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CITY COUNCIL TRANSMITTAL

Patrick W. Leary, Chief of Staff

Date Received: May 21, 2019
Date sent to Council: May 21, 2019

TO: Salt Lake City Council
Charlie Luke, Chair

DATE: May 20, 2019

FROM: Lisa Burnette, Director, SLC911

SUBJECT: Matrix Consulting SLC911 Dispatch Audit

STAFF CONTACTS: Lisa Burnette, Director, 801.799.3592, lisa.burnette@slcgov.com

DOCUMENT TYPE: Performance Audit (Information Item)

RECOMMENDATION: Please review

BUDGET IMPACT: MATRIX SUGGESTED 20 NEW FTES AND FUNDING 3 UNFUNDED FTES. BUDGET IMPACT $1,433,922
DISPATCH CENTER REQUESTED 9 NEW FTES. BUDGET IMPACT $561,100
MAYOR'S RECOMMENDED BUDGET RE-CLASSIFIED 3 EXISTING PBX POSITIONS PLUS THE RECOMMENDATION OF 3 NEW FTES FOR A NET OF 6 NEW FTES. BUDGET IMPACT $187,034

BACKGROUND/DISCUSSION: The Council has requested the completed audit by Matrix Consulting Group.

PUBLIC PROCESS: N/A

EXHIBITS:

1. Performance Audit of 911 and Non-Emergency Dispatch Services
    a. Letter to Matrix Consulting Group
        i. Commentary on recommendations

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Performance Audit of 911 and Non-Emergency Dispatch Services

SALT LAKE CITY, UTAH

FINAL

matrix consulting group

March 1, 2019

Table of Contents

1 Introduction and Executive Summary

The Matrix Consulting Group was hired by Salt Lake City to conduct a performance audit of public safety emergency and non-emergency dispatch services. We are pleased to present the results of this effort in the following report. The sections below provide an introduction to the audit, a description of our methodology, and a summary of our key findings and recommendations.

1. Introduction

The Salt Lake City 911 Center (SLC 911)[1] serves as the public safety answering point (PSAP) for all of Salt Lake City, as well as the City of Sandy through an interlocal agreement. The organization has 97 authorized positions and functions as a bureau within the City's government, led by an Executive Director who reports to the Mayor's Office.

The Matrix Consulting Group undertook this performance audit of the 911 Center with a set of clear directives:

- Perform customer satisfaction surveys of callers that have used both the emergency 911 telephone line and the non-emergency line.
- Perform a 911 Bureau employee survey.
- Perform a comprehensive operational needs assessment of the 911 Bureau.
- Provide accountability recommendations for the 911 Bureau organization and operations.

This report presents our evaluation, analysis, findings, conclusions, and recommendations the findings resulting from these tasks and our recommendations on a wide range of issues including oversight and governance, technology effectiveness, staffing needs, workload and position allocation, policies and procedures, alternative organizational structures, strategic planning, and other important issues.

[1] Throughout this report 911 Center, Bureau, and SLC911 are used interchangeably.

2. Methodology

In the development of this analysis, the project team undertook a number of tasks to ensure a thorough understanding of the 911 Center's operational protocols, dispatching workload, personnel needs, operating environment, contractual obligations, employee opinions, and stakeholder needs. The following activities were part of this audit and allowed us to attain this familiarity:

- Conducted a series of on-site interviews with staff from the 911 Center, including the Executive Director and Deputy Director, technological and administrative support staff, managers and supervisors, and line level staff. These interviews also included sit-in time on the dispatch floor where live operations could be observed.

- Conducted ride-along observations with field staff from each of the 911 Center's partner agencies, the police and fire departments in both Salt Lake City and Sandy.

- Collected data and documentation of the 911 Center's operations and oversight, including budget information, organizational charts and staff hiring and separations data, policies and procedures, the contract with Sandy, expenditures and cost allocation data, overtime use, staff training, public education, workload related to phone calls, CAD incidents, non-emergency communications, technology systems, and performance measurement. This data was reviewed and analyzed for use in developing conclusions and recommendations.

- Conducted a customer satisfaction survey of individuals in the greater Salt Lake area who have called the 911 Center in an emergency or non-emergency capacity to assess their opinions on customer service, clarity of communication, and responsiveness of emergency response.

- Conducted electronic surveys of 911 Center staff, as well as a survey of employees at the 911 Center's partner public safety agencies to gather their opinions on the operations of the Center and the support provided to first responders in the region, as well as to identify potential issues for further scrutiny.

- Conducted quantitative analysis of call volume and CAD incident volume to develop a model of workload and determine the necessary number of staff to accommodate it at a high level of customer service.

The information gathered from these efforts was used to identify key issues in the following areas:

(1) Operations and Technology,

(2) Staffing, and

(3) Management and Oversight

Interim deliverables, including a descriptive profile, analysis of survey results, and an initial issues assessment were provided to the 911 Center and the Mayor's office during the course of the audit to provide insight into the feedback involved in crafting analysis and frame conversations regarding the project team's findings and conclusions.

3. Key Findings and Conclusions.

In the course of an emergency communication center audit, the focus tends to be on the areas within the organization where improvement opportunities exist, or where change is needed. The project team completed a full assessment of the 911 Center's staffing and operations, and a number of recommendations have been developed to enhance efficiency, service levels, and accountability. However, there are a number of positive attributes of the 911 Center which should be acknowledged.

- In general, the Center has already devised a dispatcher and call-taker staffing plan that meets the needs of the organization with only few adjustments required.

- Staff are positive about the direction the 911 Center is going as a consequence of new management and associated changes.

- The majority of Salt Lake City and Sandy City residents who used emergency or non-emergency services in the last year believe the 911 Communications Bureau is doing a good to excellent job overall.

- Customers are, in fact, more satisfied with their interactions with dispatch operators than they are with the time it takes for help to arrive of on-scene emergency personnel.

- Overall, the 911 Center operates at a high customer service level with few significant improvement opportunities.

Along with these positives, the project team has identified a number of opportunities for improvement and change at the 911 Center. While addressed in detail in the body of the report, the following bullet points summarize the primary recommendations of resulting

from the audit.

- The 911 Center should reformulate how it handles non-emergency call volume in order to enhance efficiency and effectiveness.

- The 911 Center should adopt an appropriate authorized staffing level to accommodate turnover issues and better balance staff between police and fire/EMS workstations.

- The 911 Center should re-organize staffing and reporting relationships from the supervisor and above positions.

- The 911 Center should adopt various protocols relative to recruitment, compensation, quality assurance, use of script-based software (e.g. ProQA), etc.

- As part of an expanded needs assessment, determine if certain existing practices such as overall police response times, use of online reporting, and customer expectations such as estimate of arrival time and “on hold” time are appropriate.

A summary of all of the specific recommendations follow.

4. List of Recommendations

The following exhibit provides a numbered list of the recommendations in this report, with the priority level, estimated cost or savings, and target timeframe for each recommendation. The chapters within this report should be reviewed for a detailed discussion and analysis of each issue and the background behind each recommendation.

#	Recommendation	Priority Level	Est. Cost (Savings)	Timeframe
Operations and Technology				
1	The 911 Center should eliminate the PBX Operator job classification position and instead use trained and certified dispatchers to handle incoming non-emergency call volume.	High	($139,500)	Immediate
2	The 911 Bureau should ensure that the Center's new CAD/RMS allows patrol officers to view Fire/EMS calls as they occur in order to optimize the level of support they provide.	High	N/A	Concurrent with new CAD/RMS
3	The 911 Bureau should continue to use script-based software, such as ProQA, to help ensure consistent questioning of 911 callers and support the optimization of customer service. Initial and on-going refresher training should be provided on such software, with expectations of call-takers clearly delineated as part of the quality assurance and quality control process, to help facilitate the best call-taking experience.	High	N/A	Immediate
Staffing				
4	The 911 Center should authorize 98 Dispatcher/Call-Taker positions to meet staffing needs for both emergency and non-emergency call volume, which includes the PBX workstation, while accounting for 22% annual turnover.	Moderate	$142,500	3-6 Months
5	The 911 Center should increase the number of authorized Police Dispatcher/Call-Taker positions to 79.	Low	N/A	1-2 Years
6	The 911 Center should reduce authorized Fire/EMS Dispatcher/Call-Taker positions to 19.	Low	N/A	1-2 Years
7	The 911 Center should eliminate two Supervisor positions by promotion or attrition, bringing the total to 8. One of these will still be an Administrative Supervisor.	Moderate	($183,000)	3-6 Months
8	Maintain management and support staffing in the 911 Bureau consisting of 1 Executive Director, 1 Deputy Director, 1 Administrative Assistant, 1 Administrative Supervisor and 2 Operations Managers for a total of 6 positions of these classifications.	Moderate	N/A	2019
9	The 911 Center should use overtime at similar levels to 2018, minimizing mandatory overtime while offering voluntary overtime up to a reasonable limit of about 10,500 hours per year.	Low	N/A	2019

#	Recommendation	Priority Level	Est. Cost (Savings)	Timeframe
Management and Oversight				
10	Ensure the public safety committee composed of the police and fire chiefs and 911 Bureau Director all report directly to the Mayor's Chief of Staff. No position in this committee should be subordinate to others vis-à-vis decision-making authority.	Moderate	N/A	2019
11	The 911 Center should eliminate 1:1 reporting relationships and flatten the organizational structure so that the Executive Director supervises the Deputy Director and Operations Managers.	Moderate	N/A	Immediate
12	When updating the 911 Bureau strategic plan, accomplish this in concert with the development of police and fire strategic planning efforts.	Low	N/A	1-2 Years
13	The 911 Center should expand the existing quality assurance program into a formal performance management program overseen by the Deputy Director. The program should include regular review of call recordings and quantitative metrics, planning and goal-setting for improvement, concrete incentives for performance, and long-term tracking of results over time.	Moderate	$10,000	6-12 Months
14	The 911 Center should prepare citizens to use 911 and enhance public relations and recruitment efforts by continuing to build its public education program.	Moderate	$5,000	1-2 Years
15	The 911 Center should expand and formalize existing recruitment efforts to maximize awareness and job applications among qualified candidates.	High	$6,000	3-6 Months
16	The 911 Bureau should ensure that the results of exit interviews conducted by the City's HR Department are regularly provided to the Executive Director or their designee for analysis.	Low	N/A	Immediate
17	The 911 Bureau should conduct a classification and compensation survey every 3-5 years to determine the appropriateness of compensation and ensure that the agency is well-positioned in the labor market.	Moderate	$15,000	1-2 Years

2 Operations and Technology

The following chapter represents the project team's analysis of operational practices and the utilization of technology at the 911 Center, including the general effectiveness of call-taking and dispatch operations, the quality of the work environment on the dispatch floor, the use of PBX operators, and the functionality of various software and technologies in use by the Bureau.

1. Call-Taking and Dispatch Effectiveness

The 911 Center's call-taking and dispatch functions are divided by function. Each function has a separate location, or "pod" on the dispatch floor. The three functions are:

- **Call-Taking:** Dedicated call-takers use the 911 Center's Intrado digital phone system to receive incoming emergency calls as quickly as possible. They ascertain basic information about the call and route it to the Fire/EMS pod if appropriate. If the call is not a Fire/EMS call, they gather key information from the caller and route it to the Police dispatchers. Call-takers also handle incoming non-emergency calls, queuing these below emergency calls in order of importance.

- **Law Enforcement Dispatching:** Dedicated law enforcement dispatchers receive call information from the call-takers and communicate it to field law enforcement units in Salt Lake City PD and Sandy PD. They prioritize calls for dispatch and remain in communication with field units.

- **Fire/EMS Dispatching:** Dedicated Fire and EMS dispatchers take calls related to these types of incidents from call-takers, gather additional information from callers, and dispatch fire and EMS units for Salt Lake City and Sandy. They remain in contact with responding units throughout the duration of the call. These personnel also receive non-emergency calls directed to the City's Fire Department.

(1) The 911 Center Has Many Operational Strengths.

The 911 Center operates efficiently in many respects. Incoming calls are immediately assigned to the queue of a trained call-taker using technology which enables them to record call information in real time while talking to the caller. The 911 Center is also equipped to handle alternative communications such as TTY and text-to-911. The queue for each call-taker is clearly visible to the floor. Dedicated dispatchers monitor radio traffic on channels specific to police and fire/EMS operations, and their numbers are generally

determined by fluctuating radio traffic levels throughout the day. Calls are recorded for quality assurance, supervisors are capable to assist on the floor when call volume dictates, and an integrated CAD/RMS is used to record key data on calls from the public and emergency response.

(2) The 911 Center Does Not Meet All Internal or NENA Call-Taking Targets.

The 911 Center has established goals for call-taking timeliness, seeking to answer 95% of calls within 10-15 seconds, and 98% of calls within 20 seconds. A review of the 911 Center's incoming 911 call data for a 12-month period shows that 90% of calls are answered within 10 seconds, meeting both the agency's goal and the National Emergency Number Association (NENA) target. However, only 93.5% of calls are answered within 20 seconds, meaning that 6.5% of calls ring for longer than the target time of 20 seconds.

Similarly, the 911 Center does not meet the secondary NENA standard of 99% calls answered within 40 seconds. A review of the data provided shows that 96.7% of calls are answered within 40 seconds, leaving the remaining 3.3% (1 in 30) to ring longer than this target time.

(3) While The 911 Center Processes Calls Efficiently, The Time Elapsed from Call-Taking to Dispatch of Field Units Is Often Excessive for Salt Lake City Police.

Additionally, the elapsed time from the point at which a call is received to when field units are dispatched is excessive in some cases. The following tables show a number of CAD metrics for Police, Fire, and Medical calls over a 12-month period ending in 2018. Specifically, the metrics shown are:

RCV to QUEUE: The number of seconds from when a call is received by the 911 Center's phone system to when it is coded and assigned to a dispatcher.

RCV to DISP: The number of seconds from when a call is received by the 911 Center's phone system to when it is broadcast on the radio for units to respond.

These metrics area shown at the 50th percentile (median), 90th percentile, 95th percentile, and 99th percentile to provide a sense of the timeframes that callers experience with a given level of frequency.

Police CAD Incidents

		RCV to QUEUE (seconds)				RCV to DISP (seconds)			
Priority	Count	Median	90th%	95th%	99th%	Median	90th%	95th%	99th%
Salt Lake City									
1	9,350	35	146	204	1,038	183	519	851	1,839
2	40,995	34	119	178	1,051	270	1,315	2,120	4,854
3	42,773	44	146	207	885	700	4,634	7,053	12,998
4	21,007	47	151	218	1,267	2,036	13,928	19,662	29,666
5	63	33	132	398	475	384	20,063	28,713	43,705
6	5	30	73	74	75	775	3,306	3,623	3,876
7	335	52	117	158	424	1,478	4,648	6,395	7,856
8	78	95	192	255	537	223	840	917	979
9	2,653	73	152	198	350	418	6,390	9,130	22,492
All	117,259	41	139	200	954	452	4,777	8,440	19,884
Sandy									
1	1,499	22	87	145	723	147	302	382	968
2	6,966	31	122	176	973	205	535	846	1,920
3	12,693	41	132	185	612	243	1,087	1,785	3,853
4	9,416	41	128	177	634	290	1,987	3,007	5,930
5	2	-	-	-	-	-	-	-	-
6	115	35	157	190	417	707	3,484	4,028	10,481
7	65	66	196	243	443	283	1,018	1,421	3,029
8	-	-	-	-	-	-	-	-	-
9	2	-	-	-	-	-	-	-	-
All	30,758	38	127	180	706	235	1,212	2,020	4,484

Fire CAD Incidents

	RCV to QUEUE (seconds)	RCV to DISP (seconds)
Salt Lake City		
Median	30	103
90th%	78	182
95th%	114	222
99th%	346	382
Sandy		
Median	29	104
90th%	78	191
95th%	117	226
99th%	316	346

Medical CAD Incidents

	RCV to QUEUE (seconds)	RCV to DISP (seconds)
Salt Lake City		
Median	32	117
90th%	74	199
95th%	101	232
99th%	242	320
Sandy		
Median	30	119
90th%	68	195
95th%	94	228
99th%	206	305

As the tables above show, many calls take longer than 60 seconds for the call-taker to code them for dispatch, and significantly longer for dispatchers to ask public safety personnel to respond. Specifically:

- **Police:** the time from call receipt to coding for dispatch (RCV to QUEUE) at the 90th percentile for Police CAD incidents is 139 seconds in Salt Lake City, and 127 seconds in Sandy. This means 10% of calls (even Priority 1 calls) take more than 2 minutes and 19 seconds for call-takers to code them for a dispatcher. A review of the data showed that 66% of calls are coded within one minute.

- **Police:** the time from call receipt to dispatching units on the radio airwaves (RCV to DISP) is 519 seconds (8 minutes and 39 seconds) at the 90th percentile for Priority 1 calls in Salt Lake City, and 302 seconds in Sandy. This means that 10% of Priority 1 calls in Salt Lake City take longer than 8 minutes and 39 seconds for emergency responders to be dispatched. Given the call processing time in the prior bullet point, this indicates that about 10% of high-priority calls wait at least 6 minutes and 20 seconds before police units are dispatched.

- **Fire:** The time from call receipt to coding for dispatch (RCV to QUEUE) at the 90th percentile is 78 seconds for both Salt Lake City and Sandy. A review of the data showed that 84% of fire calls are coded within one minute. The time from call receipt to dispatching units on the radio airwaves (RCV to DISP) is 182 seconds at the 90th percentile in Salt Lake City, and slightly longer in Sandy. This means that 10% of Fire calls take longer than 3 minutes and 2 seconds to be dispatched. Given the RCV to QUEUE time of 78 seconds, this means dispatchers hold about 10% of Fire calls for at least 1 minute and 44 seconds before broadcasting them over the radio for a response.

- **Medical:** The time from call receipt to coding for dispatch (RCV to QUEUE) at the 90th percentile is 74 seconds in Salt Lake City, and 68 seconds in Sandy. A review of the data showed that 84% of medical calls are coded within one minute. The time from call receipt to dispatching units on the radio airwaves (RCV to DISP) is 199 seconds at the 90th percentile in Salt Lake City, and 195 seconds in Sandy. This means that 10% of Fire calls take longer than 3 minutes and 19 seconds to be dispatched. Given the RCV to QUEUE time of 74 seconds, this means dispatchers hold about 10% of Medical calls for at least 2 minutes and 5 seconds before broadcasting them over the radio for a response.

The most notable issues with this processing time lie on the police side, where nearly half of all calls are coded for dispatch within 30 seconds but are not dispatched to field units for three minutes. This delay could be the result of inefficient dispatch procedures, but given the 911 Center's professional environment, the efficiency of dispatchers observed on site by the project team, the speed with which calls are processed, and the positive impression of the 911 Center held by the public, the delay is more likely a symptom of limited availability among field units. While Police Department staffing and operations are outside the scope of this study, the data analyzed in the course of this study suggests that an examination of the Department's personnel and deployment strategy is urgently necessary.

It should also be noted that the Salt Lake City Police Department used non-patrol staff to saturate patrol in 2018 from June 10th to October 6th. As shown in Appendix E, this period

saw a consistent but very small improvement in RCV to DISP times, suggesting that it slightly improved the availability of the Department's field units.

(4) The Staffing Recommendations in this Report Will Ensure that the 911 Center Has Adequate Personnel to Provide Responsive 911 Service.

The staffing recommendations in later sections of this report are intended to ensure that sufficient personnel are available in the 911 center around the clock to provide a level of service that meets the needs of the community. Adopting these recommendations will provide assurance that the Bureau is acting to optimize responsiveness to the public.

2. Physical Work Environment

As part of the operations study for the Bureau, the project team evaluated the physical work environment of the 911 Center. Because PSAP operations can be high-stress and involve repetitive tasks which require a high degree of focus and self-moderation, it is important that the physical work environment in which staff perform their duties is conducive to a high level of performance. The effectiveness of the work environment in a 911 Center can be assessed by determining the answers to a number of questions which are categorized into two general topic areas:

- **Call center layout:** Are work stations easily accessible, including for individuals with disabilities? Are they appropriately grouped (neither cramped nor isolated)? Are call-takers and dispatchers close enough together to be able to speak to each other if necessary? Are like functions (police, fire, etc.) grouped together? Is the supervisors' post centrally located with a clear view of the floor? Are bathrooms and break rooms conveniently located?

- **Individual work stations:** Are staff equipped with ergonomically friendly chairs, desks, and computer equipment? Are work stations large enough for staff to keep snacks, humidifiers, and other personal comfort devices? Is the provided technology comfortable (screens large enough, headsets well-fitted, etc.)? Is lighting sufficient and non-distracting?

The project team received a tour of the 911 Center during the time spent on-site and observed call-takers and dispatchers as they worked on the floor. The 911 Center is located in a modern, $125 million state-of-the-art public safety building completed in 2013. In addition to a plethora of impressive energy efficiency and seismic resilience features, the building's design is very well-suited to the needs of the 911 Center:

- Staff work in a comfortable space with excellent lighting and visibility. The dispatch floor is ADA-accessible and compactly arranged without restricting movement or feeling cramped.

- The call-taking and dispatching functions are grouped into pods, which are close enough together that staff can see each other and communicate if needed.

- Supervisors are located at a central post with excellent visibility of the dispatch floor.

- Bathrooms and employee break area are available, wheelchair accessible, and conveniently located to the dispatch floor.

A review of the individual workstation components yields similarly positive results: employees work with technology that minimizes the need for uncomfortable movement (computers, keyboards and mice, headsets) and enjoy large work station desks and ergonomic seating.

In summary, the physical work environment at the 911 Center is excellent. It poses no barriers to effective work, staff heath or morale, or the efficient use of time.

3. PBX Line Operations

The 911 Center received both emergency and non-emergency calls. Non-emergency calls for the Fire Department are routed to Fire/EMS dispatchers, and non-emergency calls for the Police Department (a 7-digit line) are routed to a phone tree. The phone tree's options are the following:

Dial 2 = Reach a SLC PD detective or officer
Dial 3 = Evidence division
Dial 4 = Records, information on an impound, or copy of report
Dial 5 = County jail or check booking status of inmate
Dial 7 = Report non-emergency crime or incident to a dispatcher, or obtain case number

If a caller dials 7, the call goes to the center's call-takers. Call-takers have the capability to queue non-emergency calls in order to prioritize incoming 911 calls, but the non-emergency calls still take a considerable amount of time: in the 12-month period ending at the conclusion of August 2017, a total of 433,786 inbound non-emergency calls were received, totaling 19,132 hours of phone time.

To address this, the 911 center added a private branch exchange (PBX) phone line which receives incoming non-emergency calls for the Police Department. The PBX Operator answers those calls and provides the appropriate assistance to callers. If the PBX operator is busy or unable to answer, the calls go to the phone tree, as they did previously before the PBX line was instituted.

(1) The PBX Line Should be Operated to Minimize Non-Emergency Workload on Call-Takers and Optimize Customer Service.

The PBX line is intended to meet two primary goals:

1) Relieve the workload of call-takers so that they can focus on incoming 911 calls instead of non-emergency requests, as outlined above.

