of performance

The National Emergency Management Association (NENA) and the Association of Public-Safety Communications Officials (APCO) recognizes the importance of annual and periodic feedback.

FBSO911 dispatch personnel receive only individual protocol and radio compliance feedback. There is no annual or semi-annual evaluation processes. The organization and employees would benefit from the implementation of a formal evaluation processes. In addition, exit interviews should be conducted on all employees as they leave employment. An exit interview can provide valuable feedback to improve aspects of the organization, identify training and attitude issues, better retain employees, and potentially reduce turnover.

Reports, Policies and Procedures

Daily Activity and Annual Reports

The consultant reviewed several of the FBSO911 dispatch policies and procedures. Dispatch personnel commented that policies and procedures are usually straightforward but sometimes challenging. Multiple agencies and disciplines not having one unified policy for fire, one for EMS, and one for law

[29] Emergency Dispatch Quality Management Quality: Quality Assurance Course Manual, IAED, 6th Edition, International Academy of Emergency Dispatch, page 3.5.

creates confusion. FBSO911 reported that policies are reviewed, updated annually and noted with "date reviewed".

Annual reports are limited to total number of calls. Annual reports need to depict and codify workload, quantify performance, and provide trend analysis. Reference Appendix F for a recommended Annual Report Template.

Basic dispatch performance data that is and should be made readily available to elected officials and the public includes the following:

1. Call response time (from first ring to phone answer),
2. Call handling time (time the caller takes to evaluate caller need),
3. Call handoff time (the time it takes the secondary public safety answering point to respond to the call and to receive the transfer of the caller).

Current FBSO911 daily reports are limited to 9-1-1 call answer time compared to NENA Standards.

> Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour (the hour each day with the greatest call volume, as defined in the NENA Master Glossary). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) second.[30]

Daily activity reports provide recipients an overview of communications center's activity. The consultant provided an example of Los Angeles City Fire Department daily report. Appendix G is an example of a daily report.

A source of information for the public is through agency official websites. In October, the consultants were not able to access the Sheriff's Active Emergency Calls website, however, by late November, access was successful.

Records Retention

Retention of records follows FBSO911 policies.

[30] NENA Call Answering Standard/Model Recommendation NENA 56-005.1, June 10, 2006, Revised 8/31/2017, Page 8.

STAKEHOLDER PERCEPTIONS

FBSO911

Interviews of mid-level and supervisory personnel were conducted with FBSO911 management and administrative stakeholders. Interviews with FBSO911 Communications Operators/Dispatchers were also conducted in late September 2019 with one-on-one interviews provided on a voluntary basis using open ended questions. A total of twenty-eight interviews were completed.

Positive attributes that were noted consistently throughout the interviews were that Fort Bend County Sheriff's 9-1-1 personnel like what they do, are dedicated, want to do a good job, and that officer safety is their number one priority.

In the interview process, specific concerns were repeatedly expressed regarding:

- Teamwork
- Ongoing training and accountability
- Quality improvement/assurance
- Personnel interactions/relationships
- Technology
- Recruiting/selection process
- Staffing and work schedules

Appendix H outlines the perceptions of personnel interviewed.

Fire Service

Discussions with fire service leaders reflect several items of concern with the existing dispatch services provided by FBSO911. These include:

- Lack of a dedicated dispatch for tactical channel support during major incidents
- Periodic difficulties in dispatching the correct resources
    - Associated with differing response run cards by agency for the same incident type
- Occasional lapses in geo-coding incident locations to the proper agency

CONCLUSION

While perceptions of performance among fire chiefs have validity and require attention, fire chiefs have not – as a group – clearly articulated expectations and established a set of uniform guidelines, policies, and/or procedures for dispatch personnel to follow. On various issues fire chiefs desire 'concierge services' – where for the same scenario, individual departments desire the call be handled differently. This process unnecessarily increases the complexity in service provision. Specific recommendations are made elsewhere in this report on the need for uniform policies across agencies.

Presently, one dispatcher is expected to monitor seven different talk groups for the various fire departments. It is understandable that agencies desire to limit radio traffic on their primary channel – yet the challenge for the single dispatcher to handle simultaneous radio transmissions on multiple talk groups creates confusion and may lead to the danger of critical communications being missed. Radio talk groups must be consolidated so that a single dispatcher is monitoring only a single primary talk group. While a full analysis of channel-loading was not part of this engagement, call volumes are such that most/all fire agencies can likely be placed into a single talk group. In addition, during significant incidents, a dedicated tactical operator should be used to ensure critical communications are not missed.

Upon implementation of uniform policies/procedures related to fire service dispatching, FBSO should undertake a root cause analysis of their dispatch/call processing flow – the intent being to reduce the time required to receive and then dispatch fire and EMS resources. FBSO should specifically look at training, accountability (supervision), and quality assurance as these issues are most often associated with weaker performance and were cited by multiple stakeholders. The target should be to process calls within a 1:30 to 1:45 period for 90% of fire and EMS incidents.

While FBSO911 makes use of APCO's call categorization framework, the process does not lead to a differential response of unit assignments. Without a benefit from the call classification process, and unless there is a need to better manage limited resources, consideration should be given to immediate dispatch of the appropriate discipline (Sheriff, fire, or EMS) upon call receipt.

Other alternatives exist for dispatch services. In the consideration of such options, policy-makers must consider the impact call transfers have on the overall time to receive help – essentially the additional time to transfer calls from a primary PSAP to secondary PSAP. The

current system does not experience this issue as FBSO911 is both the primary PSAP and dispatch provider for fire service and EMS resources.

APPENDIX A

Key Stakeholder Meeting Schedule

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Appendix A: Key Stakeholder Meeting Schedule

Key Stakeholder	Location	Date
Mark Flathouse, Fort Bend County Fire Marshal and Committee	Telephonic	9/18/19
David Marcaurele, Deputy Chief, Sheriff Fort Bend County	On-Site	9/24/19
Jule Brownfield, Captain, Sheriff Fort Bend County Command of Emergency of Operations, Communications Division and Crisis Intervention Team	On-Site	9/24/19
Rodney Grimmer, Lieutenant Sheriff Fort Bend County Emergency Operations	On-Site	9/24/19
Billy Wilson, Fire Chief, Willowfork, Fire Department, ***leaving Fort Bend County Dispatch for a Fire-EMS dispatch center	On-Site	9/24/19
Graig Temple, Chief Emergency Medical Services-Fort Bend County	On-Site	9/24/19
Clayton Elliott, Operations Manager, County-Information Technology	On-Site	9/24/19
Marcus D. Spencer, First Assistant County Attorney	On-Site	9/24/19
Clayton Nash, Retired-Chief Don't remember from where. Civilian oversite representative.	On-Site	9/24/19
Danielle Hacker, Training Coordinator Fort Bend County Sheriff 9-1-1 Center (Acting Communications Center Manager)	On-Site	9/24/19
Andy Patti, Lieutenant, the Administrative Supervisor of the Support Services Division	On-Site	9/24/19
Dispatch Personnel, Fort Bend County 9-1-1, Interviews	On-Site	9/24/19
Troy E. Nehls, Sheriff of Fort Bend County	On-Site	9/25/19
David Marcaurele, Deputy Chief, Sheriff Fort Bend County	On-Site	9/25/19
Jule Brownfield, Captain, Sheriff Fort Bend County Command of Emergency of Operations, Communications Division and Crisis Intervention Team	On-Site	9/25/19
Andy Patti, Lieutenant, the Administrative Supervisor of the Support Services Division	On-Site	9/25/19
Meghan Ravis, Communication Center Manager, Fort Bend County 9-1-1	On-Site	9/25/19
Danielle Hacker, Training Coordinator Fort Bend County Sheriff 9-1-1 Center (Acting Communications Center Manager)	On-Site	9/25/19
Dispatch Personnel-Fort Bend County 9-1-1, Interviews	On-Site	9/25/19
Danielle Hacker, Training Coordinator Fort Bend County Sheriff 9-1-1 Center (Acting Communications Center Manager)	On-Site	9/25/19

Key Stakeholder	Location	Date
Troy E. Nehls, Sheriff Fort Bend County	On-Site	9/26/19
David Marcaurele, Deputy Chief, Sheriff Fort Bend County	On-Site	9/26/19
Jule Brownfield, Captain, Sheriff Fort Bend County Command of Emergency of Operations, Communications Division and Crisis Intervention Team	On-Site	9/26/19
Rodney Grimmer, Lieutenant Sheriff Fort Bend County Emergency Operations	On-Site	9/26/19
Meghan Ravis, Communication Center Manager, Fort Bend County 9-1-1	On-Site	9/26/19
Dispatch Personnel-Fort Bend County 9-1-1, Interviews	On-Site	9/26/19
Mark Flathouse, Fort Bend County Fire Marshal and Committee	Telephonic	10/3/19
Meghan Ravis, Communication Center Manager, Fort Bend County 9-1-1	Telephonic	10/3/19
Mark Flathouse, Fort Bend County Fire Marshal and Committee	Telephonic	11/4/19
Graig Temple, Chief Emergency Medical Services-Fort Bend County	Telephonic	11/5/19

APPENDIX B

NFPA 1221 Call Flow and Call Answering Times

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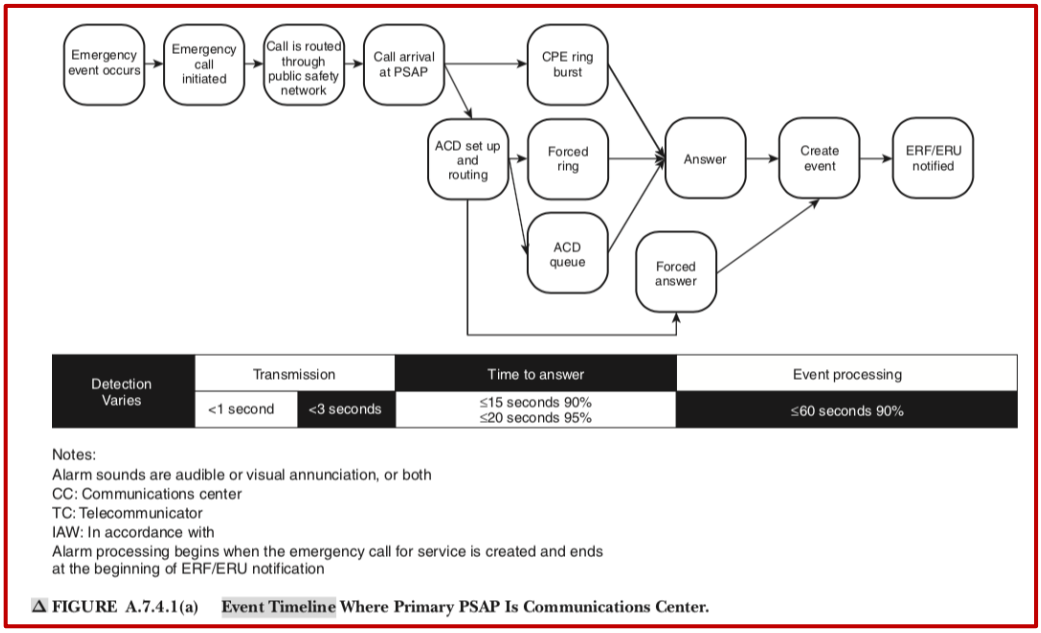
Appendix B: NFPA 1221 Call Flow and Call Answering

Event Timeline Where Primary PSAP is Communications Center[31]