2) Replace the phone tree with a more responsive, personal option. In instances when someone calls the police station's 7-digit line with an emergency, an operator can get them connected to a dispatcher more quickly than a phone tree. And most callers appreciate hearing a human voice when they call, particularly if they have been transferred once or twice already to reach the SLC PD (which is frequently the case).

To meet these two goals, respectively, the staffing and operations of the PBX line should be optimized according to the following pair of principles:

- Answer as many incoming non-emergency calls as possible, minimizing the number that go to the phone tree.

- Provide the best possible customer service possible to callers, answering their questions and addressing their concerns, whenever possible, without transferring them to another division.

(2) The PBX Line Is Not Fulfilling Its Purposes.

Currently, the PBX Operator routes many calls to dispatchers, because many who call the Police Department want to report a non-emergency incident or obtain a case number. Because the PBX Operators cannot perform these duties, requests of this type must be passed along to call-takers and dispatchers. This, however, is counterproductive to both of the position's goals: it feeds another call directly through to the dispatch floor instead of removing it from the call-taker workload, and it results in a call transfer rather than quickly resolving callers' concerns.

(3) Non-Emergency Calls Should Be Answered by Trained and Certified Dispatchers.

In order to meet the goals of the position, PBX Operators would need to be able to take incident reports, check on the status of cases or missing property, transfer callers to the appropriate division or external agency, and generally provide them with the help they need in all non-emergency capacities. This cannot happen currently, because the PBX Operators are not fully certified dispatchers. In order for non-emergency calls to be handled in a way that meets the goals of customer service and 911 call-taker availability, they must be answered by personnel with all the qualifications held by call-takers currently.

With fully certified dispatchers replacing the PBX operators, the key functions of the role can be effectively fulfilled. Incoming non-emergency calls will be answered by live personnel rather than a phone tree, and calls which are currently transferred will instead be handled by the call-taker answering the call, without the need to interfere with incoming 911 call load. Additionally, they will be better prepared to handle instances when callers on the 7-digit line are having an emergency.

When non-emergency call-takers are all busy and unavailable to answer an incoming administrative call, the caller should not be routed to a phone tree. Instead, they should be placed on hold, with a message like the following:

> *"Thank you for calling the Salt Lake City Police Department. If this is an emergency, please hang up and dial 9-1-1. All staff are busy at the moment; the next available representative will take your call. If you know your party's extension, you may dial it at any time. The estimated wait time for your call to be answered is ___ minutes. If you would prefer a call back when a staff member becomes available, press XX now. Thank you for your patience!"*

This will ensure that overflow non-emergency callers do not use the phone tree to reach a dispatcher, which would be counterproductive. It will also allow them to quickly reach their party if they know the correct extension.

Instituting this change will require a number of other changes on the part of the 911 Center:

1) This will require a subset of the call-takers on duty in each shift to be dedicated to incoming non-emergency calls, only taking emergency calls if all the 911 call-

takers are busy and unable to handle them. The number of call-takers needed for non-emergency calls throughout the day is shown in the staffing analysis chapter of this report.

2) This will mean an increase in per-position costs, since trained and certified dispatchers are paid more than a PBX Operator. The $139,500 in annual funding designated for PBX operators at $13.69 per hour should be re-allocated toward certified dispatchers at $15.20 per hour. This may mean that the 911 Center can only have two of these positions instead of three. However, the PBX Operator post has proven difficult to fill (all three are currently vacant) since most staff would prefer the pay increase that comes with being a certified dispatcher, so it is likely that it will be easier to fill two Dispatcher posts than three PBX Operator posts.

3) The use of 911 Center dispatchers to staff the Salt Lake City's Police Department non-emergency line may require an adjustment in cost allocation for the service contract with the City of Sandy, since call-takers working the non-emergency line do not provide service to Sandy residents while they take 7-digit calls for Salt Lake City.

Recommendation #1: The 911 Center should eliminate the PBX Operator job classification position and instead use trained and certified dispatchers to handle incoming non-emergency call volume.

4. CAD/RMS Functionality

The 911 Center's current CAD system, Versadex, includes mobile access for emergency personnel in the field. In addition to receiving dispatch instructions over the radio, law enforcement officers are able to view the details of a CAD case on their vehicle-mounted screens in order to gather as much information as possible.

When asked about the reliability of the system and the level of service it enables them to provide, employees of the 911 Center gave very positive responses. On a scale of 1-4, with 1 being poor and 4 being excellent, the vast majority of respondents rated Versadex as a 3 or 4. See the following:

Employees Rated Versadex CAD/RMS
Highly in Terms of Reliability and Service Level

System	4	3	2	1
Versadex CAD - Reliability	**23%**	**56%**	**14%**	**7%**
Versadex CAD - Service Level	**24%**	**59%**	**11%**	**6%**
Versadex RMS - Reliability	**28%**	**58%**	**11%**	**4%**
Versadex RMS - Service Level	**28%**	**52%**	**17%**	**4%**

One issue with the system exists with the visibility currently afforded to field staff: law enforcement officers are not able to view fire and EMS calls in their mobile Versadex display, and vice versa. Each agency has access only to the CAD cases generated for their agency, and the two are not integrated to provide visibility between the fire and police departments. Because active officers in the patrol division are frequently called upon to provide support to fire and EMS units, allowing field officers to see the nature of calls as they occur is beneficial to allow them to arrive on scene as quickly as possible to stabilize citizens in need of medical attention or ensure traffic access for fire engines and apparatus.

As the 911 Center moves toward the implementation of a new CAD/RMS system, this issue should be addressed so that patrol staff are able to view Fire/EMS calls in real time and optimize the support they provide.

Recommendation #2: The 911 Bureau should ensure that the Center's new CAD/RMS allows patrol officers to view Fire/EMS calls as they occur in order to optimize the level of support they provide.

5. Priority Dispatch Software

During the course of the study, indeed one of the major initial impetuses for the engagement, is the use of Priority Dispatch (ProQA) software used during the call-taking process for fire, emergency medical, and police call for service contacts.

During our interview process, and reiterated during Steering Committee sessions, some dispatch staff and many (patrol) field staff believe that the Priority Dispatch ProQA system hinders the level of service that the Center is able to provide to officers in the field and by association the emergency requestor. Those who hold this sentiment believe that the rigidity of ProQA inhibits call-takers' ability to interact with callers using common sense, quickly obtain and relay the most vital information, and correctly determine the level of priority for calls.

These qualitative observations and further supported by confidential survey information completed by the four public safety customers to the 911 Bureau. Based upon an open-ended question of issues, the following table shows the most common response themes by responding agency. This table demonstrates ProQA is an important issue for police agencies.

SLC FD	SLC PD	SANDY FD	SANDY PD
Technology	ProQA	Coordination between PSAPs	Dispatch information
Call coding system	Dispatch information	Data tracking	Distinction between agencies
Dispatch information	Efficient dispatching	Dispatch information	Accuracy
Employee turnover	Understanding of field ops	Automated "Siri" Voice	ProQA
Channel assignments	Agency of dispatchers	Technology	Understanding of field ops
Attitude of Improvement	Staffing	Training	
Automated "Siri" Voice			

Moreover, in the confidential employee survey, we asked respondents to rate each of the primary technology systems in use by the 911 Center in terms of the level of service they allow and the reliability of the system. Ratings were given on a scale of 1-4, with 4 being excellent. The table below shows how employees rated each system. Notably, Priority Dispatch ProQA received a poor score.

System	4	3	2	1
Versadex CAD - Reliability	**23%**	**56%**	**14%**	**7%**
Versadex CAD - Service Level	**24%**	**59%**	**11%**	**6%**

Versadex RMS - Reliability	**28%**	**58%**	**11%**	**4%**
Versadex RMS - Service Level	**28%**	**52%**	**17%**	**4%**
Priority Dispatch ProQA - Reliability	**18%**	**38%**	**25%**	**18%**
Priority Dispatch ProQA - Service Level	**17%**	**28%**	**28%**	**26%**
Intrado Phone System - Reliability	**16%**	**25%**	**30%**	**29%**
Intrado Phone System - Service Level	**10%**	**29%**	**27%**	**35%**
Motorola Radios - Reliability	**42%**	**38%**	**15%**	**6%**
Motorola Radios - Service Level	**39%**	**37%**	**18%**	**6%**

These ProQA observations by Center staff and their internal customers might suggest a potential impediment to service delivery, but this is not the case when dealing with the emergency callers. Indeed, positive responses from external customers suggest that the ProQA software is not an issue with respect to 911 call-taker performance as evidenced by the following responses:

- According to the survey of 911 service requestors, 90% strongly agreed or agreed that the 911 call-taker was knowledgeable; only 4% disagreed.

- According to the survey of 911 service requestors, 92% strongly agreed or agreed that the 911 call-taker asked relevant and appropriate questions. This reflects directly on the ProQA script-based software. Only 4% disagreed.

Finally, the ProQA software does not appear to be an impediment related to internal processing. The time elapsed between a call being taken and sent to a dispatcher for processing is, on average, minimal, and consistent with best practice guidelines. The following table demonstrates such elapsed time.

Median Number of Seconds Before Call Information Sent to Dispatcher

	CALL RECEIVED to QUEUE (seconds)
Police	41
Fire	30
Medical	32

Whereas many public safety service providers are not proponents of the ProQA software, this perception does not translate into a customer service issue for the customer requesting emergency services.

The Center has understood some of the perceptions associated with the ProQA implementation and as such has modified certain quality control and quality assurance approaches related to this software. Recently, the 911 Bureau has provided the department with Standard Operating Guidelines that gives call takers the ability to alter the script as long as they still obtain the necessary information from the call. They are required to listen to the caller and are only given lower compliance scores when they have to re-ask obvious questions.

In summary, the standardization of call-taking protocols have been commonplace for years in the fire and emergency medical dispatch field and is now becoming more prevalent in the law enforcement field. As such, irrespective of the vendor software used, the 911 Bureau should continue to use standardized script questioning approaches, whether or not the ProQA software is the vendor of choice. Consistent with this, on-going training should be provided to ensure consistent use of the product.

Recommendation #3: The 911 Bureau should continue to use script-based software, such as ProQA, to help ensure consistent questioning of 911 callers and support the optimization of customer service. Initial and on-going refresher training should be provided on such software, with expectations of call-takers clearly delineated as part of the quality assurance and quality control process, to help facilitate the best call-taking experience.

6. Radio Functionality

The 911 Center's radio system is used by dispatchers to communicate with public safety responders in the field. Dispatch pods are equipped with Motorola consoles as well as a backup switchboard. Police dispatchers primarily use two channels for Salt Lake City and one for Sandy, while Fire/EMS dispatchers use one main channel for Salt Lake City and one for Sandy. A service channel is also staffed at all times.

In addition to the Salt Lake City and Sandy public safety channels, the 911 Center also monitors a shared Salt Lake metro area inter-agency channel, as well as a Salt Lake Regional radio channel operated by the State highway Patrol.

When asked about the reliability of the 911 Center's radio equipment and the level of service it enables them to provide, employees of the 911 Center gave very positive responses. On a scale of 1-4, with 1 being poor and 4 being excellent, the vast majority of respondents rated the current equipment as a 3 or 4. See the following:

Employees Rated the Motorola Radio Equipment Highly in Terms of Reliability and Service Level

System	4	3	2	1
Motorola Radios - Reliability	**42%**	**38%**	**15%**	**6%**
Motorola Radios - Service Level	**39%**	**37%**	**18%**	**6%**

The radio technology and configuration in use by the 911 Center meets the needs of the agency and its public safety partners. It allows dispatchers to communicate clearly and efficiently with field staff, utilize tactical channels as necessary, and monitor activity throughout the region. Police and Fire agencies raised no complaints about the radios, and staff rate them highly. The project team sees this as a strength, and no recommendation is made regarding this technology.

3 Staffing

The following chapter represents the project team's assessment of staffing needs at the 911 Center, including a quantitative analysis of dispatch and call-taking personnel, supervisory staff, and support positions. It also includes considerations related to overtime utilization, personnel leave, and employee turnover.

1. Dispatch and Call-Taker Staffing Analysis

The following section of this chapter analyzes the staffing needs for Call-takers and Police and Fire/EMS dispatchers in light of the 911 Center's workload volume. Call volume, radio, and CAD data provided by the 911 Center are utilized to determine the number of positions needed in each pod, hour by hour. Additionally, our quantitative models account for employee leave and turnover rates to produce a calculation of the number of positions needed to meet daily staffing needs. Expanded explanation of the staffing models can be found in Appendix E.

(1) The 911 Center's Current Schedule Requires 79.5 Filled Positions to Staff.

The following table, provided by the 911 Center to the project team, show the number of staff assigned to Police dispatch, Fire/EMS dispatch, and call-taking throughout the week. These are known as fixed post positions, since they are intended to be occupied irrespective of workload.

Hours		Sun	Mon	Tue	Wed	Thu	Fri	Sat
7-11	PD	3	4	4	4	4	4	4
	FD	4	4	4	4	4	4	4
	CT	4	5	5	5	5	5	4
	Total	**11**	**13**	**13**	**13**	**13**	**13**	**12**
11-15	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	5	7	7	7	7	7	6
	Total	**14**	**16**	**16**	**16**	**16**	**16**	**15**
15-17	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	8	8	9	9	9	9	8
	Total	**17**	**17**	**18**	**18**	**18**	**18**	**17**
17-19	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4

Hours		Sun	Mon	Tue	Wed	Thu	Fri	Sat
	CT	6	6	7	7	7	7	6
	Total	**15**	**15**	**16**	**16**	**16**	**16**	**15**
19-23	PD	4	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	6	6	6	6	6	8	7
	Total	**14**	**15**	**15**	**15**	**15**	**17**	**16**
23-03	PD	4	4	4	4	4	4	4
	FD	4	4	4	4	4	4	4
	CT	4	4	4	4	4	5	5
	Total	**12**	**12**	**12**	**12**	**12**	**13**	**13**
03-07	PD	3	3	3	3	3	3	3
	FD	4	4	4	4	4	4	4
	CT	3	3	3	3	3	3	3
	Total	**10**	**10**	**10**	**10**	**10**	**10**	**10**

This schedule results in a total of 2,304 hours per week of fixed-post staffing which must be filled; 1,632 hours for police dispatchers and call-takers, and 672 hours for Fire/EMS positions. Multiplied by the 52.14 weeks in each year, this equates to 120,131 fixed-post hours per year which must be filled. Given the net availability of staff (see Appendix E), this will require 79.5 filled positions, which would be an increase of 6% from the current allocation of 75 positions.

(2) Dispatch Workload Necessitates 15 Fire/EMS Dispatchers and 25 Law Enforcement Dispatchers.

The project team uses a staffing model known as the APCO RETAINS model to determine the number of staff needed for a given workload volume. The model accounts for time spent processing calls on the telephone, over the radio and in the CAD system. It also accounts for net availability. This calculation has been applied to each hour of the day and day of the week in the following tables. These tables show the number of dispatchers needed at a 50% agent occupancy rate, as outlined in Appendix E.

FIRE/EMS

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	2	2	2	2	2	2	2
1	2	1	1	2	2	2	2
2	1	1	1	1	2	2	2
3	1	1	1	1	1	2	2
4	1	1	1	1	1	1	2
5	1	1	1	1	1	1	1
6	2	2	2	2	2	2	2
7	2	2	2	2	2	2	2
8	3	2	3	2	3	2	2
9	3	3	3	3	3	2	2
10	3	3	3	3	3	3	2
11	3	3	3	3	3	3	2
12p	3	3	3	3	4	3	2
13	3	4	4	3	4	4	3
14	3	3	3	4	3	3	2
15	3	3	4	3	4	3	3
16	3	4	4	4	3	3	3
17	3	3	3	4	4	3	3
18	3	3	3	3	3	3	3
19	3	3	4	3	3	3	3
20	3	3	3	3	3	3	3
21	3	3	3	3	3	3	3
22	2	3	3	3	3	3	2
23	2	3	2	2	2	3	2

POLICE

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	3	3	3	4	4	5	6
1	3	3	3	3	4	5	6
2	3	2	2	2	3	4	4
3	2	2	2	2	2	3	3
4	2	2	2	2	2	2	3
5	2	2	2	2	2	2	2
6	3	2	3	3	3	2	2
7	3	4	4	4	4	3	3
8	4	4	5	5	5	4	3
9	5	5	5	5	5	4	3
10	5	5	5	5	5	4	4
11	5	5	5	5	5	5	4
12p	5	5	5	5	5	4	4
13	5	5	5	5	5	4	4
14	5	5	5	5	5	4	4
15	6	6	5	5	5	5	4
16	6	6	6	6	6	5	5
17	6	6	6	6	6	6	5
18	5	6	5	5	5	5	5
19	5	5	5	5	5	5	5
20	5	5	5	5	5	5	4
21	5	5	5	5	5	5	5
22	5	6	5	6	6	6	5
23	4	5	5	5	6	6	5

- The model above takes into account the various elements of dispatcher workload (radio, phone, CAD, refresh time, etc.) and ensures that the agent occupancy rate does not exceed 50% in any hour of the week (in most cases, the occupancy rate falls far below that level).

- The model's results require significantly fewer dispatcher hours per week than the current staffing model in use; the model above produces a total of **723 Police dispatch hours per week and 421 Fire/EMS dispatch hours per week**, a total decrease of 148 hours per week.

- While a number of factors (the logistics of shift staffing, the need for dispatchers on dedicated channels, or a policy to always have more than one dispatcher available in each pod) may prevent the 911 Center from aligning dispatch levels to

the level outlined in this model, it should be used as a baseline for the number of dispatchers needed throughout the week.

The following table shows the number of filled and authorized positions which are required, based on the net availability and current average turnover rates of staff, to meet the staffing requirements provided by the model.

	Police	Fire/EMS
Total Dispatch Hours Per Week	723	421
Total Dispatch Hours Per Year	37,726	21,968
Annual Net Availability	1,519	1,493
Total Filled Positions Needed	**24.8**	**14.7**
Turnover Rate Per Year	22%	22%
Total Authorized Positions Needed	**31.7**	**18.9**

As the table shows, the 911 Center's staffing should accommodate the need for 14.7 Fire/EMS dispatchers and 24.8 Police dispatcher/call-takers, both at a 22% average annual turnover rate. This would result in 18.9 Fire/EMS dispatchers and 31.7 Police Dispatcher/Call-Takers.

(3) Incoming Phone Call Volume Necessitates 37 Staff to Handle Emergency and Non-Emergency Calls.

The ability to quickly answer the phone is absolutely vital to any 911 operation. Based on data provided by the project team, the following tables show the rate of 911 and non-emergency calls per hour for each hour of the week.

Emergency Calls Per Hour

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	11.3	10.2	10.5	11.7	12.7	19.0	22.1
1a	9.4	9.6	9.2	9.1	10.6	17.9	20.6
2a	7.0	7.1	7.2	7.9	9.4	13.1	15.3
3a	6.8	6.6	6.4	7.3	7.0	9.6	10.9
4a	6.8	6.4	7.2	7.1	6.8	7.2	9.0
5a	7.7	7.2	7.1	6.6	8.1	6.6	8.8
6a	10.1	10.7	10.0	9.3	10.4	7.2	8.4
7a	15.0	15.9	14.3	14.5	14.5	9.4	8.9
8a	19.0	18.8	18.4	20.0	20.5	13.3	11.2
9a	21.3	21.7	21.7	21.3	20.3	19.4	13.1
10a	22.0	22.7	23.1	22.8	23.1	20.6	17.6
11a	24.6	24.6	24.0	24.2	25.7	22.8	18.2
12p	24.0	25.3	25.5	25.0	28.3	26.5	20.0
1p	26.1	27.2	30.3	27.3	28.1	27.1	20.7
2p	27.1	29.0	28.0	28.4	32.3	28.5	21.5
3p	30.8	29.4	32.9	32.6	36.4	26.1	22.7
4p	29.3	31.8	33.0	29.2	30.4	24.6	21.0
5p	28.7	30.9	34.5	32.7	32.4	27.7	22.1
6p	26.4	27.9	30.8	28.6	30.9	28.4	20.5
7p	23.1	24.4	24.5	24.7	27.2	25.6	22.1
8p	21.9	21.1	25.0	25.8	24.7	25.3	21.0
9p	21.1	23.8	21.9	22.7	27.1	24.2	19.8
10p	17.5	19.2	19.1	20.2	23.6	26.8	18.1
11p	14.5	14.9	14.5	17.6	20.3	23.6	13.1

Non-Emergency Calls Per Hour

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	21.6	22.6	23.6	23.4	27.4	36.5	34.9
1a	17.2	18.5	19.7	19.2	22.0	30.5	29.2
2a	13.7	13.9	15.3	14.3	17.3	21.8	23.7
3a	10.5	10.8	12.3	13.1	12.5	15.1	18.0
4a	10.8	9.7	11.3	11.3	12.1	12.8	15.1
5a	14.8	12.5	13.1	13.5	14.5	13.0	13.3
6a	21.9	21.5	22.2	23.9	20.8	15.7	12.3
7a	40.7	43.1	42.4	41.0	38.3	25.6	19.1
8a	65.6	64.3	59.9	64.5	60.9	41.7	31.5
9a	76.5	74.3	74.9	73.9	72.6	52.1	38.3
10a	78.8	77.8	75.3	73.8	74.4	58.8	43.1
11a	79.9	78.1	77.7	72.3	77.4	63.5	47.9
12p	73.5	74.4	81.4	74.5	77.3	65.5	50.3
1p	84.7	85.0	89.0	85.5	82.9	69.2	49.9
2p	89.7	89.6	93.5	83.6	86.4	67.0	49.6
3p	94.6	98.2	99.2	89.9	88.9	64.8	49.4
4p	91.3	99.3	93.9	90.7	88.4	59.9	47.6
5p	81.2	84.3	86.1	82.9	81.8	55.2	45.4
6p	64.6	69.6	69.0	68.6	68.1	51.6	43.3
7p	57.4	61.4	62.0	59.8	60.2	50.1	44.5
8p	49.4	51.8	56.3	58.1	52.5	50.2	42.3
9p	47.7	48.2	51.1	52.5	54.2	49.4	40.1
10p	38.8	43.3	44.2	46.4	52.7	47.6	36.8
11p	27.2	31.2	32.9	36.3	43.2	44.4	28.7

As the table shows, call volume for both emergency and non-emergency calls fluctuates throughout the week, peaking during weekday afternoons. These call volume tables are used to calculate the number of call-takers needed.

- The Erlang staffing model (see Appendix E for more information) relies on the volume of incoming calls per hour as a baseline from which to calculate necessary staffing. Accounting for the volume of calls and the average duration of calls (133 seconds at SLC911), it ensures that enough staff are present to meet the Agency's standard of service. This requires that 95% of emergency calls be answered within 10 seconds, and 99% of calls answered within 40 seconds.
- The model also provides enough staff to handle incoming non-emergency call volume, in replacement of the PBX Operator positions which we have recommended for elimination.

- Additionally, the model's results ensure that call-takers under this model can typically expect to have at least 23 minutes free in each hour of the week to decompress, make outbound calls, and take care of tasks other than receiving incoming calls.