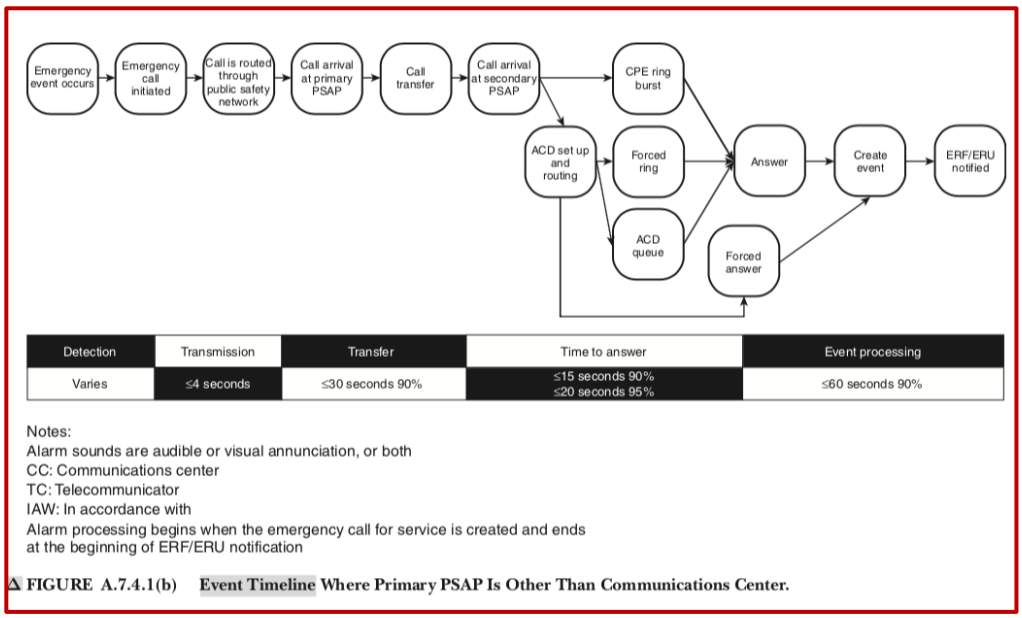


Detection	Transmission		Time to answer	Event processing
Varies	<1 second	<3 seconds	≤15 seconds 90% ≤20 seconds 95%	≤60 seconds 90%

Notes:
Alarm sounds are audible or visual annunciation, or both
CC: Communications center
TC: Telecommunicator
IAW: In accordance with
Alarm processing begins when the emergency call for service is created and ends at the beginning of ERF/ERU notification

Δ FIGURE A.7.4.1(a) Event Timeline Where Primary PSAP Is Communications Center.

Event Timeline Where Primary PSAP is Other Than Communications Center[32]



Detection	Transmission	Transfer	Time to answer	Event processing
Varies	≤4 seconds	≤30 seconds 90%	≤15 seconds 90% ≤20 seconds 95%	≤60 seconds 90%

Notes:
Alarm sounds are audible or visual annunciation, or both
CC: Communications center
TC: Telecommunicator
IAW: In accordance with
Alarm processing begins when the emergency call for service is created and ends at the beginning of ERF/ERU notification

Δ FIGURE A.7.4.1(b) Event Timeline Where Primary PSAP Is Other Than Communications Center.

[31] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and use of Emergency Services Communications Systems, 2019 Edition, Quincy, MA: National Fire Protection Association, page 46.
[32] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and use of Emergency Services Communications Systems, 2019 Edition, Quincy, MA: National Fire Protection Association, page 46.

APPENDIX C

NFPA 1221 Call Answer Time Standards

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Appendix C: NFPA 1221 Call Answer Time Standards

NFPA 1221; Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems (2019)[33]
7.4.1.1 Compliance with 7.4.1 shall be evaluated monthly using data from the previous month.
7.4.2* Call processing time shall include the time from the call answer to initial notification of the responding ERU(s).
7.4.3 Emergency alarm processing for the highest prioritization level emergency events listed in 7.4.3.1 through 7.4.3.2 shall be completed within 10 seconds, 90 percent of the time.
7.4.3.1 The following types of calls where there is an imminent threat to life shall be included in the highest prioritization level: (1) Trauma (penetrating chest injury, GSW, etc.) (2) Neurologic emergencies (stroke, seizure) (3) Cardiac-related events (4) Unconscious/unresponsive patients (5) Allergic reactions (6) Patient not breathing (7) Choking (8) Other calls as determined by the AHJ
7.4.3.2 The following types of calls where significant property loss/damage is likely or actively occurring shall be included in the highest prioritization level: (1) Fire involving or potentially extending to a structure(s) (2) Explosion (3) Other calls as determined by the AHJ
7.4.3.3 The following types of calls shall be exempted from the requirements of 7.4.3: (1) Joint responses with law enforcement (involving weapons) (2) Hazardous materials incidents (3) Technical rescue
7.4.3.4 The following types of mitigating circumstances shall be exempted from the requirements of 7.4.3: (1) Language translation (2) TTY/TDD (3) Incomplete location (4) SMS message to 9-1-1 (5) Calls received from outside the normal area of responsibility and/or service area (6) Calls requiring use of a PSAP registry or similar tool to determine the appropriate PSAP and/or transfer location (7) Calls received during a significant disaster that severely and significantly depletes available resources, impacts local infrastructure, and could result in changes to normal dispatcher procedures (disaster mode)
7.4.4* For law enforcement purposes, the AHJ shall determine time frames allowed for completion of dispatch.

[33] NFPA [2019]. National Fire Protection Association, NFPA 1221: Standard for the Installation, Maintenance, and use of emergency Services Communications System, 2019 Edition, page 1221-21, Quincy, MA: National Fire Protection Association

APPENDIX D

PSAP Responsibility in Fort Bend County

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Appendix D: PSAP Responsibility in Fort Bend County

Fire Departments:	Paid	Volunteer
Beasley FD / ESD #8	X	X
Fairchild FD	--	X
Fresno FD / ESD #7	X	X
Fulshear FD / ESD #4	X	X
Needville FD	--	X
Northeast FD / ESD #5	X	X
Orchard FD / ESD #3	--	X
Pecan Grove FD	X	X
Pleak FD / ESD #6	X	X
Thompson FD	--	X
Willowfork FD / ESD #2 / Moving to Cypress Creek Comm. Center 12/10/19	X	
EMS:		
Fort Bend County EMS • Beasely FD • Fairchild FD • Fresno FD • Fulshear FD • Needville FD • North East FD • Orchard FD • Pecan grove FD • Pleak FD • Rosenberg FD • Thompson FD • Willowfork FD	X	--
Police:		
Arcola PD	X	--
Fort Bend County Environmental units	X	--
Fort Bend County PCT 1,2,3,4	X	--
Fort Bend County Death Investigators	X	--
Fort Bend County Fire Marshal	X	--
Fort Bend County Sheriff's Office	X	--
Fulshear PD	X	--
Meadows Place PD (After hours & Holidays)	X	--
Needville ISD PD	X	--
Needville PD	X	--
Ancillary		
After business hours, weekends and holidays		
County Animal Control	City of Meadows Place	