The results of the model are shown in the following table:

Call-Taker Staffing – Emergency and Non-Emergency Combined

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	4	4	5	5	5	6	6
1a	4	4	4	4	4	6	6
2a	4	4	4	4	4	4	6
3a	4	4	4	4	4	4	4
4a	4	4	4	4	4	4	4
5a	4	4	4	4	4	4	4
6a	4	4	4	5	4	4	4
7a	5	6	5	5	5	5	4
8a	7	7	7	7	7	5	5
9a	8	8	8	8	8	7	5
10a	8	8	8	8	8	7	6
11a	8	8	8	8	8	7	7
12p	8	8	8	8	8	7	7
1p	8	8	9	8	8	8	7
2p	8	9	9	8	9	8	7
3p	10	10	10	9	9	7	7
4p	10	10	10	10	9	7	7
5p	9	9	9	9	9	7	7
6p	7	8	9	9	9	7	6
7p	7	7	7	7	7	7	6
8p	7	7	7	7	7	7	6
9p	7	7	7	7	7	7	6
10p	6	6	6	7	7	7	6
11p	5	5	5	6	6	6	5

Based on the model above, a weekly total of 1,083 call-taker hours are needed to provide required service levels. Given the existing call-taker staffing levels of 912 hours per week, this represents an increase of 171 hours per week, or 19%.

The following table shows the filled and authorized positions which will be needed to staff call-taking positions at the optimal level according to the model's results, based on the net availability and current turnover rates of staff.

	Call-Takers
Total Call-Taker Hours Per Week	1,083
Total Call-Taker Hours Per Year	56,468
Annual Net Availability	1,519
Total Filled Positions Needed	**37.2**
Turnover Rate Per Year	22%
Total Authorized Positions Needed	**47.7**

As the table shows, this results in a total of 37.2 positions which should be filled, and 47.7 positions which should be authorized to account for staff turnover.

(4) The 911 Center Has Nearly Enough Staff Currently to Meet Workload Demand, and Should Authorize Additional Positions to Account for Turnover.

The following table provides a summary of the current schedule's hourly staffing needs, as well as the results of our modeling for hourly staffing and total filled and authorized positions for each position.

	Current	Proposed	Percent Change
Weekly Hours	**2,304**	**2,227**	**-3.3%**
Police Dispatch	720	723	0.4%
Fire/EMS Dispatch	672	421	-37.4%
Call-Taker	912	1,083	18.8%
Filled Positions	**74.0**	**76.7**	**3.6%**
Police Dispatch/Call-Taker	54.0	62.0	14.8%
Fire/EMS Dispatch	20.0	14.7	-26.5%
Authorized Positions	**75.0**	**98.3[2]**	**31.2%**
Police Dispatch/Call-Taker	55.0	79.4	44.5%
Fire/EMS Dispatch	20.0	18.9	-5.5%

The following points are relevant regarding this table and call-taker and dispatcher staffing analysis at a broad level:

- The proposed 76.7 filled positions can meet the proposed weekly workload of 2,227 total scheduled hours while working 1,513 hours per year, which is in line with historical leave utilization rates for the agency.

- The agency's current authorized dispatcher staffing of 75 positions (74 of which are filled) is very close to the recommended figure of 76.7 staff required to accommodate existing workloads.

- The proposed authorized strength of 98.3 positions considers the rate of staff turnover over the last three years, which averages 22% annually. This ensures that the agency can hire and train new staff to replace departed employees without an unsustainable increase in workload.

- If the 911 Center finds that improved training methodologies allow new staff to become available over a 6-month cycle rather than a full year, then a turnover rate of 11% could be used to project authorized strength thereby reducing the 98 authorized staff positions recommended.

The hourly rate for a new dispatcher is $15.20 per hour. Applying the average benefits rate of 42% and 7.65% FICA to that rate at 2,080 hours per year results in an annual cost of about $47,500 for each new hire. Increasing from 74 existing to 77 (76.7) positions

[2] 47.7 authorized call-taking staff + 31.7 authorized police dispatch staff + 18.9 authorized fire/EMS staff based on workloads as shown in prior tables.

required for workload would result in an estimated expenditure of $142,500. The recommended increase in authorized positions to 98 would not impact real expenditures, since it is anticipated that only 77 would be filled at a given time as a consequence of on-going staff turnover. In effect, the authorized staffing level allows for effective continuous recruitment without concern for reaching a staff "ceiling."

Recommendation 4: The 911 Center should authorize 98 Dispatcher/Call-Taker positions to meet staffing needs for both emergency and non-emergency call volume, which includes the PBX workstation, while accounting for 22% annual turnover.

Recommendation 5: The 911 Center should increase the number of authorized Police Dispatcher/Call-Taker positions to 79.

Recommendation 6: The 911 Center should reduce authorized Fire/EMS Dispatcher/Call-Taker positions to 19.

2. Supervisory Staffing

The 911 Center's policy for supervisory staffing is to have one supervisor on the floor throughout the day, with an additional supervisor for six hours during peak volume. Supervisors oversee line staff, troubleshoot issues when possible, and fill in as call-takers or dispatchers as necessary. Currently, the Bureau has ten full-time filled Supervisor positions. The project team's evaluation of supervisor staffing needs is contained in the bullet points and table:

- To meet the fixed supervisor posts requirements, 30 hours per day must be filled (a full 24-hour day at one post, with 25% of a day [6 hours] at an additional post). This results in a total of 10,950 supervisor hours which must be worked each year.

- Given the annual net availability of 1,519 hours, a total of 7.2 filled supervisor positions will be required to meet this workload.

- Turnover could influence staffing levels of supervisors as with other line positions. However, given these could be filled almost immediately through promotion, a turnover factor is not considered here.

TITLE	TITLE
Hours Per Year	8,760
Supervisor Posts	1.25
Annual Supervisor Hours	**10,950**
Net Availability	1,519
Filled Supervisor Positions	**7.2**

Based on these calculations, the 911 Center only needs to fill 7.2 Supervisor positions to meet their staffing requirements. Since one supervisor has significant administrative duties, the figure should be rounded up to eight, which represents a marked decrease from the current ten supervisors. While the Bureau may decide that ten supervisors are preferred, this number is not be necessary to ensure minimum supervisory staffing levels are met.

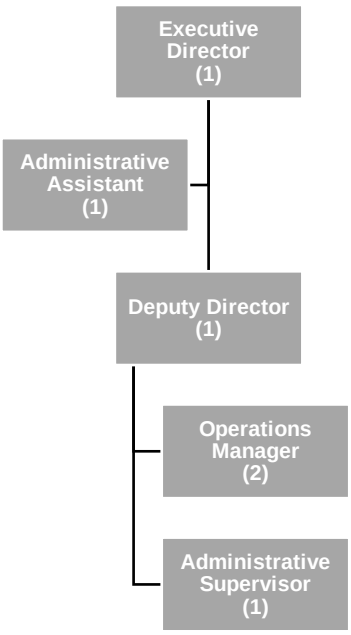
Supervisors at the salary midpoint make $29.34 per hour. Adding the agency average 42% benefits and 7.65% FICA rate to an assumed 2,080 hours per year at the midpoint wage yields about $91,500 per employee. The reduction of two supervisor positions will thus result in savings of about $183,000.

Recommendation 7: The 911 Center should eliminate two Supervisor positions by promotion or attrition, bringing the total to 8. One of these supervisors will still be an Administrative Supervisor.

3. Management and Support Staffing

The managerial and supporting positions for the 911 Bureau are composed of six positions as reflected in the organizational structure below.

Managerial and Support Staff Positions and Reporting Relationship



The roles and responsibilities of these staff as reflected in the profile in the appendix of this report, and the number of staff dedicated to such efforts, is consistent with common practice in agencies of this size. At issue is the reporting relationships, which are discussed in a section dedicated to organizational structure later in this report. In summary, no changes to the number of management and support staffing positions are recommended.

Recommendation 8: Maintain management and support staffing in the 911 Bureau consisting of 1 Executive Director, 1 Deputy Director, 1 Administrative Assistant, 1 Administrative Supervisor and 2 Operations Managers for a total of 6 positions of these classifications.

4. Overtime Utilization

The project team reviewed overtime data made available by staff to determine the cost of overtime and evaluate whether the current overtime practices are efficient as opposed to hiring more full-time staff.

(1) Overtime Considerations

Overtime analysis involves balancing the needs of the agency, its employees, and its customers. This must be done in a way that ensures the risk of insufficient staffing or employee burnout is minimized to with an acceptable level. In determining whether overtime is used in an appropriate and cost-effective manner, a series of considerations must be made. These are:

- Is current overtime utilization reasonable? Some overtime can reasonably be expected in shift-based professions such as dispatching, and many staff look forward to overtime as an opportunity to increase their income. When overtime rises to exceed 10% of salary, however, the risk of burnout becomes unjustifiable.

- Are the major causes of overtime appropriate? For example, an agency which plans to offer a certain level of overtime and does so acts appropriately, as opposed to an agency which is forced into unforeseen or mandatory overtime due to excessive staff turnover, poor scheduling, or personnel absences.

- What is the incremental cost of overtime, and how does it compare to the incremental cost of regular time for a full-time employee?

Based on these considerations, it can be determined whether overtime is cost effective and optimally balanced compared to existing staffing levels.

(2) Overtime Utilization is Within Control, and Mandatory Overtime Has Been Reduced Dramatically.

The following table shows the agency's total volume of overtime and mandatory overtime (in hours) in each of the last three years, as well as in 2018 until July 24th.

Year	Overtime	Mandatory OT
2015	11,600	1,881
2016	13,131	1,239
2017	11,351	1,042
2018	10,327	26

Overtime utilization as a whole has dropped over the last three years, with the 10,327 hours in 2018 marking a 21% drop from the 2016 high. More striking, however, is the drastic reduction – nearly complete elimination – of mandatory overtime in 2018. This is due to a change in policy which sought to limit the use of mandatory overtime by having

on-duty supervisors cover missed shifts rather than forcing overtime. From the total of 26 mandatory overtime hours worked in 2018, it is clear that the policy was effective. Based on these figures, the use of overtime at the 911 Center appears to be appropriate and within the agency's control.

(3) Overtime Analysis Suggests that the 911 Center's 2018 Overtime Utilization Presents an Effective Ongoing Policy.

In analyzing whether overtime utilization levels are reasonable, the cost of both overtime and non-overtime personnel expenditures must be accounted for in order to determine a) whether the cost of overtime composes an outsized proportion of overall personnel spending, and b) how the incremental costs of overtime and regular time compare.

The following table shows key salary, overtime, and benefit expenditures from budget data provided by the 911 Center for 2017. Total salaries amounted to $3,990,254 and total benefits amounted to $1,677,053, for a benefit rate of 42.0%.

Expenditure Line Item		Amount
Personnel Salaries - All Staff	$	3,990,254
Overtime Expenditures - All Staff	$	461,002
Personnel Salaries - Operations Staff Only	$	3,061,463
Overtime Expenditures - Operations Staff Only	$	439,435
Total Benefits - Retirement, Insurance, 401k, Etc.	$	1,677,053
Total Benefit Rate on Personnel Salaries		**42.0%**

With 67 operations staff employed at the 911 Center in 2017, and 2,080 hours paid for each employee, the average annual salary amounts to $45,693, an hourly rate of $21.97. See the following table:

Personnel Salaries - Operations Staff Only	$	3,061,463
2017 Operations Staff		67
Average Annual Salary	**$**	**45,693**
Annual Hours Scheduled		2,080
Base Hourly Rate	**$**	**21.97**

With this information, a calculation can be made to determine the incremental cost of each hour of straight time and overtime.

- **Straight time** involves the Base Hourly Rate with benefits and FICA contributions added to achieve a fully burdened hourly rate. This is not the full cost of an hour

worked, however; because of scheduled and unscheduled leave, an employee will get paid their full salary but will not work 2,080 hours per year. By example, operations staff at the 911 Bureau average about 1,519 work hours per year (their Net Availability), and the remaining hours must be covered when they are absent. Therefore, the cost to cover one FTE of 2,808 hours exceeds the cost of salary and benefits alone.

- **Overtime** multiplies the Base Hourly Rate by the overtime rate of 1.5, with FICA contributions added (since these costs accrue based on wages earned) but not additional benefits (since insurance, retirement, and other benefits are accrued irrespective of overtime earnings).

The following table shows the incremental costs of straight time and overtime.

	Straight Time		Overtime
Hourly Rate (Overtime rate is 1.5 regular time)	$ 21.97	$	32.95
Benefit Cost (42.0%)	$ 9.23	$	-
FICA Contribution (7.65%)	$ 1.68	$	2.52
Fully Burdened Hourly Rate	**$ 32.88**	**$**	**35.47**
Net Availability (1,519 hrs) as % of 2,080 Scheduled Hours	73%		
Incremental Cost Per Hour Worked	**$ 45.03**	**$**	**35.47**

As the table shows, the incremental cost of overtime is significantly (21%) less than the incremental cost of straight time. This suggests that the Bureau is best served fiscally by using overtime as much as possible, up to a reasonable level.

The following table is compiled using data provided by the 911 Center. It shows overtime expenditures for operations staff over the last three years compared to salary expenditures for operations staff during those years.

Year	OT Paid	Ops Salaries	Total Wages	OT Paid as % of Total Wages
2015	$ 664,055	$2,583,127	$3,247,182	**20%**
2016	$ 491,490	$2,759,603	$3,251,093	**15%**
2017	$ 439,435	$3,061,463	$3,500,898	**13%**

As the table shows, overtime wages have exceeded 10% of total wages in each of the last three years, although that trend is diminishing. The following table shows the maximum amount of annual overtime which should be offered in order to achieve overtime expenditures that compose less than 10% of base salary expenditures, assuming that overtime wages average $33 per hour (rounded from the $32.95 in the calculations prior), and that base Operations staff salaries total $3.2 million without overtime.

Base Salaries	$3,200,000
Target Overtime % of Total Wages	10%
Target Total Wages	$3,555,556
Target Overtime Wages	$ 355,556
Overtime Base Hourly Rate	$ 33.00
Target Overtime Hours	**10,774**

The 911 Bureau should seek to use overtime, as previously stated, but keep overtime within reasonable limits.

- This figure of 10,774 hours would be reasonable under budgeted personnel salaries of $3.2 million, which is aligned with the likely trend of recent years.

- This figure of 10,774 hours would result in 140 hours of annual overtime for each dispatcher if the recommended staffing levels of 77 total dispatchers and call-takers are implemented.

The agency worked 10,353 total hours of overtime in 2018, suggesting that overtime has likely been reined in to reasonable levels. The Bureau should monitor overtime utilization and seek to keep it within this range over the coming years.

Recommendation 9: The 911 Center should use overtime at similar levels to 2018, minimizing mandatory overtime while offering voluntary overtime up to a reasonable limit of about 10,500 hours per year.

4 Management and Oversight

The following chapter represents the project team's analysis of management practices and the oversight and governance structure of the 911 Center, including the involvement of stakeholders, the Bureau's organizational structure, the management of service contracts and associated cost allocations, and various aspects of strategic planning including public education, recruitment, and retention.

1. Oversight Mechanisms

In order to help facilitate the executive management of the 911 Bureau, a committee of three executive managers, to include the SLC911 Executive Director, Police Chief and Fire Chief, reports directly to the Mayor's Chief of Staff. While these positions are equivalent as they are all department-heads, based on information provided they appear to operate where the Executive Director is essentially subordinate to her public safety chief "customers." This situation has likely been exacerbated by the fact the Bureau has a long history of reporting to different public safety functions in the City, as opposed to being its own independent department.

With respect to effective oversight of emergency and non-emergency communications delivery, all parties reporting to the Mayor's Office should be perceived and interacted with as equivalent executives. No "department-head" should be placed in an actual or perceived role as subordinate to another. Re-framing the committee with this dynamic will potentially shift decision-making, giving the 911 Bureau Executive Director equal authority and gravitas in delivering the best public safety product possible.

Recommendation 10: Ensure the public safety committee composed of the police and fire chiefs and 911 Bureau Director all report directly to the Mayor's Chief of Staff. No position in this committee should be subordinate to others vis-à-vis decision-making authority.

2. Organizational Structure

The following section explores the 911 Bureau's organizational structure, examining its benefits and drawbacks for optimizing performance, and analyzing its compliance with professionally accepted concepts such as: unity of command; span of control; and the logical grouping of activities, functions, and organizational components. The current state of the organization is considered, and recommendations are offered for improving its structure to better support the activities of the Bureau.

(1) Guiding Principles for Organizational Structures

The purpose of an organizational structure is not only to provide the traditional command and control of an agency, but also to help define job duties and responsibilities, ensure efficient and effective workflow, establish a reporting hierarchy, and ultimately determine appropriate lines of authority and accountability. To accomplish this, the design of an organizational structure and placement of employees within the organization should be established on general principles that provide the organizational cohesion necessary to accomplish the primary mission of the agency, in this case, the 911 Bureau. These organizational principles include:

- **Responsibility & Authority:** A structure must have clear lines of responsibility to accomplish the mission and goals of the organization; and the authority within the organization to manage assigned operations to accomplish the organizational mission and stated goals.

- **Accountability:** A structure that provides clear lines of accountability among management and supervisory staff. While this is highly dependent upon the individuals assigned to the functions, the organizational structure itself should facilitate, and not impede, general supervision of employees and the daily performance of an organization.

- **Complementary Functions:** Like functions are grouped together to support regular interaction for planning and scheduling approaches and for effective service delivery.

- **Coordination of Work Efforts:** The organizational structure should facilitate communication and working relationships among staff and work units. Many functions need close or indirect alignment in order to maximize efficiency and effectiveness. The structure should also provide easy identification of job function to people outside the organization, including other government partners and user agencies.

- **Degree of Organizational Risk:** This relates to how much risk a function incurs if an activity is not performed or is performed poorly. Risk might involve operations, consequence of error, or service level concerns. Generally, higher risk functions have closer management oversight.

- **Degree of Public Scrutiny:** This factor is concerned with the degree to which public attention is routinely paid to a given activity. Activities with potentially high

public scrutiny, such as a communications center, are best performed under closer supervision.

- **Supervisor & Management Span of Control:** This relates to whether supervisors are fully devoted to overseeing a select few primary activities or a broader set of duties and responsibilities. Appropriate spans of control are related to both the number of staff directly supervised as well as the complexity of activities overseen.

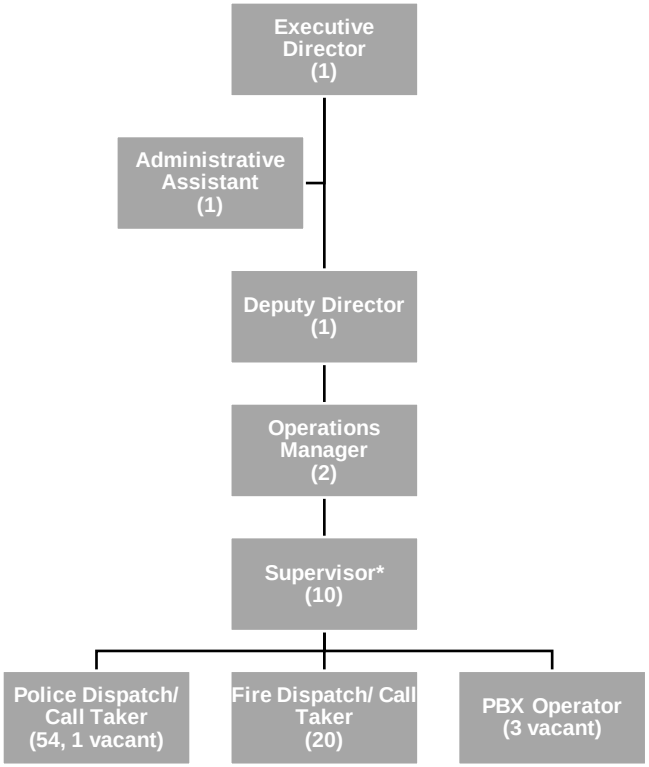
- **Degree of Centralization:** The geographic or physical dispersal of functions also relates to supervisory and management requirements – the greater the level of physical decentralization, the greater the number of managers and/or supervisors are generally required.

The following sections evaluate the 911 Center's organizational structure in light of these guiding principles.

(2) Summary of Current Organizational Structure

The following organizational chart has been developed to reflect the existing chain of command in the organization; it is shown here:

Current Organizational Structure



*includes operations (9) and administrative (1) supervisors.

As the chart shows, the Bureau is currently led by an Executive Director who oversees the activities of the Deputy Director. This Deputy Director oversees the Operations Managers who supervise the activities of the dispatch floor, as well as the Administrative Supervisor who manages training, recruitment, and the professional activities of the Center not related to call-taking and dispatch operations.

(3) Strengths of Current Structure

The existing organizational structure exhibits a number of strengths which allow for effective accountability, coordination of effort, and risk management in accordance with the previously outlined guiding principles:

- The span of control at the Operations Manager level is 4.5 (two Operations Managers overseeing 9 Supervisors). This level of oversight responsibility strikes a balance between efficiency and manageability. If the number of supervisors is increased according with staffing recommendations in this report, the span of control will still remain within the optimal range of 3 to 8 direct reports.

- The current staffing arrangement of one fixed supervisor post at all times and an additional supervisor during peak volume ensures that the span of control does not exceed 9 during the Center's busiest hour (18 call-takers and dispatchers).

- Operations staff are overseen by dedicated operations management, and their functions are effectively grouped within the organizational structure.

In summary, the operations function of the Bureau is well-organized and provided with an appropriate amount of managerial supervision.

(4) Recommendations to Improve Existing Structure

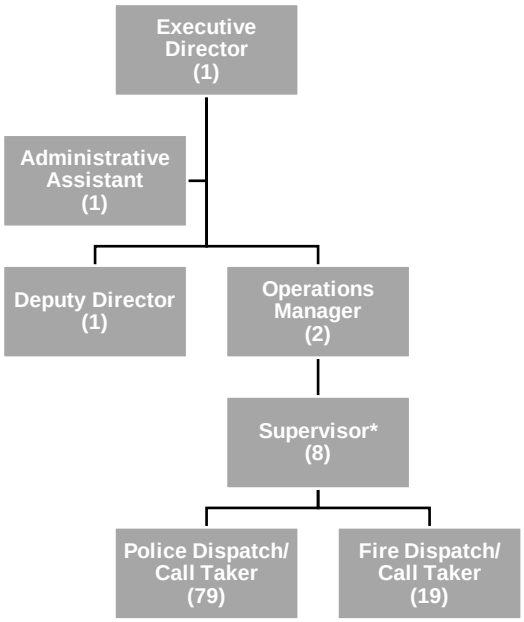
While it exhibits a number of strengths, the organizational structure of the Bureau can also be improved. Specifically, the Bureau's organizational structure is hierarchical, including a 1:1 reporting relationship between the Director and the Deputy Director. Ideal spans of control at the top of an organization should be in the range of 3-5, with supervisors at lower levels having broader responsibility over more staff. The Director has only the Deputy as a direct report, and the Deputy position has only the two Operations Managers as direct reports.

The organizational structure should be adjusted so that the Director manages the Operations Managers directly. This will be better aligned with the practices of good organizational management, and it will place the Director in an immediate supervisory capacity for the staff who oversee 911 operations on a daily basis. In reality, the Director's role already involves a significant amount of interaction with staff at all levels of the organization; adjusting the organizational structure to be less hierarchical will simply reflect the high degree of access to the Director that staff throughout the agency already have.

While the Deputy Director should not directly supervise Operations Managers, the position is valuable to the Bureau. The Deputy Director's knowledge and expertise are important for succession planning purposes and allow the position to be used in a versatile role, handling special projects, troubleshooting staffing and operational issues, developing public programming, assisting with high-level administrative tasks, and serving as a liaison to other City departments and outside agencies. The position should continue to report to the Executive Director.

The proposed revised organizational structure is shown in the following diagram:

Proposed Organizational Structure



*includes operations (9) and administrative (1) supervisors.

Recommendation 11: The 911 Center should eliminate 1:1 reporting relationships and flatten the organizational structure so that the Executive Director supervises the Deputy Director and Operations Managers.

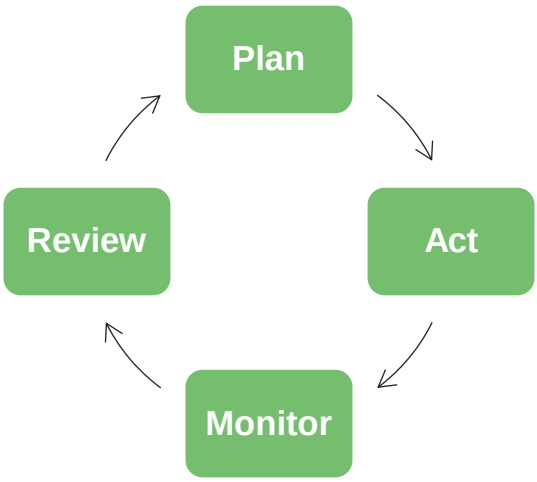
3. Strategic Planning

With respect to strategic planning, the 911 Bureau has an aged plan that needs to be updated. More importantly, however, all public safety strategic plans should be developed simultaneously, and in concert with one another, to ensure the appropriate alignment of vision, mission, goals, objectives and relevant performance measures.

Recommendation 12: When updating the 911 Bureau strategic plan, accomplish this in concert with the development of police and fire strategic planning efforts.

4. Employee Performance Management

Performance management is the ongoing process of improving performance by establishing goals which are aligned to those of the organization, adopting strategies to achieve those goals, reviewing and evaluating progress, and developing the capabilities and knowledge of staff. It is a continuous cycle of planning, action, observation, feedback, and communication between managers and employees.



In the context of a 911 Center, where the responsibilities of line staff are concrete, the focus is on consistently meeting clear objectives and providing fast, courteous service to callers. Performance management is vital for emergency communications, because the goals and metrics which organizations use to assess staff and determine effectiveness are crucial to the safety of citizens in the community. Regular reviews ensure that staff and management maintain agreement about the standards for performance, and that employees have a realistic understanding of their own performance.

Currently, the performance management program involves quality assurance reviews of randomly selected call recordings. Management staff meet with call-takers to conduct these reviews, where they point out strengths and weaknesses in the call to evaluate their performance. There is an incentive involved in these reviews; good reviews have the potential to earn casual dress coupons for the call-taker, and poor reviews result in recurrent training with a supervisor.

Quality assurance reviews form a key component of an effective 911 performance management system, but they do not encompass other key components. A robust performance management program should include the following components:

- Management reviews should include an examination of call-takers' cumulative metrics for the period under review, including how quickly they answer emergency calls routed to them, and the typical duration of their calls.

- Management reviews should include the quality assurance practices currently in place. In any area where these reviews are subjective, a rubric should be instituted with tiers established (excellent, good, fair, poor) to provide concrete feedback to call-takers.

- Aberrations from the 911 Center's efficiency and customer service standards should be discussed, and those which represent an issue should be noted.

- Goals should be set for the coming performance cycle, with management and staff in agreement on their content. Goals should be specific, measurable, achievable, relevant, and time-sensitive (SMART goals).

- Training should be planned as a result of performance management meetings and reviewed at the next meeting.

- Incentives should be instituted based on specific criteria (attaining a particular rating, etc.). In addition to the existing casual dress coupons and possibility of remedial training, the 911 Center should consider tangible incentives (gift cards, small bonuses) for reviews in the highest tiers; a budget of $10,000 would be sufficient to fund them.

- Staff should have the opportunity to provide feedback on the performance of their supervisors according to an established set of criteria.

- The progression of staff over time should be tracked, with reviews and the accompanying results from cycle to cycle recorded to enable the analysis of trends over time.

The program should be overseen by the Deputy Director, with regular summary reports on its results presented to the Executive Director. The 911 Center's existing quality assurance program can serve as the foundation for a more comprehensive performance management cycle. By instituting and adhering to such a system, the Bureau can promote and reward high levels of performance among staff and identify improvement opportunities in both customer service and efficiency.

Recommendation 13: The 911 Center should expand the existing quality assurance program into a formal performance management program overseen by the Deputy Director. The program should include regular review of call recordings and quantitative metrics, planning and goal-setting for improvement, concrete incentives for performance, and long-term tracking of results over time.

5. Contract Management

The Salt Lake City 911 Bureau maintains a contract with one partner agency, the City of Sandy. Under the terms of this contract, the 911 Center provides call-taking and dispatch

services for the police, fire, and animal control officers in Sandy. Some of the key provisions of the contract are outlined in the following points:

- The 911 Center provides all PSAP services, including call-taking, CAD, RMS, and radio communications for public safety personnel in Sandy, at a level of quality consistent with Sandy's standards and the quality provided to Salt Lake City.

- Sandy's allocation of 911 costs is determined to be 17.5% of personnel and 23% of non-personnel expenses, to be revisited annually by both parties and updated as necessary.

- Sandy's E911 tax revenue is collected by the SLC 911 Bureau, and any discrepancy between the revenue collected and Sandy's allocation of 911 personnel and expenses is reconciled on a quarterly basis.

This agreement has been in place since the fall of 2013. The primary administrator of the contract for the 911 Center is the Executive Director.

In evaluating the management of this contract, the project team assessed the 911 Center's practices against five key criteria:

1. Has responsibility for managing the contract been clearly assigned?

   Answer: Yes. The Executive Director manages the 911 Center's side of the contract, delegating some duties to the Deputy Director.

2. Are regular meetings held with the contract partner agencies?

   Answer: Yes. The Executive Director meets with the public safety agency executives from the City of Sandy on at least an annual basis to revisit the allocation of costs and discuss the contract.

3. Are performance metrics utilized to determine the level of service provided?

   Answer: Yes. Priority Dispatch reports on dispatch time are produced and provided to both parties in the contract to determine levels of service and ISO ratings.

4. Is there an established mechanism for communication and complaints?

   Answer: Yes. Partner agencies use their chain of command to transmit communication or complaints to the 911 Center via their commanding officers.

5. Are agreed-upon, transparent methods used to re-apportion costs on an annual basis?

   Answer: Yes. Call volume and the number of calls for service in Salt Lake City and Sandy, respectively, are made available to both parties. The parties may choose to re-apportion cost sharing based on these metrics.

Based on the performance indicators outlined above, as well as the duration of the contract and the City of Sandy's level of satisfaction with the contract, the project team believes that the 911 Center's contract management practices are sound. No recommendation is made to change the way this contract is handled.

6. Cost Allocation

The interlocal agreement listed in the previous section involves an allocation of costs: 17.5% of personnel costs at the 911 Center are borne by the City of Sandy, along with 23% of other (non-personnel) operating costs. The following table provides an example of this allocation, showing totals from FY 2018. It should be noted (and it is reflected in this table) that through the end of 2018, costs were being calculated using a multiplier of 17.0% rather than the contractual 17.5%. This has since been corrected.

FY 2018	911 Center Costs	SLC Portion	Sandy Portion
Personnel Services	$ 6,397,100	$ 5,296,799	$ 1,100,301
Operating & Maintenance	$ 36,347	$ 27,987	$ 8,360
Charges and Services	$ 572,990	$ 441,202	$ 131,788
Capital Expenses	$ 1,135	$ 874	$ 261
TOTAL	**$ 7,007,572**	**$ 5,766,862**	**$ 1,240,710**

The appropriateness of this cost allocation is left to the participating agencies. Since 2013, the allocations have not been adjusted, suggesting satisfaction on the part of both parties. To estimate the workload associated with Salt Lake City and Sandy, respectively, the project team reviewed data on radio airtime over a recent 12-month period for each jurisdiction. The results of this comparison are shown in the following table:

	All Radio Channels	Sandy Radio Channels
Period Reviewed (12 months)	Jul 2017 to Jun 2018	Nov 2017 to Oct 2018
Total Airtime (mins)	613,583	93,914
Percentage of Total	**100%**	**15.3%**

This rough calculation suggests that approximately 15% of the 911 Center's workload (as measured by radio airtime) is related to the City of Sandy. This calculation is limited, however, because it does not account for the total number of CAD incidents or phone calls associated with each city, nor differences in radio protocol for the responding agencies in each which may impact the average amount of per-call radio airtime. Because this calculation does not reveal any drastic disparities between workload and cost allocations, and because the data used is transparently available to both parties, the project team believes that cost allocations are currently handled appropriately and according to the contract.

7. Public Education

Public education programs play a key role in the operations and community relations of a PSAP. These programs provide a number of benefits to both the agency and the general public:

- They help members of the help public know when and how to use 911, which ensures that citizens call quickly in an emergency and refrain from using 911 during non-emergency situations. They also serve to raise awareness of new features such as text-to-911 so that citizens are prepared to use them.

- They serve as public relations efforts, building rapport with citizens and humanizing the voices answering emergency phone calls so that they are more likely to interact comfortably and professionally under pressure.

- They function as a recruitment tool, building brand awareness for the 911 Center among the public and publicizing the work done by call-takers and dispatchers.

The public education program at the 911 Center, while in its infancy, is being built. Some ride-alongs have been introduced for schoolchildren in Sandy, and local elementary school principals have been contacted about doing presentations to students, for which call-taker and dispatcher staff have volunteered. This program should be developed in the coming years. Additionally, the 911 Center should consider building public awareness through sponsorships and participation in public events such as festivals, parades, and sporting events. A small annual budget of $5,000 should be set aside for these efforts.

Recommendation 14: The 911 Center should prepare citizens to use 911 and enhance public relations and recruitment efforts by continuing to build its public education program.

8. Recruitment and Retention

Recruitment and retention of telecommunications staff has become an increasing concern in the emergency services industry, and for good reason. The cost of recruiting, training, and then losing a candidate is more than financial; it takes an emotional toll on trainers and co-workers as well. When recruitment efforts are successful in generating a pipeline of qualified applicants and working conditions are such that retention remains high, it eases the burden on the organization's staff and enables stability in scheduling. It also results in greater levels of experience among dispatchers and call-takers. The following sections discuss the 911 Center's recruitment and retention efforts.

(1) Separations Have Decreased Since 2015.

The following table shows the number of staff separations from the 911 Center in each year since 2015.

Year	Separations
2015	21
2016	17
2017	11
2018	10

As the table shows, the number of separations has been cut in half from its 2015 level, holding steady in 2017 and 2018.

(2) The 911 Bureau Should Establish a Formal Recruitment Plan.

Currently, the 911 Bureau does not have a formal recruitment and retention plan. The department has begun to develop its formal recruitment efforts in recent years, attending career events and promoting job opportunities on the Bureau's website. Among employees of the Bureau, recruitment and retention are seen more as strengths than weaknesses, with about 2/3 of staff agreeing that the agency does a good job of recruiting and retaining high-quality staff.

Statement	SA	A	D	SD
Our agency does a good job of recruiting qualified applicants.	11%	60%	23%	4%
Our agency does a good job of retaining high-quality staff.	5%	60%	26%	9%

Nonetheless, the lack of a recruitment plan, along with staffing levels well below the number of authorized positions, suggests that enhanced recruitment efforts are likely to prove beneficial to the 911 Center. Specifically, the Bureau should focus on three specific aspects of recruiting:

- Develop an effective "employer brand" to attract qualified applicants, emphasizing the key benefits of becoming a dispatcher versus pursuing other professions. This may include job satisfaction, community service, interaction with emergency responders, and compensatory benefits. This brand should be reflected in recruitment materials used in the following point.

- Allocate a dedicated budget for advertising, and focus on advertising in local and regional mediums. This should include a heavy proportion of electronic and web-based advertising, as well as participation in career days and job fairs throughout the region. A recruitment advertising budget of $500 per month would provide a start from which the agency may evaluate the results of the program.

- Ensure the agency's website is updated and prominently displays recruiting materials. While the current website includes a "Join Our Team" section, it should be located near the top of the page, include a promotional video (which can also be used in other digital advertisement), and the list of requirements which is present currently.

Taking these steps to enhance recruitment, along with the previously noted public education program, will ensure that the 911 Center's approach produces as much

awareness of the agency's job openings as possible and maximizes opportunities to attract qualified applicants.

Recommendation 15: The 911 Center should expand and formalize existing recruitment efforts to maximize awareness and job applications among qualified candidates.

(3) Exit Interviews Are a Valuable Tool for Authentically Assessing Staff Morale and Identifying Potential Issues.

In the context of managing recruitment, retention, and employee separations, a practice of regularly conducting exit interviews often proves valuable. These should ideally be conducted face-to-face, but can also be handled electronically or through the mail. These interviews, a best practice in the human resources realm, provide a number of important benefits to employers:

- They represent an opportunity to learn about the positive and negative aspects of employees' time with the agency. This is valuable, especially in the absence of routine, anonymous employee surveys, because it can identify acute problems with the employee experience which need to be addressed. It can also highlight the agency's strengths or particular individuals who contribute to a positive employee experience.

- Exit interviews provide a non-confrontational setting in which the departing employee can express their opinions freely without fear of repercussion, which increases the likelihood that their unfiltered opinions will be shared. A conversation based on mutual understanding is also more likely to result in employees leaving the agency on good terms.

- The data compiled from exit interviews over time can be analyzed to reveal issues that the agency must address, or to show trends in employee opinions on various topics over time, as well as changes in the reasons for departure. In effect, they are a feedback tool which can serve as a barometer of the agency's success in creating a work environment that promotes retention.

Currently, the 911 center does not conduct exit interviews of their own staff; these are handled by the City's Human Resources Department. There are benefits to this arrangement, specifically having exit interviews conducted by a neutral third party rather than staff with whom a departing employee has worked during their tenure with the agency. However, in order to realize the benefits outlined above, the 911 Center should

ensure that the exit interviews are conducted in a standardized format, and that the results are regularly (on a quarterly basis) shared with the Bureau's Executive Director or their designee. With this type of periodic data from the HR Department, the 911 Bureau will be able to take appropriate action in response to the results of exit interviews.

Recommendation 16: The 911 Bureau should ensure that the results of exit interviews conducted by the City's HR Department are regularly provided to the Executive Director or their designee for analysis.

(8) Compensation Does Not Appear to Be a Cause of Separations. A Classification and Compensation Study Would Be Necessary to Determine the Bureau's Position in the Market.

During the project team's on-site interviews and observations, some staff mentioned a belief that the Bureau has difficulty hiring and retaining quality staff due to the lack of a competitive compensation package. In the employee survey, this sentiment was reiterated by some staff, appearing in about 10% of open-ended responses.

However, a closer look reveals that those who hold this sentiment are in the minority. When specifically asked in the employee survey to respond to the statement, *"Our agency offers a compensation package that is fair and equitable compared to surrounding agencies"*, 79% of respondents agreed or strongly agreed. This suggests that compensation is not a widespread concern for employees.

#	Statement	SA	A	D	SD
6	Our agency offers a compensation package that is fair and equitable compared to surrounding agencies.	**26%**	**53%**	**10%**	**5%**

A review of separations data reveals a similar result. The Bureau's staff provided the project team with a list of employees who have separated from the agency in the last three years. This data set was primarily used for calculating turnover rate, but the list of reasons for leaving is useful in this context:

Cause	Count
Unable to do the job	14
Resigned	10
Other job/career	9
Terminated	7
Compensation	5
Moved out of state	5
Retired	4
Health Issue	3
Family	2
Total	**59**

As the table shows, dissatisfaction with compensation (or leaving for a higher-paying job) was the stated cause for less than 10% of separations from the agency since the beginning of 2015.

Based on the results of employee surveys and the reasons for separations over the last three years, it appears that compensation is not a serious factor in limiting the 911 Center's ability to recruit and retain qualified staff. To fully make this determination, however, and to ensure that the agency is well-positioned in the labor market, the 911 Center should conduct a regular classification and compensation study. This study should include the full scope of compensation (salary, overtime and comp time, health and dental insurance, retirement, etc.) and be revisited every 3-5 years to ensure that it remains current and the agency has up-to-date information. Typically, classification and compensation studies can be conducted for about $15,000.

Recommendation 17: The 911 Bureau should conduct a classification and compensation survey every 3-5 years to determine the appropriateness of compensation and ensure that the agency is well-positioned in the labor market.

5 External Customer Survey Analysis

As part of the larger performance audit of public safety emergency and non-emergency dispatch services for Salt Lake City and Sandy City, Matrix Consulting Group contracted with *Public Values Research* to conduct a customer satisfaction survey of callers who have used the 911 and 7-digit telephone lines in the last year. The purpose of the research was to gauge customers' perceptions of the services provided by the Salt Lake City 911 Communications Bureau and to help identify service gaps and priorities. The study addressed three service areas, including dispatch operators, response time, and on-scene personnel. While included as an appendix here, the survey was conducted as a supplementary study rather than as an appendix or chapter of the audit, which is represented in the format of the following sections.

1. Summary

The findings presented below reflect the content of telephone interviews conducted between October 9 and October 12, 2018, with a sample of 610 adults, 18 years of age or older, who used emergency or non-emergency services between September 1, 2017, and September 1, 2018. The study was based on a random sample of callers, stratified by city, type of telephone line, and public safety service provided by the respective department (Police, Fire, or Emergency Medical Services). For purposes of this study, EMS included medical response by Fire Department personnel as well as the Gold Cross. Given that the Fire Department responds to the vast majority of medical calls, the EMS category can be understood to largely reflect Fire Department services.[3] When results were analyzed for the system as a whole, design weights were applied to ensure that the sample of surveyed individuals matched the distribution of callers in the original database. Interviews were conducted in English and Spanish and included both cell phones and landlines. The margin of error for the study as a whole was +/-4% at the 95% confidence interval, not including the design effects of weighting.

Key findings are summarized below for customers overall, followed by any observed differences by city, 911 versus 7-digit callers, and respective public safety departments.

[3] The database received from the 911 Communications Bureau did not separate cases within the EMS category to distinguish between the Fire Department and the Gold Cross. Inquiries regarding the exact proportion of fire medical response versus Gold Cross should be directed to Bureau staff.

2. Key Findings

Results presented below are for all callers combined, followed by results disaggregated by department, city, and type of telephone line when appropriate. In some cases, the sample size was not sufficient to run statistical analyses at the department level.

The following points describe findings gathered from responses about general satisfaction with the 911 Communications Bureau.

- **The majority of Salt Lake City and Sandy City residents who used emergency or non-emergency services in the last year believe the 911 Communications Bureau is doing a good to excellent job overall.** More than eight-out-of-ten (84%) residents who used the dispatch service gave the Bureau a top score of 4 or 5, based on a 5-point scale where 5 is "Excellent" and 1 is "Poor." Ratings were consistent for both Salt Lake City and Sandy City and regardless of whether a customer dialed 911 or a 7-digit number. No differences were found by income or race and ethnicity.

- **While overall performance ratings are high, results vary by department.** Police had statistically lower overall satisfaction ratings compared to Fire and Emergency Medical Services (EMS). A total of 82% of residents who had requested Police gave the Bureau top ratings, compared to 93% who requested the Fire Department, and 91% who requested EMS.

- **Customers are more satisfied with their interactions with dispatch operators than they are with the time it takes for help to arrive and the performance of on-scene personnel.** Dispatch services received the highest performance ratings overall. Nearly nine-out-of-ten customers (89%) gave dispatch a top score (4 or 5), compared to 76% overall for all departments who gave a similar rating for response time and 73% for on-scene personnel.

Results suggest that while all three service areas are important to residents, response time and on-scene performance may have a greater impact on overall satisfaction than interactions with dispatch operators. Performance ratings for response time and on-scene personnel had a strong, positive correlation of .734 and .738, respectively, followed by dispatch at .609. (Due to limited sample size for Fire and EMS, which make up a small percentage of all calls, this correlation could not be run by department.)

The following findings are based on responses gathered to questions about respondents' satisfaction with dispatch operators.

- **The majority of customers are able to reach a live operator on their first attempt without receiving a busy signal.** A total of 92% of all callers surveyed reported that they were able to reach an operator.

- **Once customers reach an operator, however, 13% report being placed on hold.** The median reported hold time was two minutes, with several outlying cases driving the average up to four minutes. The likelihood of receiving a busy signal or being placed on hold was consistent regardless of whether the customer dialed 911 or a 7-digit number.[4]

- **The majority of customers give dispatch operators top performance scores across all key indicators.** More than eight-out-ten customers reported that they "Agree" or "Strongly Agree" with every statement regarding operator performance, including whether the operator asked relevant questions, listened to the caller, was knowledgeable, and gave clear instructions.

- **Customers who reach dispatch by dialing 911 view the Bureau more favorably than customers who call a 7-digit number.** Customers who reached dispatch by calling 911 were more likely to rate the dispatch service as "Excellent," compared to customers who dialed a 7-digit number, 75% compared to 67%, a statistically significant difference. Despite these differences in overall performance ratings, 911 and 7-digit callers gave similar ratings for dispatch across key attributes.

- **Results suggest that customers prefer to speak with a live operator rather than report an incident online, even when they are reporting a non-emergency situation.** More than three-fourths of customers (77%) reported that they had not been given the online option (online reports are only offered for certain call types). Of those customers not told about the online option, only 12% said they would have preferred that the operator had presented them with a choice.

The points below describe findings gathered based on responses about survey participants' satisfaction with response time.

[4] 12% of callers who dialed a 7-digit number reported that they were placed on hold, compared to 16% who called 911. These observed differences fall within the margin of error and do not reflect a real difference. Data provided does not specifically identify VECC transferred calls.

- **The median reported wait time for services to arrive was 10 minutes; however, outliers push the average to nearly one hour (52 minutes).** While no differences were observed in the median wait time by city overall, results suggest that there may be a difference in the response time for Salt Lake City Police and Sandy City Police. *Salt Lake City customers reported a median wait time of 15 minutes for officers to arrive, compared to 10 minutes for Sandy City customers.* Customers reported the shortest wait times for Fire and EMS, followed by Police. It should be noted that observed differences in reported wait times were not verified statistically since medians, rather than means, were used in the analysis. Results should be confirmed by identifying actual response times as recorded in the call database.

- **Satisfaction with response time varies by department service provided.** Customers who were requesting services from the Fire Department for non-medical response were more likely to rate the response time to their call as "Excellent" compared to customers who called for the Fire Department's EMS or Police. A total of 71% of customers who called for fire services rated the response time as Excellent, compared to only about half of customers requesting Police or EMS. No statistical differences were found by City or between 911 and 7-digit callers.