ESD-Emergency Service District

Agencies in Fort Bend County, but Not Dispatched by Fort Bend County Sheriff's Communications Center

Fire Departments:	Full Time	Dispatch Provided By
Community FD / ESD #100	X	Cypress Creek Comm. Center
East Bernard FD	X	Wharton PD
Missouri City FD	X	City Police Dispatch
Pearland FD	X	Cypress Creek Comm. Center
Richmond FD	X	City Police Dispatch
Rosenberg FD	X	City Police Dispatch
Stafford FD	X	Cypress Creek Comm. Center
Sugarland FD	X	City Police Dispatch
ESD #48 (formally W I-10 FD)	X	Cypress Creek Comm. Center
Police Departments		
Missouri City PD	X	City Police Dispatch
Richmond PD	X	City Police Dispatch
Rosenburg PD	X	City Police Dispatch
Stafford PD	X	City Police Dispatch
Sugarland PD	X	City Police Dispatch

APPENDIX E

Insurance Services Office Rating

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Appendix E: Insurance Services Office Rating

Insurance Services Office (ISO) rating

The ISO review focuses on the community's facilities and support for handling and dispatching alarms for structure fires. Virtually all U.S. insurers of homes and business property use ISO's Public Protection Classifications in calculating insurance premiums. The ISO analyzes three specific categories and wards point based on compliance for the communications center.

Emergency Communications

Ten percent of a community's overall score is based on how well the communications center receives and dispatches fire alarms. The major categories and maximum points awarded are:

- 414. Credit Emergency Reporting — Maximum of 3 points
- 422. Credit for Telecommunicators — Maximum of 4 points
- 432. Credit for Dispatch Circuits — Maximum of 3 points

The ISO field representative evaluates:

- Communications facilities provided for the general public to report structure fires
- Enhanced 9-1-1 Telephone Service including wireless
- Computer-aided dispatch (CAD) facilities
- Alarm receipt and processing at the communications center
- Training and Certification of telecommunicators
- Facilities used to dispatch fire department companies to reported structure fires

Item 414-Credit for Emergency Reporting (3 points)

The first item reviewed is Item 414 "Credit for Emergency Reporting (CER)". This item reviews the emergency communications center facilities provided for the public to report fires including 911 systems (Basic or Enhanced), Wireless Phase I and Phase II, Voice over Internet Protocol, Computer Aided Dispatch, and Geographic Information Systems for automatic vehicle locations. ISO uses National Fire Protection Association (NFPA) 1221, *Standard for the Installation, Maintenance and Use of emergency Services Communication Systems* as the reference for this section.

Item 410. Emergency Reporting (CER)	Earned Credit	Credit Available
A./B. Basic 9-1-1, Enhanced 9-1-1 or No 9-1-1 For maximum credit, there should be an Enhanced 9-1-1- system, Basic 9-1-1- and No 9-1-1 will receive partial credit		**20**
1. E9-1-1 Wireless Wireless Phase I using Static ALI (automatic location identification) Functionality (10 points); Wireless Phase II using Dynamic ALI Functionality (15 points); both available will be 25 points		**25**

Item 410. Emergency Reporting (CER)	Earned Credit	Credit Available
2. E9-1-1 Voice over Internet Protocol (VoIP) Static VoIP using Static ALI Functionality (10 points) Nomadic VoIP using Dynamic ALI functionality (15 points); Both available will be 25 points		**25**
3. Computer Aided Dispatch Basic CAD (5 points); CAD with Management Information Systems (5 points); CAD with Interoperability (5 points)		**15**
4. Geographic Information Systems (GIS/AVL) The PSAP uses a fully integrated CAD/GIS management system with automatic vehicle location (AVL) integrated with a CAD system providing dispatch assignments The individual fire department being dispatched do not need GIS/AVL capability to obtain this credit.		**15**
Review of Emergency Reporting total:		**100**

Item 422-Credit for Telecommunicators (4 points)

The second item reviewed is Item 422: "Credit for Telecommunicators (TC)". This item reviews the number of Telecommunicators on duty at the center to handle fire calls and other emergencies. All emergency calls including those calls that do not require fire department action are reviewed to determine the proper staffing to answer emergency calls and dispatch the appropriate emergency response. The 2019 Edition of NFPA 1221**,** *Standard for the Installation, Maintenance and Use of emergency Services Communication Systems, recommends that ninety percent of emergency calls shall be answered within 15 seconds and ninety-five percent of alarms shall be answered within 20 seconds*. In addition, NFPA recommends that for the highest prioritization level emergency alarms processing shall be completed within 60 seconds and ninety percent of the time.

To receive full credit for operators on duty, ISO must review documentation to show that the communications center meets NFPA 1221 call answering and dispatch time performance measurement standards. This documentation may be in the form of performance statistics or other performance measurements complied by the 9-1-1 software or other software programs that are currently in use such as Computer Aided Dispatch (CAD) or Management Information Systems (MIS).