- **Customers who are told how long they have to wait for help to arrive are more likely to be satisfied with the response time compared to customers who are not given an estimate.** More than eight-out-of-ten (85%) of customers who were given a time estimate gave the Bureau a top score for response time, compared to just under two-thirds (68%) of those who were not told how long they had to wait.

The points below show findings gathered based on respondents' level of satisfaction with on-scene personnel.

- **The majority of customers who receive an on-site visit are satisfied with the number and type of personnel who arrive on-scene.** More than eight-out-of-ten (83%) customers who received an on-site visit agreed that the response was appropriate for the situation. (At the department level, 81% of callers agreed that that the Police response was appropriate, 85% for EMS and 90% for Fire. Results for Fire and EMS are not statistically reliable due to small sample size and should be interpreted with caution.)

- **Other performance scores for on-scene personnel varied.** Approximately three-fourths of customers agree that personnel were well informed about the reason for the call, were polite, and handled the situation well. Two-thirds of customers (67%) agreed that on-scene personnel explained to them what would happen next.

- **On-scene performance ratings for fire personnel were significantly higher than ratings for Police or EMS.** More than nine-out-of-ten customers agreed that fire fighters were professional and courteous, well informed about the reason for the call, and generally handled the situation well, compared to just over three fourths for EMS and Police. Findings were consistent for both Salt Lake City and Sandy City.

3. Recommendations

The study found the majority of Salt Lake City and Sandy City residents who have used emergency or non-emergency services in the last year believe the 911 Communications Bureau is doing a good to excellent job overall. Moreover, performance scores for dispatch operators were high across all key indicators including whether the operator listened, was knowledgeable, and asked relevant and appropriate questions.

Despite these positive indicators, aggregate data from *the study found that residents are generally less satisfied with response times and on-scene personnel.* When results for all calls are combined, customers reported a median wait time of 10 minutes for help to arrive, although individual respondents reported waiting more than 90 minutes for services, raising the average wait time to nearly an hour. Less than three-fourths of customers surveyed gave the Bureau a top score for response time and 12% gave the Bureau a low score of 1 or 2, significantly lower than the scores for dispatch operators. On-scene personnel received similar scores.

Results suggest that while all three service areas are important to residents, response time and on-scene performance may have a greater impact on overall satisfaction than interactions with dispatch operators. Dispatch performance, while very important to customers and strongly correlated with overall satisfaction, may not translate into highly satisfied customers if their expectations for response time and on-scene personnel are not met.

Based on these findings, we recommend the following:

- **Recommendation 1: As part of the needs assessment and analysis, determine whether current response times overall, and for police in particular, are adequate and consistent with best practice standards.** Response time was a source of dissatisfaction for some customers and perceived wait times should be confirmed by an analysis of actual call data. This information is also discussed further in the body of the Matrix operations report.

- **Recommendation 2: If feasible, determine how often 911 callers are placed on hold and for how long to help assess operator staffing levels.**

- **Recommendation 3: Consider conducting focus group research to better understand public expectations regarding response time and on-scene personnel and to identify strategies for improving service and/or educating the public.** Survey results, for example, suggest that customers are more satisfied when told how long they will have to wait for service to arrive, although specific ETA's cannot be given due to the unpredictable nature of emergency response and the potential liability involved with giving a concrete response time.

- **Recommendation 4: Consider focus group research to understand the concerns and barriers that cause residents to be reluctant to use online reporting services.** Online reporting services were not popular among survey respondents; however, variations on the approach and alternative reporting models might be explored.

4. Methodology

In 2018, Salt Lake City commissioned a performance audit of the City's public safety emergency and non-emergency dispatch services performed by the 911 Communications Bureau. As part of the audit, Matrix Consulting Group contracted with Public Values Research, an independent research and consulting firm, to conduct a public opinion survey with residents who had called the 911 or 7-digit service in the last year. The purpose of the research was to gauge customers' perceptions of the services provided by the 911 Bureau and to help identify service gaps and priorities. Specifically, the survey addressed: (1) public satisfaction with the Bureau overall; (2) satisfaction with dispatch operators across key attributes; (3) satisfaction with response time; and, (4) satisfaction with on-scene personnel.

The remainder of this report presents the survey methodology and findings that emerged from the data analyses and is organized as follows:

- The methodology section below, which describes data collection and statistical methods
- Detailed findings;
- Summary and recommendations; and,
- The appendices, which include the survey instrument with frequencies and a profile of residents surveyed compared to the caller database and population estimates.

(1) Overview

The findings presented in this report reflect the content of telephone interviews conducted between October 9 and October 12, 2018, with a stratified random sample of 610 adults, 18 years of age or older who called the Salt Lake City 911 Communications Bureau between September 1, 2017, and September 1, 2018. The sample was stratified by city (Salt Lake City or Sandy City), department (Police, Fire, or Emergency Medical Services), and call type (911 versus 7-digit). A total of 86 respondents were interviewed on a landline telephone and 524 were interviewed on a cell phone. The sample database was provided by the 911 Bureau. Interviews were conducted in English and Spanish. The margin of error for the study as a whole was +/-4% at the 95% confidence interval, not including the design effects of weighting. Telephone interviews were conducted by Interviewing Service of America and study design, analysis, and reporting were conducted by Public Value Research.

(2) Weighting

Design weights were calculated by raking (an iterative proportional fitting algorithm). Weights were generated based on the actual distribution of all calls to the 911 Bureau between September 1, 2017 and September 1, 2018, as provided to Public Values Research by the 911 Communications Bureau. The data were weighted by city, department, and call type to correct for oversampling. From weighting alone, the design effect of the survey was 1.37 and the design factor was 1.17. All 610 completes had adequate item responses for all weighting variables. The data were not weighted on demographic characteristics such as gender or age since the true distribution of those characteristics among Bureau callers is unknown.

(3) Statistical Comparisons

Statistical tests were conducted for all comparative analyses to identify whether observed differences among demographic groups or categories were statistically significant.[5] All reported differences were statistically significant at the 90 percent confidence level or higher. The margin of error for these comparisons was not adjusted for design effects.

(4) Definition Of Geographic Areas

To help analyze differences by area, Salt Lake City callers were grouped into four contiguous geographic zones. The consolidation was based on original zone, street address, and police beat. The grouping of the zones was provided to Public Values Research by the 911 Bureau. A similar analyses with Sandy City callers was not possible due to limited sample size.

(5) Report Organization

This report has been organized around the following topic areas:

- General satisfaction with the 911 Bureau;
- Satisfaction with Dispatch Services;
- Satisfaction with Response Time; and,
- Satisfaction with On-Scene Personnel.

The next section of this report presents study findings.

5. Findings

This section outlines the findings of the survey according to the four major themes identified above.

[5] A statistically significant difference means that the difference between groups is not by chance, and that a real difference exists.

(1) General Satisfaction with The 911 Communications Bureau

(1.1) Overall Performance Ratings Systemwide and by Department

Customer satisfaction with the 911 Communications Bureau was measured using a series of questions in which customers were asked how they would rate the Bureau overall and across specific attributes, including interactions with the dispatch operator, response time, and on-scene personnel. Results are presented in **Figure 1**. **The study found that the majority of Salt Lake City and Sandy City residents who used emergency or non-emergency services believe the 911 Communications Bureau is doing a good to excellent job overall.** More than eight-out-of-ten (84%) residents who used the dispatch service gave the Bureau a top score of 4 or 5, based on a 5-point scale where 5 is "Excellent" and 1 is "Poor."

While overall performance ratings were high, results varied by department. Police had statistically lower overall satisfaction ratings compared to Fire and Emergency Medical Services (EMS). A total of 82% of residents who had requested police assistance gave the Bureau top ratings, compared to 93% who requested the Fire Department, and 91% who requested EMS.

Figure 1: Overall Performance Ratings Systemwide and by Department

Customers who gave the Bureau a top performance rating of 4 or 5, on a scale of 1 to 5, where 5 is "Excellent" and 1 is "Poor"

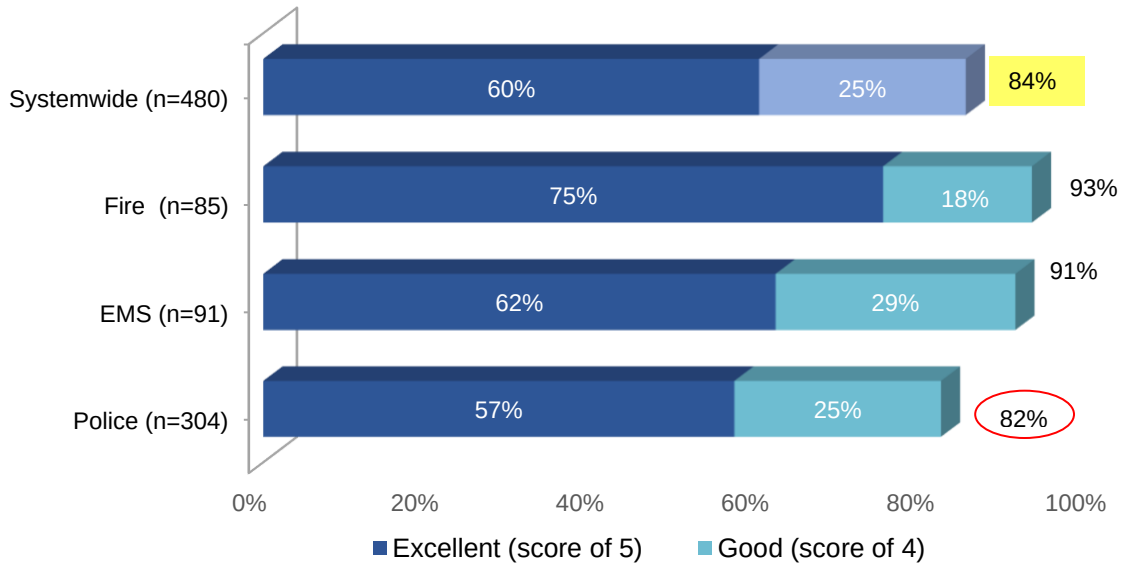


*Figure based on Q21: "Using the same scale of 1 to 5, where 5 is Excellent, how would you rate the emergency or non-emergency services you received overall, including the dispatch operator, the time it took for services to arrive, and the on-scene personnel?" Neutral score of 3 and Don't Know not shown. Overall scores exclude customers who spoke with dispatch but did not receive an on-site visit. Statistically significant differences at the 90% confidence level are circled. Ratings for police were statistically lower than for Fire and EMS.

(1.2) Overall Performance Ratings by City and Zone

Performance ratings were consistent regardless of whether residents were from Salt Lake City or Sandy City. As seen in **Figure 2**, 84% of Salt Lake City customers gave the Bureau top ratings, compared to 85% among Sandy City residents, statistically equivalent results.

Figure 2: Overall Performance Rating
Salt Lake City and Sandy City

Customers who gave the Bureau a top performance rating of 4 or 5, on a scale of 1 to 5, where 5 is "Excellent" and 1 is "Poor"

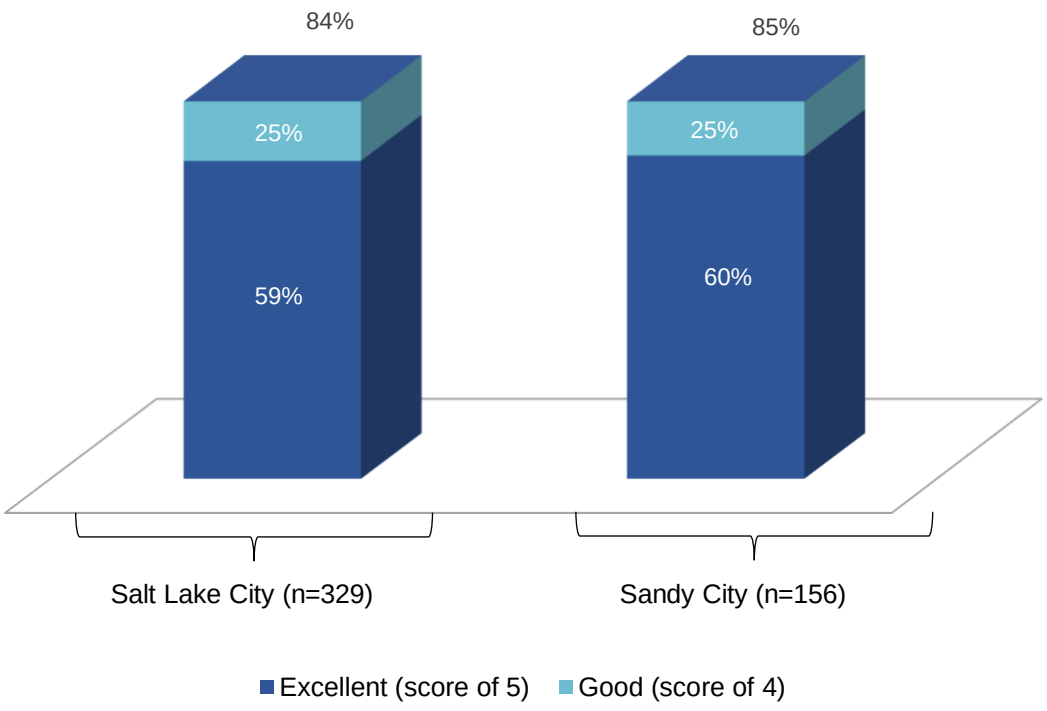


*Figure based on Q21: "Using the same scale of 1 to 5, where 5 is Excellent, how would you rate the emergency or non-emergency services you received overall, including the dispatch operator, the time it took for services to arrive, and the on-scene personnel?" Neutral score of 3 and Don't Know not shown. Overall scores exclude customers who spoke with dispatch but did not receive an on-site visit.

To examine differences by geographic area, seven service zones for Salt Lake City were collapsed into four contiguous areas. **Although the sample size for Zone 1 and 2 were**

extremely small, results suggest that customer ratings across the four geographic zones are similar. More than eight-out-of-ten customers in each zone gave the Bureau top performance ratings of 4 or 5, where 5 is "Excellent." Results are presented in **Figure 3**. Observed differences by zone fall within the margin of error. (Analysis of ratings by zone within Sandy City was not possible due to sample size.)

Figure 3: Overall Performance Ratings by Zone within Salt Lake City

Customers who gave the Bureau a top performance rating of 4 or 5, on a scale of 1 to 5, where 5 is "Excellent" and 1 is "Poor"

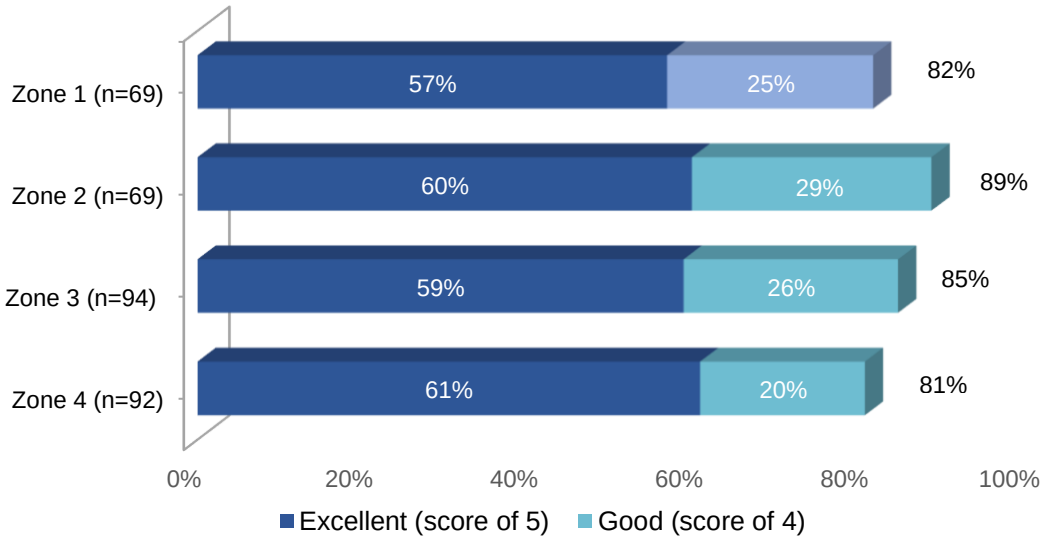


*Figure based on Q21: "Using the same scale of 1 to 5, where 5 is Excellent, how would you rate the emergency or non-emergency services you received overall, including the dispatch officer, the time it took for services to arrive, and the on-scene personnel?"
**Extremely small sample size. To be interpreted with caution. Observed differences by zone fall within the margin of error and do not represent real differences. Neutral score of 3 and Don't Know not shown.

(1.3) Performance Ratings by Service Function

In addition to analyzing performance ratings by area, the study compared performance scores by service function, including dispatch, response time, and on-scene personnel. **Findings suggest that residents are more satisfied with their interactions with dispatch operators than they are with the time it takes for help to arrive and the performance of on-scene personnel.** As seen in **Figure 4,** nearly nine-out-of-ten residents (89%) gave dispatch a top score (4 or 5), compared to 76% who gave a similar rating for the departments' on-scene personnel and 73% for response time.

Figure 4: Overall Performance Ratings by Dispatch, Response Time, and On-Scene Personnel

Customers who gave the Bureau a top performance rating of 4 or 5 for each service area, on a scale of 1 to 5, where 5 is "Excellent" and 1 is "Poor"

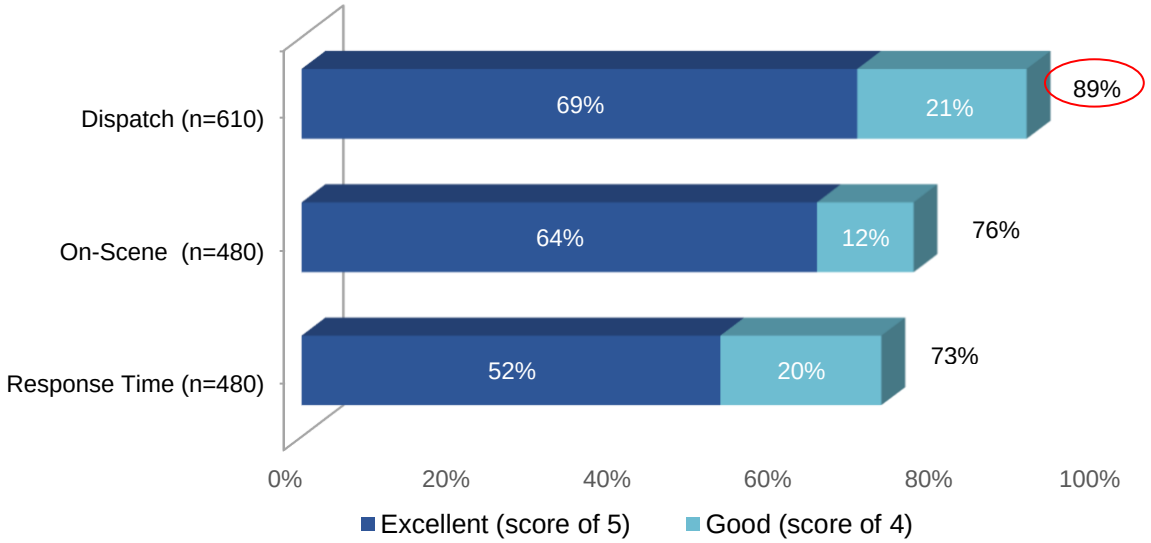


*Figure based on Q13: "On a scale of 1 to 5, where 5 is Excellent and 1 is "Poor" how would you rate the telephone dispatch service overall?" Q18: "How would you rate the response time to your call?" Q20: How would you rate the on-scene personnel who responded to your call? Neutral score of 3 and Don't Know not shown. **Statistically significant differences at the 95% confidence level are circled. Ratings for dispatch were statistically higher than ratings for on-scene personnel and response time.

No statistical differences were found between customers from Salt Lake City and Sandy City in terms of satisfaction with dispatch operators, response time, or on-scene personnel. Results are presented in **Table 1**.[6]

Table 1: Overall Performance Ratings by City

	Top Rating (Score of 4 or 5) Salt Lake City	Top Rating (score of 4 or 5) Sandy City
Overall ratings for dispatch	90%	86%
Overall ratings for response time	72%	75%
Overall ratings for on-scene personnel	76%	76%

*Figure based on Q13: "On a scale of 1 to 5, where 5 is Excellent and 1 is "Poor" how would you rate the telephone dispatch service overall?" Q18: "How would you rate the response time to your call?" Q20: How would you rate the on-scene personnel who responded to your call? Neutral score of 3 and Don't Know not shown. All cells had a minimum sample size of 156.

(1.4) Demographic Comparisons by Income and Race

[6] Sample sizes were not sufficient to compare ratings for fire and EMS within each City.

Figures 5 and **6** present overall performance ratings by income and race. No statistically significant differences in overall performance ratings were found based on a caller's income level or racial/ethnic background. [7]

Figure 5: Overall Performance Ratings
Customers Above and Below Median Income

Customers rated overall performance on a scale of 1 to 5, where 5 is "Excellent and 1 is "Poor"

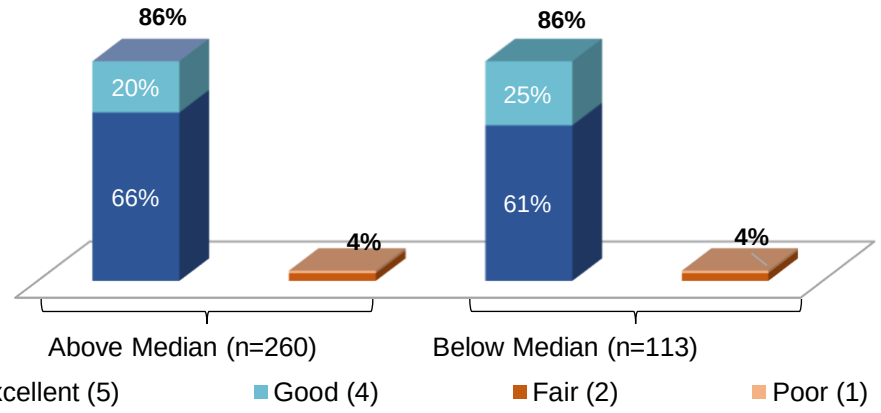


Figure 6: Overal Performance Ratings
by Race/Ethnicity

Customers rated overall performance on a scale of 1 to 5, where 5 is "Excellent and 1 is "Poor"

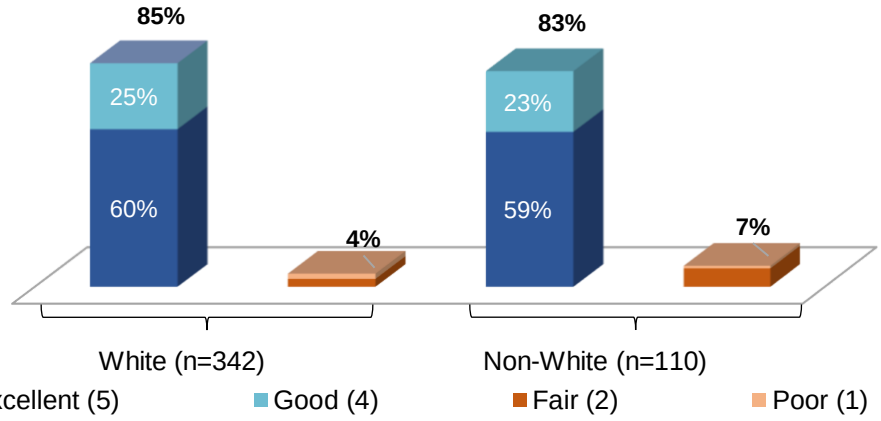


*Figure based on Q21: "Using the same scale of 1 to 5, where 5 is Excellent, how would you rate the emergency or non-emergency services you received overall, including the dispatch officer, the time it took for services to arrive, and the on-scene personnel?" Neutral score of 3 and Don't Know not shown.

Drivers of Satisfaction

[7] Median income for Salt Lake City County of approximately $70,000 was used to determine above and below median income breaks. Racial and ethnic categories, including African-American, Latino, Asian, and other groups were collapsed into a dichotomous category of white/non-white to preserve sample size.

To further understand which service attributes are most important to customers in determining their overall satisfaction with the Bureau, statistical correlations were run between performance scores for each service area—dispatch, response time, and on-scene personnel—and performance scores for the Bureau as a whole. Attributes with the strongest correlation to overall performance are commonly interpreted as driving satisfaction. Performance ratings for response time and on-scene personnel had a strong, positive correlation of .734 and .738, respectively, followed by dispatch at .609. **Results suggest that while all three service areas are important to residents, response time and on-scene performance may have a greater impact on overall satisfaction than interactions with dispatch operators.** Dispatch performance, while very important to customers and strongly correlated with overall satisfaction, may not translate into highly satisfied customers if their expectations for response time and on-scene personnel are not met. Results are presented below in **Table 2.**

Table 2: Importance of Each Service Area to Overall Satisfaction
SLC 911 Communications Bureau Customers

	Pearson Correlation Coefficient	Significance (2-tailed)
Satisfaction with Dispatch Services	.609	.000
Satisfaction with Response Time	.734	.000
Satisfaction with On-Scene Personnel	.738	.000

All correlations were statistically significant at the .01 level.

(2) Satisfaction with Dispatch Services

(2.1) Likelihood of Reaching a Busy Signal or Being Placed on Hold

A key objective of the research was to understand the customer experience from the moment a call is placed to the arrival of on-scene personnel. Customers were first asked whether they received a busy signal when they called for assistance. **More than nine out of ten customers (92%) reported that they were able to get through to a live operator without receiving a busy signal. When customers reached an operator, 13% reported being placed on hold.** More than three-fourths (77%) of customers who had to wait to speak to an operator were told that they would be placed on hold. The median reported wait time was two minutes, with several outlying cases driving the average up to four minutes. The likelihood of receiving a busy signal or being placed on hold was consistent regardless of whether the customer dialed 911 or a 7-digit number.

Figure 7: Did you receive a busy signal when you called?
SLC 911 Communications Bureau Customers (n=610)

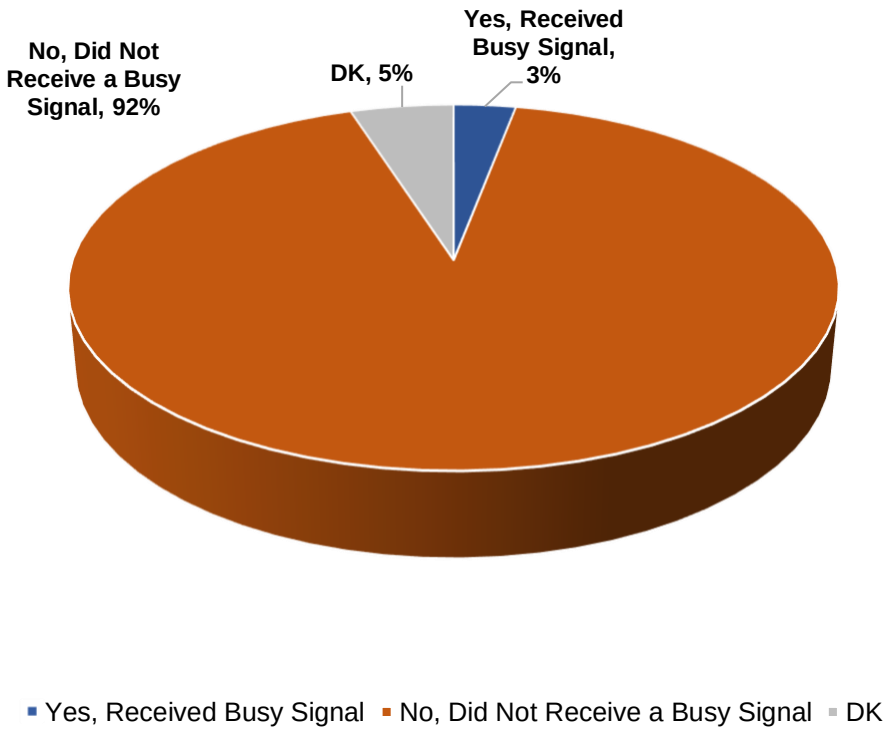


*Figure based on Q8: "When you called, did you receive a busy signal?

(2.2) Dispatch Performance Ratings across Key Indicators

Next, customers were asked to rate their interactions with the dispatch operator across a variety of indicators, including whether they felt the operator listened to them, asked relevant and appropriate questions, and provided clear instructions. Results are presented in **Figure 8**. **Customers rated dispatch performance consistently high across all indicators.** More than eight-out-of-ten customers reported that they "Agree" or "Strongly Agree" with each statement regarding operator performance. Customers gave lower ratings for explaining next steps compared to most attributes measured. (All other observed differences fall with the margin of error.) See **Figure 8.**

Figure 8: Dispatch Performance Ratings Across Key Indicators (n=610)

Customers who "Agree" or "Strongly Agree" with each statement describing dispatch operators

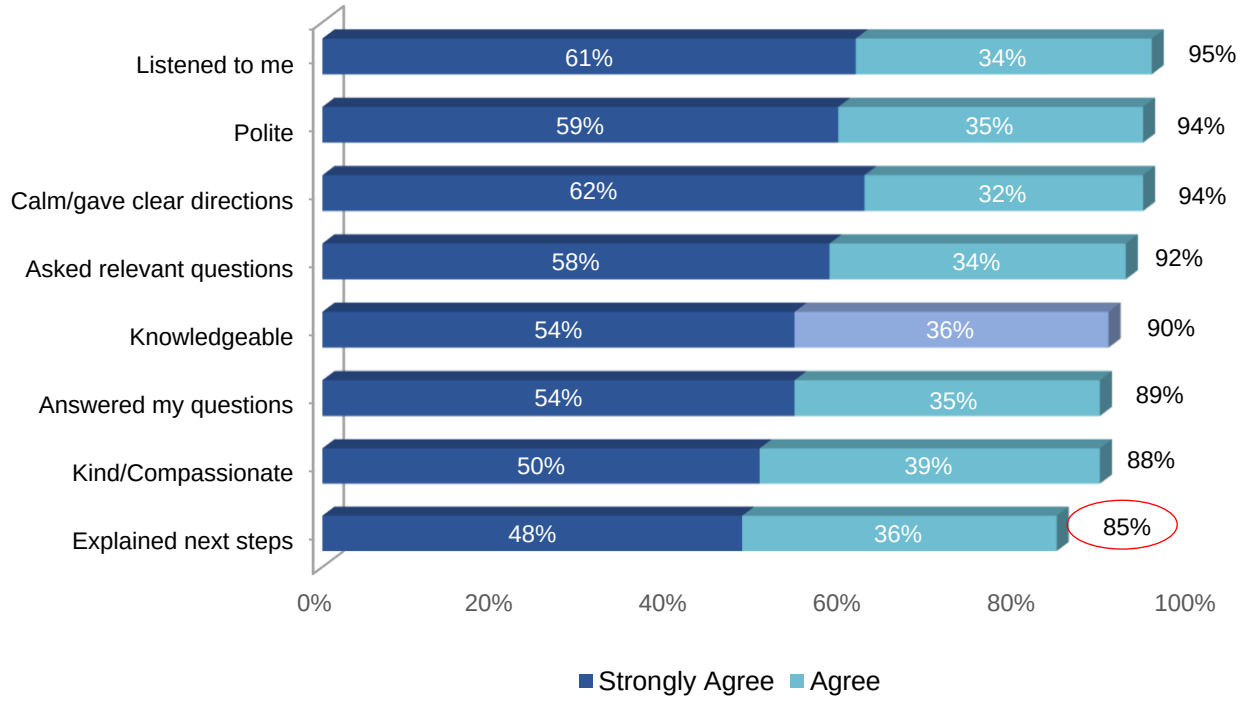


*Figure based on Q12: ""Thinking about your interaction with the dispatch operator, please tell me whether you Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree with the following statements. You can also tell me if it doesn't apply. The operator was…" Don't Know and Does Not Apply not charted. Statistically significant differences at the 95% confidence level are circled. Customers gave lower ratings for explaining next steps compared to all other attributes, with the exception of showing kindness and compassion.

(2.3) Dispatch Performance Ratings for 911 and 7-Digit Callers

While performance ratings for dispatch were high overall, the study found that customers who dialed 911 gave dispatch higher performance ratings than did customers who dialed a 7-digit number. Customers who reached dispatch by calling 911 were more likely to rate the dispatch service as "Excellent," compared to customers who dialed a 7-digit number, 75% compared to 67%, a statistically significant difference. It should be noted, however, that when the top scores of Excellent (score of 5) and Good (score of 4) are combined, no difference was found in performance score among 911 versus 7-digit callers. Despite these differences in overall performance ratings, 911 and 7-digit callers gave similar ratings for dispatch across key attributes, as seen below in **Table 3**. The only statistically significant difference was whether the operator informed the customer of next steps. A total of 89% of 911 callers "Agree" or "Strongly Agree" that the operator kept them informed about what would happen next, compared to 84% among customers who dialed a 7-digit number. This difference, however, may be due to the nature of emergency calls in which next steps would be important to communicate.

Table 3: Performance Ratings for Dispatch across Key Indicators 911 and 7-Digit Callers

	Agree/Strongly Agree: 911 (n=207)	Agree/Strongly Agree: 7-Digit (n=403)
Operator listened to what I had to say	94%	95%
Operator was polite in how he or she spoke to me	95%	93%
Operator was calm and gave clear instructions	94%	94%
Operator asked relevant/appropriate questions	91%	93%
Operator was knowledgeable	92%	90%
Operator answered my questions	89%	89%
Operator showed kindness and compassion	87%	89%
Operator kept me informed about what would happen next	89%	84%

*Statistically significant differences at the 90% confidence level are circled. Customers who reached dispatch by calling 911 were more likely than those calling from a 7-digit number to report that the operator kept them informed about what would happen next.

(2.4) Interest in Online Reporting for Non-Emergency Incidents

To explore public support for online reporting, customers who had reported a police incident by calling a 7-digit number were asked if the operator had given them the option of reporting the incident online and, if not, whether they would like to have the option. **Results suggest that customers prefer to speak with a live dispatch operator rather than report an incident online, even when they are reporting a non-emergency situation.** More than three-fourths of customers (77%) reported that they had not been given the online option. Of those customers not told about the online option, only 12% said they would have preferred that the operator had presented them with a choice.

Figure 9: Interest in Online Reporting for Non-Emergency Police Incidents

Proportion of customers who were given the option of reporting online and those who would have preferred to have the option

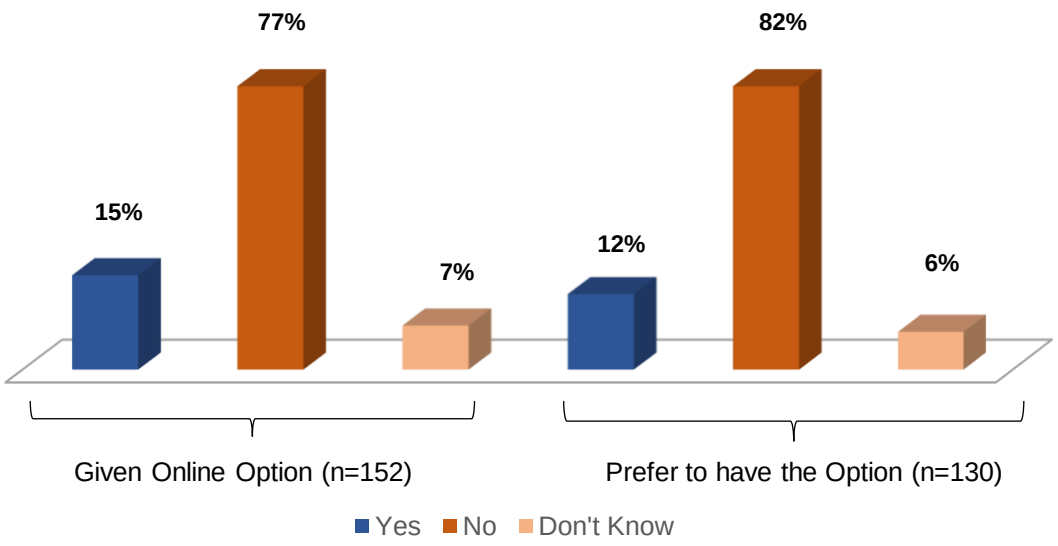


*Figure based on Q11: "Did the operator give you the option of reporting the incident online and receiving a follow-up call at a later time?" Q11a: "Would you have preferred to be given an online option?"

(3) Satisfaction with Response Time

(3.1) Performance Ratings Overall and by Department

After answering questions about dispatch services, respondents were asked a series of questions about how long they waited for help to arrive. **Figure 7** below shows overall performance ratings for response time, followed by ratings for Fire, EMS, and Police. Less than three-fourths of customers gave the Bureau top scores for response time (score of

4 or 5), however, some departments had high marks. **Customers who were requesting services from the Fire Department were more likely to rate the response time to their call as "Excellent" compared to customers who called for EMS or Police.** A total of 71% of customers who called for fire services rated the response time as Excellent, compared to only about half of customers requesting Police or EMS. No statistical differences were found by City or between 911 and 7-digit callers.

Figure 10: Satisfaction with Response Time
Systemwide and by Department
Customers who gave the Bureau a top performance rating of 4 or 5, where 5 is is "Excellent" and 1 is "Poor"

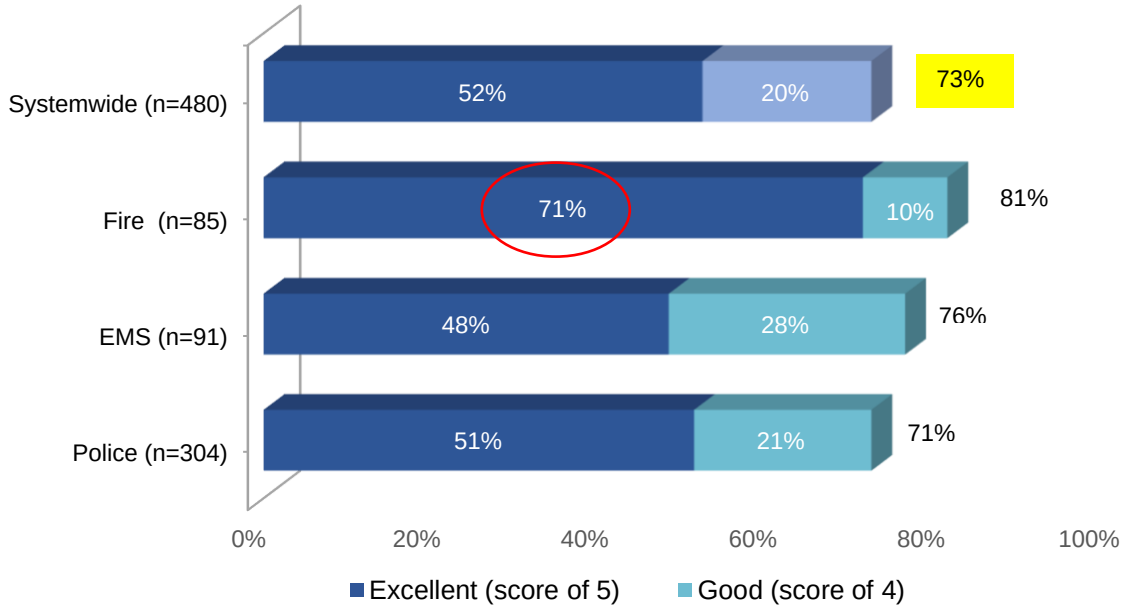


*Figure based on Q18: "On a scale of 1 to 5, where 5 is Excellent, how would you rate the response time to your call?" Neutral score of 3 and Don't Know not shown. Statistically significant differences at the 95% confidence level are circled. Customers who called regarding a fire emergency were more likely to rate fire response as "Excellent" compared to customers who called for EMS or police services.

(3.2) Reported Wait Time Overall and by City and Department

Customers were asked to estimate how long they waited before services arrived. **The median wait time systemwide was 10 minutes; however, several outlier cases pushed the average to nearly one hour (52 minutes).** Median wait times by city and department are presented below in **Table 4**. While no differences were observed in the median wait time by city overall, results suggest that there may be a difference in the response time for Salt Lake City Police and Sandy City Police. Salt Lake City customers

reported a median wait time of 15 minutes for officers to arrive, compared to 10 minutes for Sandy City customers. Customers reported the shortest wait times for Fire and EMS, followed by Police. (It should be noted that observed differences in reported wait times were not verified statistically since medians, rather than means, were used in the analysis. Results should be confirmed by identifying actual response times as recorded in the call database.)

Table 4: Median Reported Wait Times Overall and by City and Department

	Median Reported Wait Time
Overall (n=610)	10
Salt Lake City Police (n=410)	15
Sandy City Police (n=200)	10
Fire (n=107)	7
EMS (n=101)	8
Police (n=402)	10

(3.3) Notifying Customers of Estimated Response Time

Customers were asked if they were told how long it would be before services arrived. Just over a quarter of customers (28%) were given a time estimate. Of those, 85% reported that the time estimate was accurate. Customers who were not given an estimated response time were asked if they would have preferred to have that information. More than two thirds (68%) said they would have preferred to know the wait time. Results are presented in **Figure 11.**

Customers who were given an estimated response time were more likely than other customers to give the Bureau a top score of 4 or 5 for response time. More than eight-out-of-ten (85%) customers who were given a time estimate gave the Bureau a top score, compared to just under two-thirds (68%) of those who were not told how long they had to wait. (Only respondents who could recall whether or not they were given the information were included in the analysis.)[8]

[8]We recommend that this topic be explored through focus group research to determine whether or not informing customers of expected wait times will lead to higher rates of satisfaction. The statistical analysis has identified a correlation between the two variables, but further research is needed to verify cause and effect.

Figure 11: Interest in Knowning Estimated Response Time

Proportion of customers who were told how long the response time would be and the proportion who would have preferred to have been given that information

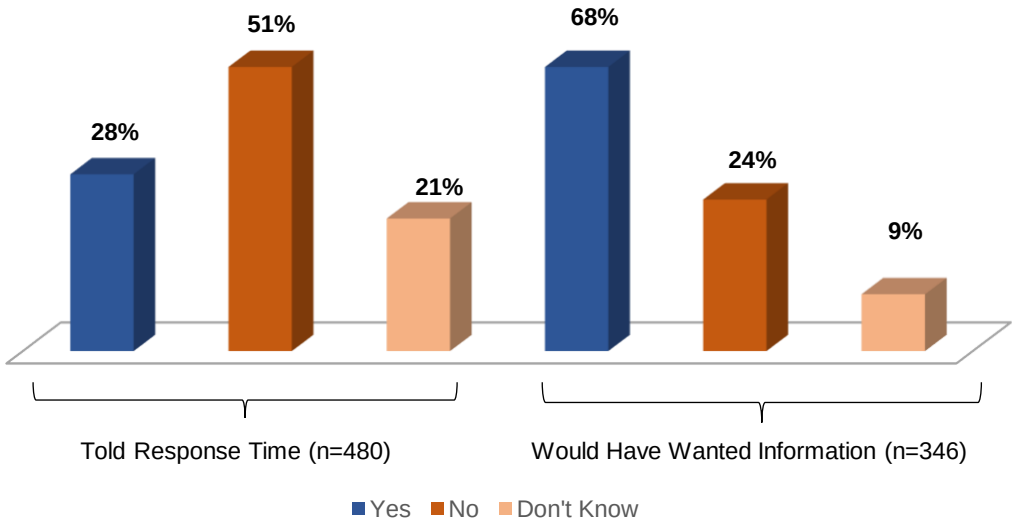


*Figure based on Q15: "Were you told how long the response time would be?" Q17 "Would you have preferred to have that information?"

(4) Satisfaction with On-Scene Personnel

(4.1) Performance Ratings Across Key Indicators

Customers who received an on-site response and were present when help arrived were read a series of statements about the performance of the on-scene personnel and asked if they "Strongly Agree," "Somewhat Agree," "Somewhat Disagree," or "Strongly Disagree" with each statement. Results are presented in **Figure 12**. **More than eight-out-of-ten (83%) customers who received an on-site visit agreed that the number and type of personnel was appropriate, and more than three-fourths agreed that personnel were well informed about the reason for the call, were polite and courteous, and handled the situation well.** Two-thirds of customers (67%) agreed that on-scene personnel explained to them what would happen next. Customers were most likely to agree that the number and type of personnel were appropriate to the situation, and least likely to agree that personnel explained next steps.

Figure 12: On-Scene Performance Ratings Across Key Indicators (n=480)

Customers who "Agree" or "Strongly Agree" with each statement about on-scene personnel

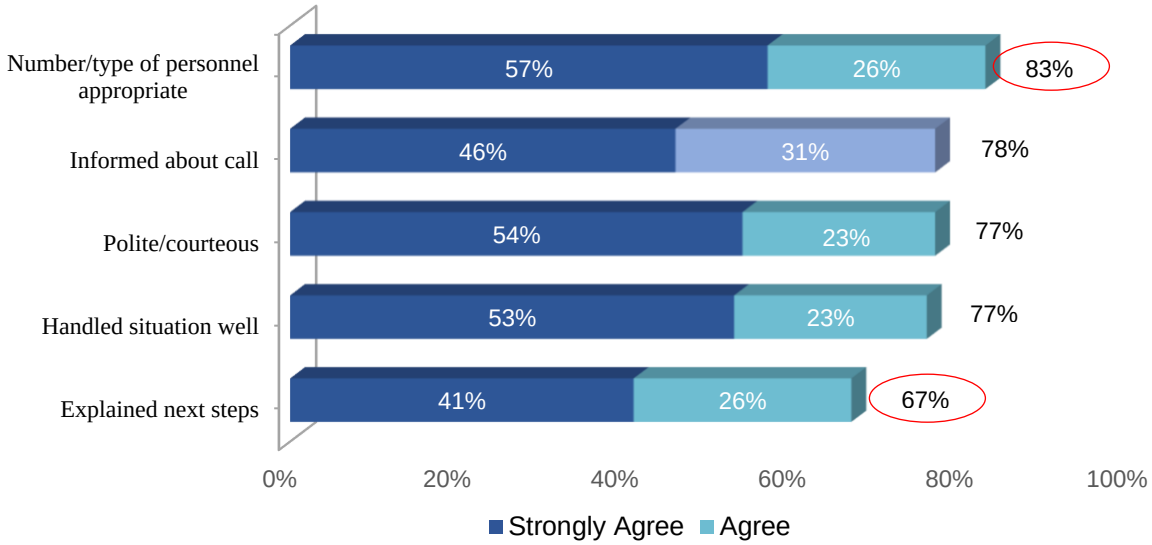


*Figure based on Q19: "Please tell me whether you Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree with the following statements about on-site personnel. You can also tell me if it doesn't apply." Statistically significant differences at the 90% confidence interval or higher are circled. Number and type of personnel were rated higher than all other attributes. Explained next steps was rated lower than all other attributes.