Item 420. Telecommunicators (CTC)	Earned Credit	Credit Available
A1. Alarm receipt (AR) Receipt of alarms shall meet the requirements in accordance with criteria of NFPA 1221		**20**
A2. Alarm Processing (AP) Processing of alarms shall meet the requirements in accordance with the criteria of NFPA 1221		**20**
B. Emergency dispatch Protocols (EDP) Telecommunicators have emergency dispatch protocols (EDP) containing questions and a decision-support process to facilitate correct call categorization and prioritization.		**20**
C. Telecommunicator Training and Certification (TTC) Telecommunicators meet the qualification requirements referenced in NFPA 1061, Standard for Professional Qualifications for Public Safety Telecommunicators and/or the Association of Public Safety Communications Officials-International (APCO) Project 33. Telecommunicators are certified in the knowledge, skills, and abilities corresponding to their job functions.		**20**
D. Telecommunicator Continuing Education and Quality Assurance (TQA) Telecommunicators participate in continuing education and/or in-service training and quality-assurance programs as appropriate for their positions.		**20**
Review of Telecommunicators total:		**100**

Item 423-Credit for Dispatch Circuits (3 points)

The third item reviewed is Item 432 "Credit for Dispatch Circuits". This item reviews the dispatch circuit facilities used to transmit alarms to fire department members. A "Dispatch Circuit" is defined in NFPA 1221 as "A circuit over which a signal is transmitted from the communications center to an emergency response facility (ERF) or emergency response units (ERUs) to notify ERUs to respond to an emergency". All fire departments (except single fire station departments with full-time firefighter personnel receiving alarms directly at the fire station) need adequate means of notifying all firefighter personnel of the location of reported structure fires. The dispatch circuit facilities should in accordance with the general criteria of NFPA 1221. "Alarms" are defined in this Standard as "A signal or message from a device indicating the existence of an emergency or other situation that requires action by an emergency response agency".

There are two different levels of dispatch circuit facilities provided for in the Standard-a primary dispatch circuit and a secondary dispatch circuit. In jurisdictions that receive 730 alarms or more per year (average of two alarms per 24-hour period), two separate and dedicated dispatch circuits, a

primary and a secondary, are needed. The failure of any component of the primary circuit shall not affect the operation of the secondary circuit and vice versa. In jurisdictions that receive fewer than 730 events per year shall provide a minimum of one dedicated dispatch circuit for transmitting alarms. A circuit that terminates at a telephone handset only shall not be considered as fulfilling the requirements for a dispatch circuit. Dispatch circuit facilities installed but not used or tested (in accordance with NFPA Standard) receive no credit.

The score for Credit Dispatch Circuits (CDC) is influenced by monitoring for integrity of the primary dispatch circuit. There are up to 0.90 points available for this item. Monitoring for integrity involves installing automatic systems that will detect faults and failures and send visual and audible indications to appropriate communications center (or dispatch center) personnel. ISO uses NFPA 1221 to guide the evaluation of this item. ISO's evaluation also includes a review of communications system's emergency power supplies.

APPENDIX F

Annual Report Template

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Appendix F: Annual Report Template

Intake-Call Processing

- 9-1-1 Calls
  - Wireless
  - Hardline
  - Text
- 10 Digit Calls
  - Emergency
  - Non-emergency
- Duplicate Calls
  - Total
- Outbound Calls
  - Total

Radio

- Number of radio transmission per radio console and total for center
- Number of radio reception/received per radio console/total

Incidents

- Fire-Total / Agency
- EMS-Total/ Agency
- Law-Total/ Agency

Resources

- Number of resources dispatched including a breakdown by agency
- Fire
- Law
- EMS

Quality Assurance/Quality Improvement

- Number of Radio incidents reviewed
- Number of Calls reviewed Agencies
- Compliance

Trend Analysis comparison to previous years

- Intake-Call Processing
- 911
  - Wireless
  - Hardline
  - Text

Intake-Call Processing

10 Digit Calls
- Emergency
- Non-emergency

Duplicate Calls
- Total

Outbound Calls
- Total

Radio Transmissions

Received	Fire, Law EMS
Transmitted	Fire, Law EMS

Incidents
- Fire-Total / Agency/Incident Type/Emergency/Non-Emergency
- EMS-Total/ Agency/Incident Type/Emergency/Non-Emergency
- Law-Total/ Agency/Incident Type/Emergency/Non-Emergency

Resources
- Number of resources dispatched including a breakdown by agency
- Fire
- Law
- EMS

APPENDIX G

Daily Activity Report Example

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Appendix G: Daily Activity Report (Example Report Derived from LAFD)

STATE OF THE LAFD

Los* Angeles *Fire Department Metropolitan Fire Communications Monday, November 11, 2019

"It all starts here..."
Today's news and review of the previous day's notable events:

INCIDENT COUNT: ***Dispatched Incidents Average for each 24 Hour Period in the Year 2018 was 1,346, while Average EMS Transport of Patients to Hospitals for the Year 2018 was 594.***

Total Dispatched Incidents**: 1301**
Total RA Unit Transports**: 543**
Total EMS Incident/Unit Responses**: 1743** Total Non-EMS Incident/Unit Responses**: 389**

MFC Daily Average Call Volume for 24 hour period is 2,838 for the Year 2018

Daily Call Volume Emergency Calls**: 1911** Business Calls**: 702** Total Call Volume**: 2613**

EMERGENCY ACTIVITY:

Firefighters responded to 7 structure fire incidents and 1 reported smoke incident on November 10, 2019.
Incident No: 845 (76's District) **Incident Type:** Brush **Date:** 11/09/2019 **Time:** 1352 hours

Time First Resource on Scene: 0 minutes**,** 27 seconds **Location:** 3694 N. Barham Bl.

Incident Overview: LAFD resources responded to a reported brush fire. First arriving resources found approximately 3 acres of heavy brush burning uphill in steep terrain. Air and ground resources attacked the flanks and worked to establish a perimeter. Due to steep terrain firefighters had difficulty slowing the fire front and the area of involvement expanded to 30 acres before resources could slowing the fire front and the area of involvement expanded to 30 acres before resources could

Establish a perimeter. Due to the hazardous conditions and steep terrain, efforts to contain the fire will take several days. At the time of this report, the percentage of containment is at 80% and estimated acreage is 80 to 90 acres. Firefighters will remain on-scene throughout the day. This incident remains active. During the initial firefight, one firefighter suffered a broken extremity and was transported to an area hospital for care.

Commitment of Resources: 46 Fire Companies, 5 RA's, and 2 EMS Captains
Command: 7 Battalion Commanders, ("Barham IC", CM 51 Chief Hogan), CM 42, Chief Drake

Specialized Resources: Air Operations, Camp Crews
Agency Assist: LA Co. FD, Burbank and Glendale FD, Park Rangers, DOT, LAPD
Radio Channels: MFC Channel 5 and Tactical Channels 12, 16

APPENDIX H

Summary of Stakeholder Perceptions

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Appendix H: Summary of Stakeholder Perceptions

Level 2 interviews of mid-level and supervisory personnel were conducted across management and administrative stakeholders. Level 3 interviews with Communications Operators/Dispatchers at Fort Bend County 9-1-1 facilities were also conducted on September 24-26, 2019. One-on-one interviews were conducted on a voluntary basis using open ended questions.

Positive attributes noted consistently throughout the interviews, were that Fort Bend County 9-1-1 personnel like what they do, dedicated, want to do a good job, and officer safety is their number one priority.

In the interview process, concerns were repeatedly expressed about:

- Terminology
- Ongoing training and accountability
- Protocol Certifications
- Conflicting Policies
- Technology
- Recruiting /selection process

Below are summaries of comments regarding each of the above items.

Teamwork

- One theme that emerged throughout the Level 2 and 3 interviews is the affirmation of good teamwork.
- The organizational structure promotes a positive environment.
- Written procedures and protocol-based caller questioning promotes consistent expectations.
- Personnel know what is expected and that expectations are re-enforced.
- Officer safety is their number one priority- “everybody goes home”.

On-going Training and Accountability

- Dispatchers expressed as a primary concern what they perceive as a lack of quality and consistency of trainers during the dispatch floor phase of on-going training. Their capacity to train is based on a position job description rather than the individual’s ability to train.
- Creation of the “Dispatch University” and updated training program have enhanced the success of new candidates and continuing dispatch education (CDE) of dispatchers.
- Delays in call taker protocol certification result in call takers unable to process discipline specific emergency calls.
- Incorporate observation period in dispatch positions as part of the initial call taking training to gain a global perspective of the information needed by field personnel.
- Initial dispatch floor training should include training during day and nighttime operations.
- Field personnel should participate in the CDE and initial training.
- Team build for active shooter incidents.

Quality Improvement/Assurance

- Radio and telephone calls are reviewed and graded based on an objective standard.
- Personnel expressed that their perception of the Quality Assurance unit is focused on their skills enhancement.
- Subjective issues are reviewed a second time by the training coordinator.

Personnel Interactions / Relationships

1. Dispatch personnel peers
   - Personnel in the organization get along well.
   - It was stated several times that the atmosphere feels like a family and people help each other.
   - Personnel genuinely like coming to work and love what they do.

2. Field Personnel
   - Dispatch personnel in radio positions expressed the frustration of field personnel when field personnel are transmitting yet are unaware their transmissions are covered and the dispatcher request, they retransmit their message.
   - The majority of the first-responder field personnel work well with the dispatch center. Field supervisory staff usually resolve issues with dispatch, but a small minority do not.
   - Dispatch personnel suggested field personnel observe dispatch operations when responders are promoted to supervisor positions.
   - Fire agencies do not have common fire terminology causing confusion for radio dispatchers.
   - Lack of uniformed operational policy between law enforcement agencies

3. Supervisors
   - Supervisory personnel are involved in the dispatch process and display genuine care for personnel.
   - Supervisors routinely pull a call taker off the floor after a stressful call to provide a short mental health break.

4. Upper Management
   - Upper Management is perceived as providing good, coordinated support with dispatch operations.
   - Top management expressed their genuine appreciation for the great job dispatch personnel preform day-in and day-out, 365 days a year 24/7.
   - Management listens to dispatch staff
   - Dispatch personnel's Saturday relaxed uniform dress code is appreciated

Technology

- The Bluetooth headsets was a recurring theme voiced by dispatchers.
- CAD does not keep pace with personnel that type fast.

- Overall, the perception of CAD is good but with some operational issues, CAD screen freezing, slowdowns, and daily reboots of the individual CPU.
- Integrate Automatic Call Distributor (ACD) into telephone system.
- GIS mapping is good but must keep up with the County's rapid growth.
- Technical support is good; when an equipment problem arises, it is quickly resolved.
- Duplication of work when using the medical protocol and CAD.
- Difficulty in accessing updated policies and procedures on dispatch floor
- Dispatch floor layout is good. Possibly provide more separation of high traffic radio consoles.

Recruiting/Selection

- Management's initial interview and selection process is generating good candidates
- Dispatch personnel suggested to recruit for customer service call centers

Staffing and Work Schedules

- Personnel universally expressed the need for a second supervisor on all shifts to assist with call taking and dispatch operations and administrative notification requirements.
- Personnel like the twelve-hour work schedule and the shift selection process.
- Constant staffing instead of minimum staff would generate more overtime.
- Expand the number of personnel off at one time if personnel find someone to work for them yet follow work rules.
- Need more personnel as county expands to include Quality Improvement/Assurance, call taker/dispatcher, supervisors and training staff.
- Work schedule for additional staffing based on demand peak hours.
- Addition of another law dispatch position to reduce workload.
- Staff an additional separate dispatch console to manage large incidents.
- Last minute "call-ins" abused by the same people.
- Too many radio channels to monitor.
- Dispatch personnel perceived that substandard performing personnel are retained.

APPENDIX I

PowerPoint Presentation

911 Communications Division Best Practices Gap Analysis

February 2020

Fort Bend County, TX

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Methodology & Workflow

Qualitative & Quantitative

Examined current performance from two perspectives –

- Qualitative review of current operations and stakeholder perceptions
- Quantitative analysis of performance