(4.2) Performance Ratings by Department and City

As seen in Table 5, customers who requested help from the Fire Department gave on-scene personnel higher performance ratings than did customers who had requested EMS or Police. More than nine-out-of-ten customers agreed that fire fighters were professional and courteous, well informed about the reason for the call, and generally handled the situation well, compared to just over three fourths for EMS and Police. Findings were consistent for both Salt Lake City and Sandy City. See **Table 6**.

Table 5: On-Scene Performance Ratings across Key Indicators Fire, EMS, and Police

	Agree/Strongly Agree: Fire (n=85)	Agree/Strongly Agree: EMS (n=91)	Agree/Strongly Agree: Police (n=304)
The number and type of personnel who arrived on the scene were appropriate to the situation	90%	85%	81%
On-scene personnel were professional and courteous	91%	79%	75%
On-scene personnel were well informed about the reason for the call	92%	78%	76%
On-scene personnel handled the situation well	90%	78%	75%
On-scene personnel explained what would happen next	78%	75%	64%

*Figure based on 19: "Please tell me whether you Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree with the following statements about the on-site personnel. You can also tell me if it doesn't apply."

Table 6: On-Scene Performance Ratings across Key Indicators Salt Lake City and Sandy City

	Agree/Strongly Agree Salt Lake City	Agree/Strongly Agree Sandy City
The number and type of personnel who arrived on the scene were appropriate to the situation	83%	80%
On-scene personnel were professional and courteous	77%	78%
On-scene personnel were well informed about the reason for the call	78%	77%
On-scene personnel handled the situation well	76%	79%
On-scene personnel explained what would happen next	67%	58%

*Figure based on Q34 and Q37: "Please tell me whether you strongly agree, agree, disagree or strongly disagree with each statement about the Cleveland Police in general based…"

6. Summary and Recommendations

The study found the majority of Salt Lake City and Sandy City residents who have used emergency or non-emergency services in the last year believe the 911 Communications Bureau is doing a good to excellent job overall. Moreover, performance scores for dispatch operators were high across all key indicators including whether the operator listened, was knowledgeable, and asked relevant and appropriate questions.

Despite these positive indicators, the study found that residents are less satisfied with response times and on-scene personnel. Customers reported a median wait time of 10 minutes for help to arrive, although individual respondents reported waiting more than 90 minutes for services, raising the average wait time to nearly an hour. Less than three-fourths of customers surveyed gave the Bureau a top score for response time and 12% gave the Bureau a low score of 1 or 2, significantly lower than the scores for dispatch operators. On-scene personnel received similar scores.

Results suggest that while all three service areas are important to residents, response time and on-scene performance may have a greater impact on overall satisfaction than interactions with dispatch operators. Dispatch performance, while very important to customers and strongly correlated with overall satisfaction, may not translate into highly satisfied customers if their expectations for response time and on-scene personnel are not met.

Based on these findings, we recommend the following:

- **Recommendation 1: As part of the needs assessment and analysis, determine whether current response times overall and for police in particular are adequate and consistent with best practice standards.** Response time was a source of dissatisfaction for some customers and perceived wait times should be confirmed regularly by an analysis of actual call data.

- **Recommendation 2: If feasible, determine how often 911 callers are placed on hold and for how long to help assess operator staffing levels.**

- **Recommendation 3: Consider conducting focus group research to better understand public expectations regarding response time and on-scene personnel and to identify strategies for improving service and/or educating the public.** Survey results, for example, suggest that customers are more satisfied when told how long they will have to wait for service to arrive.

- **Recommendation 4: Consider focus group research to understand the concerns and barriers that cause residents to be reluctant to use online reporting services.** Online reporting services were not popular among survey respondents; however, variations on the approach and alternative reporting models might be explored.

Survey Instrument and Frequencies

The survey as it was presented to participants is portrayed in its entirety below:

Salt Lake City 911 Communications Bureau
External Customer Dispatch Survey 2018
Weighted Frequencies (n=unweighted number of respondents)

INTRODUCTION

Hello. I am calling on behalf of the Salt Lake City 911 Communications Bureau. We are conducting a survey with people who called the City's 911 emergency or non-emergency dispatch services in the last year and want your feedback. Your answers will be anonymous.

01 willing to continue
02 refusal
03 call back <at specific time>
04 call back <no specific time>
05 no answer
06 busy
07 answering machine
08 disconnected number
09 language barrier (not Spanish or English)
10 business number
11 fax machine

SCREENER QUESTIONS (n=610)

Landline 13%

1. According to our records, you called Salt Lake City 911 or non-emergency dispatch from this number in the last year. Is that correct? (If necessary: Salt Lake City emergency dispatch also serves Sandy City)

1 Yes
2 No ("May I speak to the person who placed the call?" transferring to the person, restart intro)
3 Not available now (arrange a call-back)
9 Refused (terminate)

Cell Phone 87%

1. According to our records, you called Salt Lake City 911 or non-emergency dispatch from this number in the last year. I'd like to ask you some questions about how satisfied you were with the services. (If necessary: Salt Lake City emergency dispatch also serves Sandy City)

1b. Since you are on a cell phone, I can call you back if you are driving or doing anything else that requires
your full attention. Can you talk safely and privately now, or not?

1 Yes
2 Not right now (try and arrange a time to call-back)
9 Refused (terminate)

All Respondents

2. Are you 18 years or older? (n=610)

1 Yes (continue interview) 100%
2 No (terminate)
9 Refused (terminate)

3. Are you comfortable taking this survey in English? [DO NOT READ OPTIONS] (n=610)

1 Yes, comfortable in English 98%
2 No, need survey in Spanish [**SWITCH TO SPANISH VERSION**] 2%
3 No, need other language [**TERMINATE**]

4. What city do you live in? (Don't Read) (n=610)

1 Salt Lake City 79%
2 Sandy City 21%
3 Other
9 Don't know/refused

5. What is your zip code? [**Record 5 digit zip code. Zip code list to be provided.**]

5a. Zone_Modified (backfilled, not asked of respondents) (n=610)

1 Zone 1, Salt Lake 15%
2 Zone 2, Salt Lake 17%
3 Zone 3, Salt Lake 23%
4 Zone 4, Salt Lake 24%
5 Alta, Sandy City
6 Bell, Sandy City } 7%
7 Crescent, Sandy City
8 Sandy, Sandy City } 14

SATISFACTION WITH DISPATCH

I'd like to ask you some questions about the telephone dispatch service.

6. When you called the 911 Communications Bureau, did you dial 911 or a 7-digit telephone number? (n=610)

1 911 Emergency 20%

2 7-digit Non-emergency 80%
9 Don't know/refused (backfill based on dataset)

[IF RESPONDENT HAD MORE THAN ONE EXPERIENCE OR CALLED MULTIPLE TIMES ASK: "In that case, just answer with regard to your most significant interaction with the 911 Bureau.]

7. What type of service did you request? (READ LIST. Check one.) (n=610)
1 Police 80%
2 Fire 10%
3 Emergency Medical Services (EMS) 10%
4 Other (specify) _____
9 Don't know/refused (don't read. Backfill from database)

8. When you called, did you receive a busy signal? (n=610)
1 Yes 3%
2 No 92%
9 Don't know/refused 5%

9. Were you placed on hold? (n=610)

1 Yes 13%
2 No (**Skip to Q11**) 79%
9 Don't know/refused (**Skip to Q11**) 9%

10. Did the operator inform you that you would be placed on hold? (n=80 unweighted)
1 Yes 77%
2 No 13%
9 Don't know/refused 9%

10a. About how long were you on hold before someone answered your call? (n=80 unweighted)

1 Minutes mean = 4; median = 2 (> than 10 minutes = 4%)
9 Don't know/Refused 20%

11. **[AKS ONLY IF Q7 = POLICE AND Q6 = 7-DIGIT or Don't Know. ALL OTHERS SKIP TO Q12**] Did the operator give you the option of reporting the incident online and receiving a follow-up at a later time? (n=152 unweighted)

1 Yes **(Skip to Q12)** 15%
2 No 77%
9 Don't know/refused 7%

11a. Would you have preferred to be given an online option? (n=130 unweighted)
1 Yes 12%
2 No 82%
9 Don't know/refused 6%

12. Thinking about your interaction with the dispatch operator, please tell me whether you Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree with the following statements. You can also tell me if it doesn't apply. (ROTATE) (n=610)

SCALE

1 Strongly Agree
2 Agree
3 Disagree
4 Strongly Disagree
5 Doesn't Apply (Read)
9 Don't know/Refused (Don't Read)

ITEMS

a) The operator was polite in how he or she spoke to me 94% Agree/Str Agree; 3% Disagree/Str Disagree
b) The operator listened to what I had to say 95% Agree/Str Agree; 4% Disagree/Str Disagree
c) The operator answered my questions and/or directed me to someone who could help 89% Agree/Str Agree; 4% Disagree/Str Disagree
d) The operator was knowledgeable 90% Agree/Str Agree; 4% Disagree/Str Disagree
e) The operator asked relevant and appropriate questions 92% Agree/Str Agree; 4% Disagree/Str Disagree
f) The operator was calm and gave clear instructions 94% Agree/Str Agree; 2% Disagree/Str Disagree
g) The operator kept me informed about what would happen next 85% Agree/Str Agree; 8% Disagree/Str Disagree
h) The operator showed kindness and compassion 88% Agree/Str Agree; 6% Disagree/Str Disagree

13. On a scale of 1 to 5, where 5 is Excellent and 1 is Poor, how would you rate the telephone dispatch service <u>overall</u>? (9=Don't Know) (n=610)

89% dispatch top score of 4 or 5, where 5 is "Excellent"; 6% neutral score of 3; 3% low score of 1 or 2, where 1 is "Poor"; 1 % DK
Consistently high ratings; no statistical differences based on type of call (Police/Fire/EMS), or City. Dispatch ratings statistically higher than ratings for response time or on-scene personnel. Customers were most satisfied with 911 dispatch (75% of respondents who dialed 911 rated dispatch as "Excellent" overall compared to 67% who used a 7-digit number).

<u>SATISFACTION WITH RESPONSE TIME</u>

The next few questions are about response times.

14. How long did you wait before services arrived? (Don't Read. Check one) (n=610)

1 Minutes mean = 52 minutes; median = 10 minutes
2 There was no on-site visit (**Skip to Q22**) 14%

3 Didn't meet the on-site team/wasn't there (**Skip to Q22**) 10%
9 Don't know/Refused 11%

15. Were you told how long the response time would be? (n=480 unweighted)
1 Yes 28%
2 No **(Skip to Q17)** 51%
9 Don't Know/Refused **(Skip to Q17)** 21%

16. [IF Yes] Was the time estimate accurate? (n=134 unweighted)
1 Yes 84%
2 No 11%
9 Don't Know/Refused 5%

17. [If No] Would you have preferred to have that information? (n=346 unweighted)
1 Yes 68%
2 No 24%
9 Don't Know/Refused 9%

18. On a scale of 1 to 5, where 5 is Excellent and 1 is Poor, how would you rate the response time to your call? (9=Don't Know) (n=480 unweighted)
73% response time top score of 4 or 5, where 5 is "Excellent;" 11% neutral score of 3; 12% low score of 1 or 2, where 1 is "Poor"; 4 % DK.
Fire had highest response time ratings: 71% of respondents rated fire response as "Excellent," compared to 48% for EMS and 51% for Police. No statistical difference based on City, or 911 versus 7-digit.

SATISFACTION WITH ON SITE RESPONSE

The last set of questions are about the services provided when personnel arrived on the scene.

19. Please tell me whether you Strongly Agree, Somewhat Agree, Somewhat Disagree, or Strongly Disagree with the following statements about the on-site personnel. You can also tell me if it doesn't apply. (ROTATE ITEMS)

SCALE
6 Strongly Agree
7 Agree
8 Disagree
9 Strongly Disagree
10 Doesn't Apply (Read)
10 Don't know/Refused (Don't Read)

ITEMS (n=480 unweighted)
a) The number and type of personnel who arrived on the scene were appropriate to the situation 83% Agree/Str Agree; 3% Disagree/Str Disagree *(statistically higher than other attributes at 90% confidence level)*

b) On-scene personnel were professional and courteous 77% Agree/Str Agree; 6% Disagree/Str Disagree
c) On-scene personnel were well-informed about the reason for the call 78% Agree/Str Agree; 5% Disagree/Str Disagree
d) On-scene personnel handled the situation well 77% Agree/Str Agree; 7% Disagree/Str Disagree
e) On-scene personnel explained what would happen next 67% Agree/Str Agree; 9% Disagree/Str Disagree *(statistically lower than other attributes at 95% confidence level)*

20. On a scale of 1 to 5, where 5 is Excellent and 1 is Poor, how would you rate the on-scene personnel who responded to your call? (9=Don't Know) (n=480 unweighted)
76% gave on-scene personnel a top score of 4 or 5, where 5 is "Excellent;" 7% neutral score of 3; 6% low score of 1 or 2, where 1 is "Poor"; 11 % DK.
Fire had highest on-site ratings: 91% of respondents rated gave fire responders top score of 4 or 5; compared to 74% for EMS and 75% for Police. No significant differences by City or 911 versus 7-digit.

OVERALL SATISFACTION

21. Using the same scale of 1 to 5, where 5 is Excellent, how would you rate the emergency or non-emergency services you received overall, including the dispatch operator, the time it took for services to arrive, and the on-scene personnel? (n=480 unweighted) *Only asked of respondents who had spoken with dispatch and received a site visit.*
84% gave top score of 4 or 5, where 5 is "Excellent;" 8% gave neutral rating of 3; 5% gave low score of 1 or 2, where 1 is "Poor," and 2% DK.
Fire had highest overall ratings; 75% of respondents gave Fire an overall mark of "Excellent," compared to 57% for Police and 62% for EMS.

DEMOGRAPHICS

I have a few, final questions just to make sure we have a representative sample.

22. What year were you born? (n=610) mean = 42; median = 39.

23. Can you please tell me what racial or ethnic group you most identify with? (**READ)** (n=610)
1 Hispanic/Latino 15%
2 Black/African American 2%
3 Asian-American 4%
4 White/Caucasian 70%
5 Other racial or ethnic background (specify) 3%
9 Refused (Don't Read) 7%

24. What is the highest level of schooling you've completed? (Don't Read) (n=610)
1 Grades 1-8 2%
2 Some High School 3%

3 High School Graduate/GED 23%
4 Some College/Vocational Training 24%
5 College Graduate 33%
6 Post Graduate/Professional School 12%
9 Refused 4%

25. I am going to read some categories of household income. Please stop me when I reach the category of your total 2017 annual household income, before taxes: (n=610)

01 Less than $10,000 6%
02 $10,000 to under $30,000 16%
03 $30,000 to under $50,000 15%
04 $50,000 to under $70,000 14%
05 $70,000 to under $100,000 11%
06 $100,000 to under $150,000 9%
08 More than $150,000 6%
99 Refused (DON'T READ) 23%

26. **[By observation]** (n=610)
1 Male 54%
2 Female 46%

27. Note Language (English or Spanish) (n=610) 98% English, 2% Spanish

28. **[Optional**] If we conduct additional research, such as focus groups, would you like to be contacted to discuss this information further? (n=610)
1 Yes 36%
2 No **(skip to end)** 64%

29. Can I please have your name and phone number and/or an email address? (enter verbatim) 220 individuals provided contact information

Demographic Profile of Residents Surveyed Compared to Population Estimates

Profile of Residents Surveyed
Compared to U.S. Census Population Estimates for Salt Lake County, Utah

Population Characteristic	U.S. Census Population Estimates	Unweighted Sample*	Weighted Sample
Male	50.2%	51%	54%
Female	49.8%	49%	46%
White/Caucasian	71.4%	72%	70%
Black/African American	2.1%	2%	2%
Hispanic/Latino	18.3%	13%	15%
Asian American	4.3%	3%	4%

Other/Mixed	4.5%	2%	3%
Refused	NA	6%	6%

*May not add to 100% due to rounding error.

Profile of Residents Surveyed
Compared to Salt Lake City 911 Communications Bureau Database

Respondent Characteristic	Total Database Distribution	Unweighted Sample	Weighted Sample
Salt Lake City	79%	67%	79%
Sandy City	21%	33%	21%
7-Digit Dispatch	80%	66%	80%
911 Dispatch	20%	34%	20%
Police	86%	66%	80%
Fire	4%	18%	10%
Medical	10%	17%	10%

Appendix A: Descriptive Profile

This document provides a descriptive profile of the Salt Lake City 911 Center. The purpose of this profile is to document the project team's understanding of the organization, staffing, levels of service, operations, technology, and costs for the 911 Center, as well as key issues impacting and shaping service requirements. The data contained in the profile was developed based on the work conducted by the project team, including:

- One-on-one interviews conducted with 911 Center staff;
- On-site floor observations and ride along observations with public safety staff;
- Collection of workload and service provision data;
- Review of strategic documents and reports, budget data, organizational structure, and key practices.

The descriptive profile is not intended to include every organizational and operational facet of the organization, but rather to provide an overview and to serve as the "base line" or "status quo" against which any recommendations made at the conclusion of the study can be compared to demonstrate the change in roles, organizational structure, or operational practice.

The profile includes a summary of the organizational structure, budget, services provided, roles and responsibilities of staff, and technology used by the 911 Center. As part of this review, the project team spoke directly with various members of the Center's staff, and collected and reviewed various data describing the organization and work processes.

Information contained in this descriptive profile will be employed in the analysis of issues during subsequent stages of the project.

1. INTRODUCTION

The Salt Lake City 911 Center serves as the single public safety answering point (PSAP) for the entirety of Salt Lake City, as well as the City of Sandy. The combined population of these two cities is approximately 300,000. The 911 Center provides call-taking and police and fire dispatch services to the following agencies:

- Salt Lake City Fire Department
- Salt Lake City Police Department
- City of Sandy Fire Department
- City of Sandy Police Department
- City of Sandy Animal Services

The 911 Center is managed by an Executive Director, who reports to the Mayor's Office. The following sections of this profile explore the 911 Dispatch Center's budget, staffing and organizational structure, technology, staff roles and responsibilities, and workload/performance benchmarks.

2. BUDGET

The following table summarizes the 911 Center budget data provided to the project team, showing revenues and expenditures for each of the last three fiscal years.

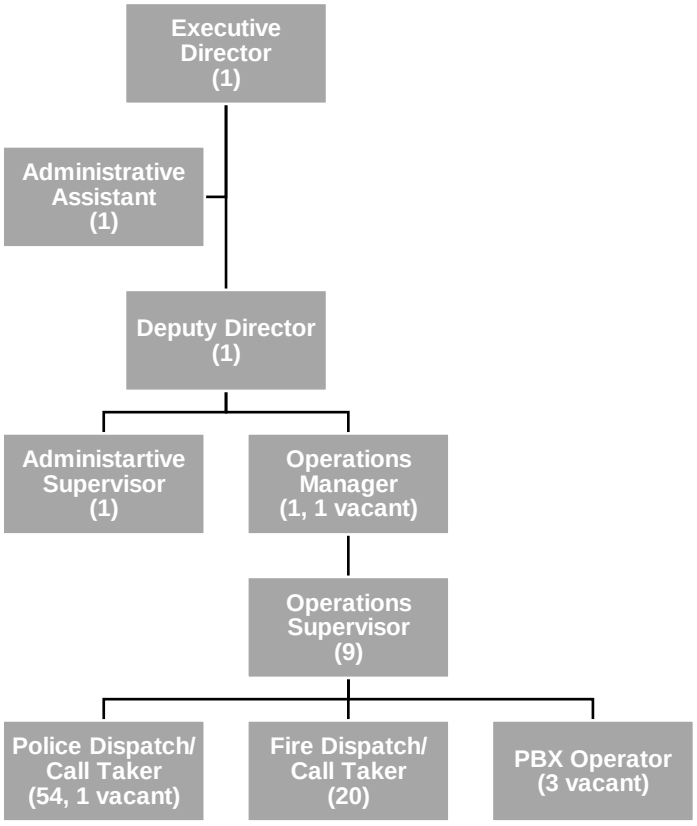
Revenue	2016	2017	2018
INTERLOCAL FOR E911 SERVICES	516,160.00	600,275.00	467,045.00
FUEL REIMBURSEMENT	1,653.60	954.00	954.00
CELL PHONE REIMBURSEMENT	156.00	162.00	144.00
ADMINISTRATIVE FEES	-82,464.00	0.00	0.00
TRANSFER FROM E911/CF DISPATCH	2,800,000.00	0.00	0.00
TOTAL	**3,235,505.60**	**601,391.00**	**468,143.00**
Expenditures	**2016**	**2017**	**2018**
BASE PAY	3,646,179.97	3,954,452.98	3,501,703.57
LONGEVITY PAY	34,849.10	34,281.25	31,431.25
OVERTIME PAY	509,975.37	461,002.35	420,457.03
OTHER PAY	1,730.35	1,805.36	1,655.36
HOURLY/SEASONAL PAY	54,298.24	30,921.32	30,470.82
ST DISAB/PARENTAL PAYMENT	64,655.40	89,683.02	85,138.71
UNIFORM ALLOWANCE	0.00	23.88	23.88
ANNUAL CASH CONVERSION	8,111.31	9,556.86	9,556.86
TAXABLE FRINGE BENEFIT	0.00	382.15	382.15
EMPLOYEE BENEFITS-FICA	318,644.90	335,713.16	298,883.22
STATE RETIREMENT	28,447.34	29,072.06	25,729.31
DEFERRED BENEFIT 401K	38,350.53	38,804.73	34,482.94
EMPL BENEFITS-STATE RET.NON.CT	696,428.72	736,727.05	655,070.53
EMPLOYEE BENEFITS 501C9 OPEB	62,125.55	77,942.70	70,249.46
POLICE RETIREMENT	0.00	227.33	227.33
RETIREMENT PAYOUT	0.00	0.00	0.00

EMPLOYEE INSURANCE	-3,740.25	-11,462.20	-11,462.20
HSA - CITY CONTRIBUTION	616,926.72	690,179.51	607,476.80
UNEMPLOYMENT COMPENSATION	96,643.99	104,327.24	102,531.56
SALARY CONTINGENCY	0.00	4,721.15	4,721.15
OPERATING EXPENSES	687,961.82	795,316.54	593,133.58
TOTAL	**6,861,589.06**	**7,383,678.44**	**6,461,863.31**

Expenditures rose overall from 2016 to 2017, and fell from 2017 to 2018, ending at below-2016 levels this year. Major expenditure categories such as base and overtime pay, FICA contributions, State retirement, HSA contributions, and operating expenses all rose and fell in lockstep with – and clearly contributed to – the overall spending trend.