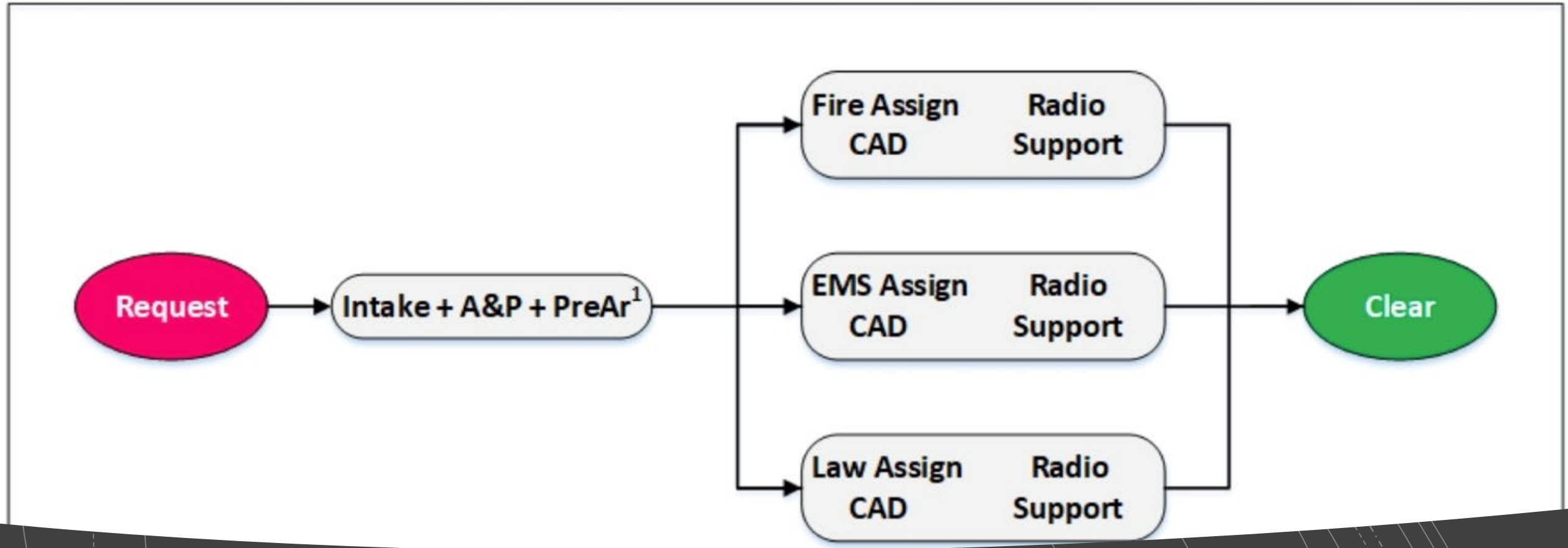
Qualitative Analysis:

- Conducted an onsite review of dispatch operations,
- Interviewed 31 County Dispatch and Support Services personnel and
- Reviewed Fort Bend Communications system components.
- Compared Fort Bend County Communications dispatch operations to industry best practices.

Quantitative Data:

- 5-years of computer-aided dispatch CAD data (October 2014 to October 2019) limited to fire (N=280,250) and EMS (N=60,977) related incidents alone.
- Primarily focused our analysis on the most recent full year from October 2018 through September 2019.
- Distinct measures of call volume related to incident types and the primary station area
- Finally, we were able to identify the number of responses that occurred from fire and EMS units for each incident.

Figure 2. Workflows and Workstations in the FBSO911 Dispatch System



Workflow

Staffing

- Daily staffing assignment:
- One Supervisor
- Thirteen dispatch/call takers
  - Five radio positions (1 Fire, 1 EMS, 3 Law)
  - Eight call takers (five minimum)

Table 9. Radio Channel/Console Configuration

Discipline	Radio Channels	Number of Radio Consoles	Radio Channel	Area of Operation
EMS	1	1	EMS Primary 1	All of Fort Bend County
Law	3	3	PAT 1	• S.O. Districts 2,5 and 7; Fulshear PD, PCT 3 constables
			PAT2	• S.O. Districts 3, 1, 8 and 9, Needville PD PCT 1 & 3 constables
			PAT3	• S.O. Districts 4, 6; Arcola PD, Meadows Place PD, PCT 2 & 4 constables
			PAT 1,2, or 3	• All other units are dispatched on radio channel based on their geographic location.
Fire	6	1	FIREDISP	• Needville, Orchard, Fresno, Fairchild, Pleak and Thompson
			FIREDISP	• Beasley
			FIREDISP	• Fulshear
			FIREDISP	• Northeast
			FIREDISP	• Pecan Grove
			FIREDISP	• Willowfork

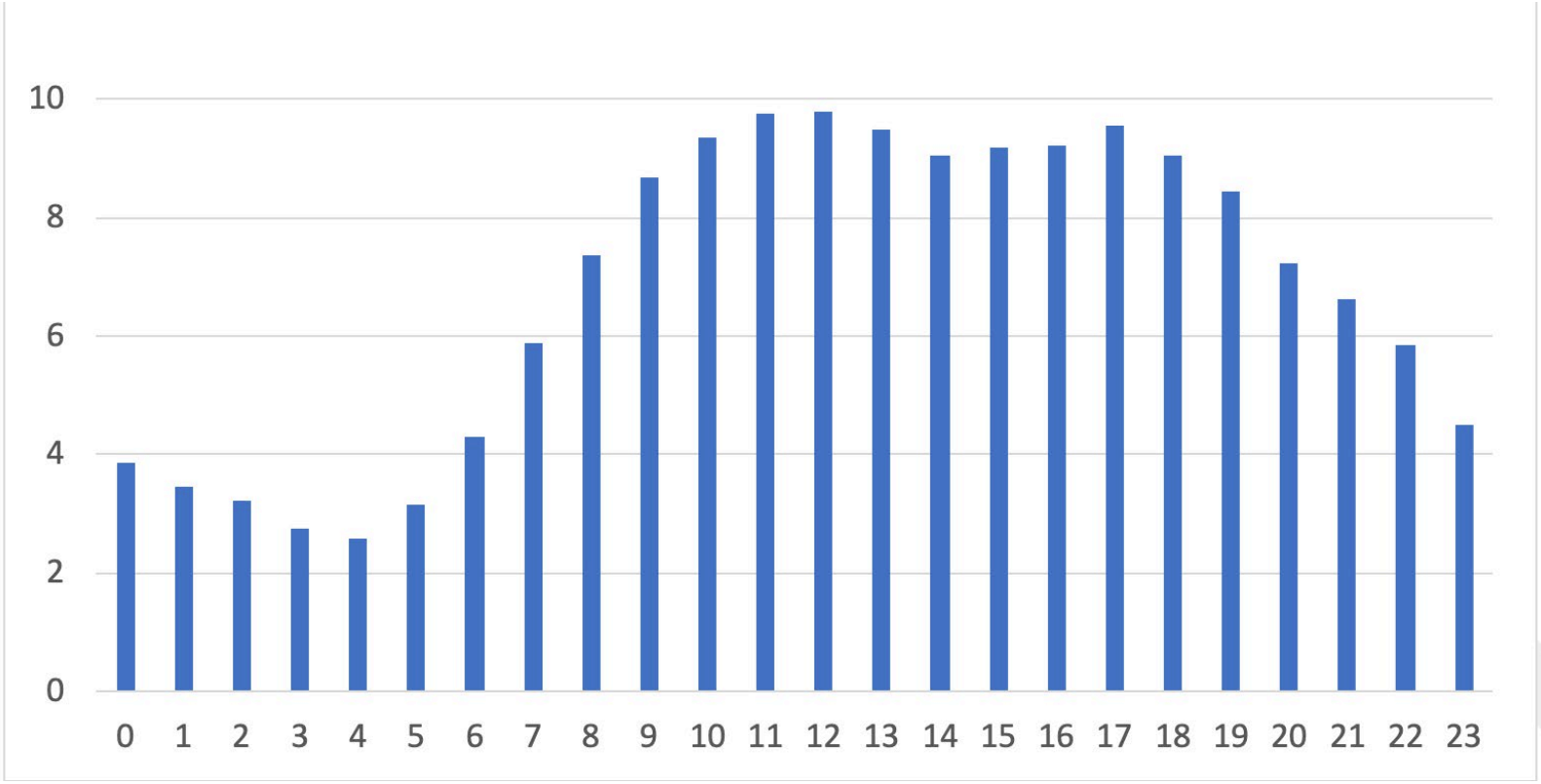
Current Performance

EMS & Fire Demand

Table 12. Incident Counts by Discipline (Fire & EMS)

Discipline	Count	Percentage
EMS	36,035	60.9%
Fire	23,183	39.1%
Grand Total	**59,218**	**100.0%**

Hour-of Day



Station Area	Count
BF01	370
CF01	76
EB01	25
FF01	196
FL01	655
FL03	1193
FL04	359
FR51	1703
HF01	12
KT01	51
KT03	85
MD07	77
MF01	3058
NE01	1659
NE02	1573
NF01	655
NFWD	73
OF01	135

Table 17. Response Counts by Discipline (Fire & EMS)

Discipline	Count of Responses	Count of Incidents	Avg. Units per Response
EMS	43,902	36,035	1.22
Fire	31,813	23,183	1.89
Grand Total	**75,715**	**59,218**	**1.28**

Station Area	Count
PF01	364
PG01	681
PG02	309
RF01	1443
RF02	306
RF03	581
RO01	1926
SF01	2150
SL01	309
SLMD	43
TF01	60
WI02	13
WL01	1490
WL02	692
WL03	421
Grand Total	**22743**

Fire Incidents by Primary Station Area / Units per Response

Table 21. Call Processing Performance for Fire Calls

Fire Call Processing Performance	
Count	22,523
Avg	00:02:00
90th	00:03:22

Table 22. Call Processing Performance for EMS Calls

EMS Call Processing Performance	
Count	28,638
Avg	00:01:55
90th	00:03:04

Call-Processing Time

Dispatch to Arrival

Table 23. Fire Dispatch to Arrival Performance

Fire Dispatch to Arrival Performance	
Count	11,682
Avg	00:07:26
90th	00:11:53

Table 24. EMS Dispatch to Arrival Performance

EMS Dispatch to Arrival Performance	
Count	30,777
Avg	00:06:29
90th	00:11:54

Recommendations

Classifications

13 Critical Priority: items needing immediate action to be initiated and completed by the end of the fiscal year

9 High Priority: items of importance that should be completed within 12-14 months.

10 Medium Priority: items to be initiated by the first quarter of the next fiscal year and/or that require ongoing attention and funding.

9 Lower Priority: items that can be accomplished for relatively low cost but that should not interfere with completion of higher priority recommendations.

- While perceptions of performance among fire chiefs have validity and require attention, fire chiefs have not – as a group – clearly articulated expectations and established a set of uniform guidelines, policies, and/or procedures for dispatch personnel to follow. On various issues fire chiefs desire 'concierge services' – where for the same scenario, individual departments desire the call be handled differently. This process unnecessarily increases the complexity in service provision. Specific recommendations are made elsewhere in this report on the need for uniform policies across agencies.

- Presently, one dispatcher is expected to monitor six different radio channels (talkgroups) for the various fire departments. It is understandable that agencies desire to limit radio traffic on their primary channel – yet the challenge for the single dispatcher to handle simultaneous radio transmissions on multiple channels creates confusion and may lead to the danger of critical communications being missed. Radio channels must be consolidated so that a single dispatcher is monitoring only a single primary talk group. While a full analysis of channel-loading was not part of this engagement, call volumes are such that most/all fire agencies can likely be placed into a single, or perhaps two, channels. In addition, during significant incidents, a dedicated tactical operator should be used to ensure critical communications are not missed.

- Upon implementation of uniform policies/procedures related to dispatching, FBSO should undertake a root cause analysis of their dispatch / call processing flow – the intent being to reduce the time required to receive and then dispatch fire and EMS resources. FBSO should specifically look at training, accountability (supervision), and quality assurance as these issues are most often associated with weaker performance and were cited by multiple stakeholders. The target should be to process calls within a 1:30 to 1:45 period for 90% of fire and EMS incidents.
- While FBSO911 makes use of APCO's call categorization framework, the process does not lead to a differential response of unit assignments. Without a benefit from the call classification process, and unless there is a need to better manage limited resources, consideration should be given to immediate dispatch of the appropriate discipline (Sheriff, fire or EMS) upon call receipt.
- Other alternatives exist for dispatch services. In the consideration of such options, policy-makers must consider the impact call transfers have on the overall time to receive help – essentially the additional time to transfer calls from a primary PSAP to secondary PSAP. The current system does not experience this issue as FBSO911 is both the primary PSAP and dispatch provider for fire service and EMS resources.

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QUESTIONS