3. ORGANIZATIONAL STRUCTURE

The following organizational chart shows the reporting structure of staff within SLC 911.



4. ROLES AND RESPONSIBILITIES

The following table shows the number of authorized and filled positions within each job title in the organization, as well as a summary of their key job duties. This table is not intended to provide a "job description" level of detail, but to outline the core functions for which each position is responsible.

KEY ROLES AND RESPONSIBILITIES			
Position Title	**Authorized Positions**	**Filled Positions**	**Key Roles and Responsibilities**
Executive Director	1.0	1.0	• Reports to the Office of the Mayor. • Plans, organizes, and oversees all operational and administrative functions of the 911 Center. • Plans and evaluates the work of the operations managers and the administrative and operations supervisors. • Directs the development and execution of programs, initiatives, and systems to achieve the 911 Center's goals. • Oversees the Center's relationships with partner agencies, and ensures that the Center meets the needs of all partner agencies. • Establishes and tracks performance targets and professional development targets for 911 Center staff and management. Ensures that staff perform at optimal levels. • Ensures that the Center's technology infrastructure is optimized to provide the highest level of service possible.
Deputy Director	1.0	1.0	• Reports to the Executive Director. • Leads, supervises, and directs the 911 Center's Operations Managers and Supervisors. • Assists in the development and preparation of the Bureau's budget, and oversees budget expenditures. • Manages operations of the 911 Center on a daily basis and during emergencies. • Sets employee performance standards and ensures the availability of training and certifications to meet them. • Leads projects, programming and upgrades related to the Bureau's software and technology.

KEY ROLES AND RESPONSIBILITIES			
Position Title	**Authorized Positions**	**Filled Positions**	**Key Roles and Responsibilities**
Operations Manager	2.0	1.0	• Reports to the Deputy Director. • Provides direct oversight of floor supervisors. • Oversee core dispatch operations, including problems resolution, staff discipline, quality assurance oversight, customer interface and related. • Performs a variety of special projects, as assigned.
Administrative Supervisor	1.0	1.0	• Reports to the Deputy Director. • Provides special services support including database management and update. • Performs QA activities on a team of personnel similar to Operations Supervisors. • Performs special projects, as directed. • Significant time and effort currently dedicated to implementation of new CAD system in spring 2019.
Administrative Assistant	1.0	1.0	• Reports to Executive Director. • Processes GRAMA requests, when members of the public ask for audio copies of taped 911 calls. Finds and listens to the recording, alerts Executive Director of content which may need to be redacted, and coordinates with Police Department staff to ensure appropriate redactions occur before distribution. • Orders dispatch equipment such as uniforms, headsets, etc. • Runs timekeeping for the payroll process, ensuring that employee calendars are correct and all time accounted for. • Posts listings for new job openings.
Operations Supervisor	9.0	9.0	• Reports to the active Operations Manager. • Provides direct supervision of call takers and dispatchers. • Enforces 911 Center policies and procedures. • Handles problems between employees, and dispenses discipline as necessary. • Provides performance feedback to call takers and dispatchers. • Handles complaints from citizens and field units. • Accepts and processes overflow 911 calls as needed. • Troubleshoots problems with CAD, radio, and telephone systems.

KEY ROLES AND RESPONSIBILITIES			
Position Title	**Authorized Positions**	**Filled Positions**	**Key Roles and Responsibilities**
Police Dispatch/ Call Taker	55.0	54.0	• Reports to the active Operations Supervisor(s) or Operations manager. **CALL TAKING** • Takes incoming emergency calls from the public. Provides professional, compassionate, and expedient service to callers. • Gathers crucial information from callers, classifies incidents types, and creates/populates CAD calls for police dispatchers. • Transfers fire-related calls to the fire dispatch/ call-takers. • Transfers non-emergency calls to the appropriate public safety personnel or the non-emergency line. • Answers text-to-911 messages. **DISPATCH** • Receives incoming CAD calls from call-takers, identifies the priority level of incidents, and dispatches the correct police units to respond. • Provides initial call information and updates field units as the call progresses. • Provides support to field units, runs plates or background checks as necessary, and dispatches backup if needed.
Dispatcher 3			• All duties of other dispatch/call-takers. • Also conducts training of new dispatch/call-takers. • Is trained and capable of taking all call types: law enforcement/fire/medical.

KEY ROLES AND RESPONSIBILITIES			
Position Title	**Authorized Positions**	**Filled Positions**	**Key Roles and Responsibilities**
Fire Dispatch/ Call Taker	20.0	20.0	• Reports to the active Operations Supervisor or Operations manager. • Takes fire-related emergency calls from the public when transferred by police call-takers. Provides professional, compassionate, and expedient service to callers. • Gathers crucial information from callers, classifies fire-related incidents types, and creates/populates CAD calls. • Identifies the priority level of incidents, and dispatches the correct fire/EMS units to respond. • Provides initial call information and updates field units as the call progresses. • Provides support to field units, tracks progress of call, and dispatches backup if needed. • Answers non-emergency fire calls. Handles administrative fire requests or transfers to the appropriate fire personnel. • Answers fire-related text-to-911 messages.
Dispatcher 3			• All duties of other dispatch/call-takers. • Also conducts training of new dispatch/call-takers. • Is trained and capable of taking all call types: law enforcement/fire/medical.
PBX Operator	3.0	0.0	• Reports to the active Operations Supervisor or Operations manager. • Takes incoming calls to the non-emergency police line from the public. • Provides basic Police Department information to callers. • Transfers callers to the appropriate officer or dispatcher as necessary. • Transfers callers to the appropriate PSAP as necessary.

5. CURRENT PERSONNEL SCHEDULING

The table below shows the number of staff assigned under the current schedule to work each of the three floor positions (police dispatch, fire dispatch, police call-taking) during each segment of the week. As the table shows, the number of police dispatchers rises and falls slightly throughout the week depending on the number of channels operating for the City and whether the Rio Grande channel is operating. The number of fire dispatchers

does not change, and the number of call-takers varies to reflect workload at each time of day and day of the week.

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun
POLICE DISPATCH							
0300-0700	3	3	3	3	3	3	3
0700-1100	4	4	4	4	4	4	3
1100-1500	5	5	5	5	5	5	5
1500-1700	5	5	5	5	5	5	5
1700-1900	5	5	5	5	5	5	5
1900-2300	5	5	5	5	5	5	4
2300-0300	4	4	4	4	4	4	4
FIRE DISPATCH							
0300-0700	4	4	4	4	4	4	4
0700-1100	4	4	4	4	4	4	4
1100-1500	4	4	4	4	4	4	4
1500-1700	4	4	4	4	4	4	4
1700-1900	4	4	4	4	4	4	4
1900-2300	4	4	4	4	4	4	4
2300-0300	4	4	4	4	4	4	4
POLICE CALL TAKERS							
0300-0700	3	3	3	3	3	3	3
0700-1100	5	5	5	5	5	4	4
1100-1500	7	7	7	7	7	6	5
1500-1700	8	9	9	9	9	8	8
1700-1900	6	7	7	7	7	6	6
1900-2300	6	6	6	6	8	7	6
2300-0300	4	4	4	4	5	5	4

The SLC 911 Center's schedule relies mostly on 10-hour and 12-hour shifts, which have the advantage of providing staff with more than 2 days off per week. The schedule is developed based on historical call volume, and is revisited three times per year to ensure that sufficient manpower is in place to handle periods of heavy call volume.

6. KEY TECHNOLOGY UTILIZATION

The following table shows the primary technologies in use by the organization, along with a brief description of their functionality and utilization by staff.

TECHNOLOGY UTILIZATION	
Technology	**Description**
Versadex CAD	• Computer Aided Dispatch (CAD) system by Versaterm, allows the creation and modification of police, fire, and EMS calls. • Used by 911 staff to create calls for service, share them with public safety responders, and update the calls with new information as they progress. • Used by field public safety staff to • Will be replaced by Hexagon®, another CAD system. Transition to the new system is underway.
Versadex RMS	• Records Management System (RMS) by Versaterm, allows searching of statewide and national law enforcement records. • Used by 911 center staff and public safety responders in the field to run license plates, property records, criminal records, and check other vital records in a timely manner.
Intrado	• 911-specific multi-trunk phone system with the capability to queue and connect multiple calls concurrently. Uses an on-screen interface for call-takers. • Used by the 911 center staff to receive, prioritize, and process emergency calls.
ProQA	• Call script system by Priority Dispatch, integrated with the agency's CAD system. Uses a series of logic-based prompts to populate necessary information fields of a CAD call, whether police, fire, medical. • Used by 911 Center staff to gather necessary information from callers about incidents and automatically fill out CAD calls for dispatch.
Motorola Radios	• 911-specific digital radio system used by dispatchers and public safety agencies to direct field personnel and communicate in real time.
NICE	• Call recording software
Telestaff	• Scheduling system used to manage all employees' time.

Appendix B: Employee Survey Analysis

As part of the Matrix Consulting Group's study for the Salt Lake City 911 Center, the project team distributed an anonymous survey to employees of the 911 Center to gauge their opinions on a variety of topics relevant to the study. Survey responses were gathered and analyzed to understand employee sentiments on the Center's operational efficiency, training, leadership, and work environment.

The survey generally asked two types of questions:

- **Multiple Choice Questions:** Respondents were presented with a number of multiple choice questions, or statements where respondents indicated their level of agreement or disagreement with the statement. They could also indicate how effective they perceive each of the 911 Center's technology systems to be.
- **Open-ended response questions:** At the end of the survey, staff were given space to provide opinions about the 911 Center's strengths and weaknesses in their own words.

The link to the online survey was distributed to staff in September via email. A total of 64 responses were received out of 83 invitations, for a response rate of 77%. A copy of the survey as seen by respondents is included as an appendix following the analysis.

1. SUMMARY OF KEY FINDINGS

While a more detailed analysis can be found in the sections below, the following points summarize the key findings from this survey:

Findings of Strengths

- Respondents believe they provide a high level of service to the public and to first responders.
- Most employees said that they believe the 911 Center's workload is equitably distributed among staff.
- Respondents are generally happy with their managers and supervisors, particularly their responsiveness to staff needs.

Findings of Improvement Opportunities

- Many respondents said that they do not have high-quality training available to them, and that they do not have time available to take training. They would like to see improved/expanded training opportunities.
- Several staff said that they feel the 911 Center's policies and procedures are not consistently applied.
- The ProQA system and the Intrado phone system were both poorly reviewed by staff,

Findings of Strengths

- Respondents believe the 911 Center provides good initial training to staff.
- Most staff believe compensation is fair and the use of overtime is appropriate at the 911 Center.
- Respondents are pleased with the performance of the CAD/RMS suite and the radios used by dispatchers.
- Employees see teamwork and a strong Director as the 911 Center's greatest strengths.

Findings of Improvement Opportunities

particularly for the level of service they provide.

- A number of employees said that line staff should be valued or heard more than they currently are.
- Several respondents stated that they believe the 911 Center is in need of additional staffing, and that the current staffing numbers are insufficient to meet workload demand.
- A number of staff listed increases in compensation as an opportunity for improvement.

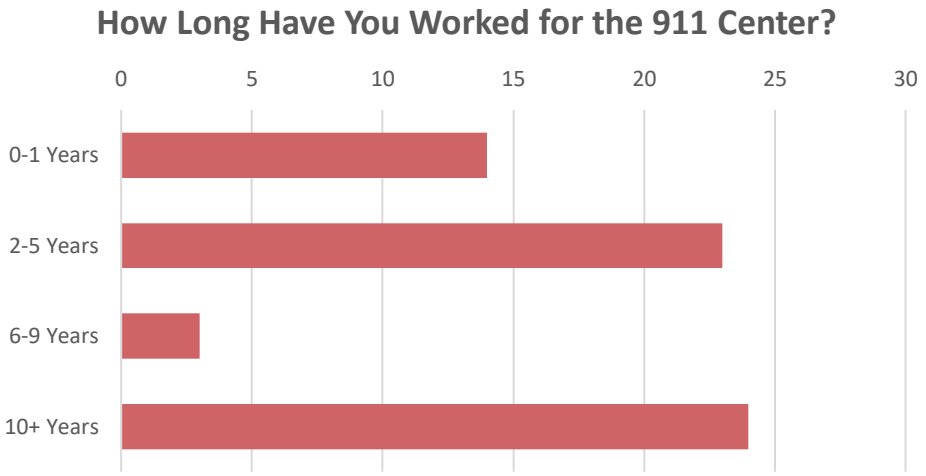
2. RESPONDENT DEMOGRAPHICS

While responses to the survey were confidential, the project team asked respondents to indicate some information about their position in order to understand the source of responses themes and identify trends among respondents.

(2.1) A Mix of Employees With Different Tenures At the 911 Center Responded To the Survey.

The following table and chart show the number of survey responses received, broken down by the length of time that respondents have worked for the 911 Center.

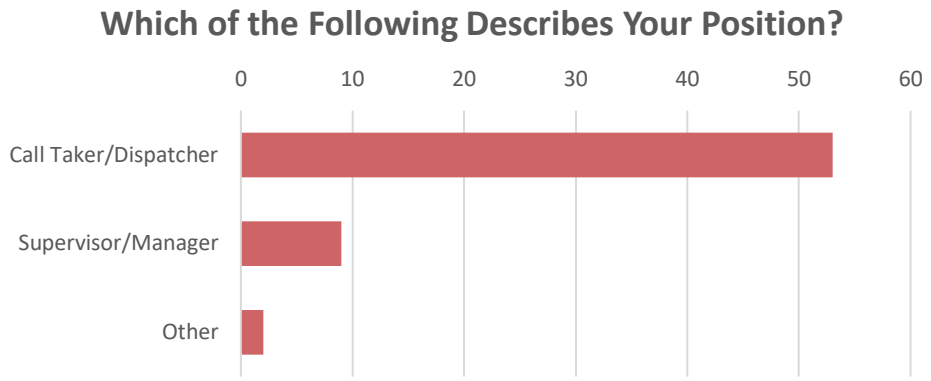
Agency	Percentage	Count
0-1 Years	22%	14
2-5 Years	36%	23
6-9 Years	5%	3
10+ Years	38%	24
Total	**100%**	**64**



The Vast Majority of Respondents are Dispatcher/Call-takers; Less Than 15% Are Supervisory Staff.

The table and chart below show the number of respondents who are line staff, supervisors/management, or "other". The two "other" responses were the Director and an administrative employee.

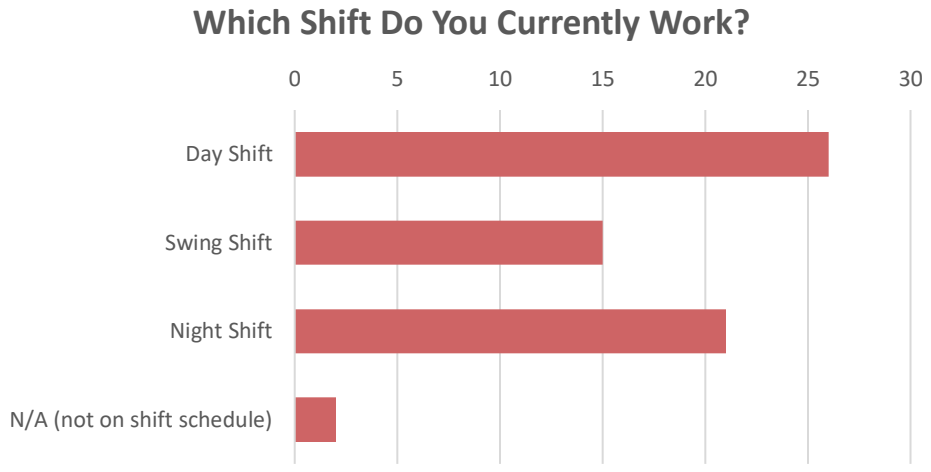
Position Type	Percentage	Count
Call Taker/Dispatcher	83%	53
Supervisor/Manager	14%	9
Other	3%	2
Total	**100%**	**64**



Day Shifts, Swing Shifts, and Night Shifts Were All Represented Among Participants.

The following table and chart show the survey's participants by the shift that they work.

Shift	Percentage	Count
Day Shift	**41%**	**26**
Swing Shift	**23%**	**15**
Night Shift	**33%**	**21**
N/A (not on shift schedule)	**3%**	**2**
Total	**100%**	**64**



3. MULTIPLE CHOICE RESPONSES

The second section of the survey asked respondents to indicate their level of agreement or disagreement with nineteen (19) statements about the 911 Center. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “N/A” or opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement. For this reason, percentages may not add up to 100%. There were a total of 62 respondents who participated in these statements.

The 911 Center’s Employees Believe They Provide A High Level of Service to the Community.

The table below shows the responses received to statements about the level of service provided by the 911 Center.

#	Statement	SA	A	D	SD
1	Our agency provides a high level of service to the public that calls in.	56%	42%	2%	0%
2	Our agency provides a high level of service to all of our police and fire public safety partner agencies.	58%	42%	0%	0%
3	Our agency provides a consistent level of service (day-to-day and shift-to-shift).	42%	47%	11%	0%
4	Our agency's personnel are professional and polite with the public.	35%	61%	2%	0%
5	Our agency's personnel are professional and polite with all our public safety partner agencies.	45%	48%	5%	0%
6	Our agency's work ethic is strong.	42%	45%	10%	3%
7	I believe that I clearly understand the operations of all our public safety partner agencies well.	39%	46%	15%	0%
8	I believe we handle emergency phone calls in a timely manner.	52%	42%	6%	0%
9	I believe we handle non-emergency phone calls in a timely manner.	42%	45%	11%	2%
10	I believe that the dedicated non-emergency phone line improves our level of service.	42%	35%	15%	8%

As the table shows, nearly every statement received agreement levels of 85% or greater, and only one statement received more than 20% disagreement. The employees of the 911 center clearly believe they provide excellent service to their partner public safety agencies and to the public. Statement #10, regarding the impact of the non-emergency

line on the 911 Center's level of service, received a slightly smaller, but still robust, majority of agreement.

Employees Believe the 911 Center's Workload is Well-Distributed, But That Overall Staffing Is Not Sufficient To Handle the Call Volume.

The table below shows the responses received to statements about staffing and the handling of the 911 Center's workload.

#	Statement	SA	A	D	SD
1	Workload for call-takers is equitably distributed -- I am about as busy as my colleagues.	22%	59%	14%	5%
2	Workload for dispatchers is equitably distributed -- I am about as busy as my colleagues.	26%	53%	19%	2%
3	Our staff rotation practices (reliefs) help to equally distribute workload.	28%	56%	14%	2%
4	Our staff rotation practices (reliefs) allow the operations of the floor to continue smoothly and uninterrupted.	21%	57%	21%	2%
5	We are sufficiently staffed to meet our agency's call-taking needs.	3%	31%	43%	22%
6	We are sufficiently staffed to meet our agency's dispatch needs.	5%	45%	33%	17%

- Statements about the equitable distribution of workload all received strong positive majorities, with more than 75% agreement for each.

- Statements about the sufficiency of staffing received much less agreement. 65% of employees do not believe the agency is staffed enough to handle call volume, and employees are split on whether staffing is sufficient for the 911 Center's dispatch duties.

- Staff hired more than 5 years ago tended to disagree more (77% disagreement) than those hired within the last 5 years (56% disagreement) with Statement #5 regarding the sufficiency of staff for call-taking. Likewise, longer-tenured staff tended to disagree more (65% disagreement) with Statement #6 about staffing for dispatch needs than those more recently hired (38% disagreement).

Employees Are Generally Happy With Their Managers and Supervisors, Particularly Their Responsiveness to Staff's Needs.

The table below shows the responses received to statements about supervision and management at the 911 Center.

#	Statement	SA	A	D	SD
7	My supervisor provides adequate direction and leadership which motivates me to work well.	31%	41%	14%	10%
8	My supervisor is consistent in their oversight.	28%	29%	26%	14%
9	My managers spend enough time with me to evaluate me individually.	29%	36%	24%	9%
10	My managers are available and responsive to my needs.	41%	45%	9%	3%

- More than 70% of respondents said that their supervisor provides adequate direction and leadership.
- 57% of staff said that their supervisor is consistent in their oversight, and 65% said that their manager spends enough time with them to evaluate them individually.
- Nearly all staff said that their managers are available and responsive to their needs.

Employees Believe the 911 Center Provides Quality Initial training, But Good Ongoing Training is Difficult to Find. Staff Lack the Time to Take Advantage of Training.

The table below shows the responses received to statements about the support which staff receive, specifically in the form of ongoing training and the application of employee policies and procedures.

#	Statement	SA	A	D	SD
11	Our agency provides new staff with strong initial training so that they are prepared to do their jobs well.	31%	52%	7%	5%
12	The training program for our new employees is appropriate in length and content.	24%	57%	7%	5%
13	I have high-quality in-service training available to me.	22%	53%	17%	5%
14	I have high-quality outside training available to me.	12%	29%	34%	21%
15	I have sufficient time available to take training.	16%	24%	41%	19%

16	Our agency's policies and procedures are clear and answer nearly all questions I may have.	**12%**	**60%**	**22%**	**2%**
17	Our agency's policies and procedures are consistently applied.	**10%**	**47%**	**29%**	**14%**

- Employees have a high opinion of the training provided to new staff, with greater than 80% saying that it is strong enough to prepare employees well and that it is appropriate in length and content.

- The quality of in-service training received positive responses, with 75% of staff agreeing that they have high-quality in-service training available to them.

- There was more disagreement than agreement with Statement #14, regarding the availability of high-quality outside training to staff.

- Similarly, 60% of staff disagreed with Statement #15, that they have sufficient time to take training. Staff hired within the last year tended to agree with this statement more (83% agreement, 17% disagreement) than other respondents (28% agreement, 72% disagreement).

- Most staff (72%) believe the 911 Center's policies and procedures are clear enough to answer their questions, but when asked whether the policies and procedures are equally applied, the majority shrunk to 57%.

Employees Believe the 911 Center Is A Good Place to Work. Opinions, However, Are Split on Staff Retention and the Use of Unscheduled Leave.

The table below shows the responses received to statements about morale and retention in the 911 Center.

#	Statement	SA	A	D	SD
1	I feel that our agency has the respect of all our public safety partner agencies.	**19%**	**53%**	**21%**	**5%**
2	I currently have high work morale.	**26%**	**43%**	**22%**	**9%**
3	I am planning to make a career at this agency.	**40%**	**33%**	**16%**	**5%**
4	Our agency does a good job of recruiting qualified applicants.	**11%**	**60%**	**23%**	**4%**
5	Our agency does a good job of retaining high-quality staff.	**5%**	**60%**	**26%**	**9%**

6	Our agency offers a compensation package that is fair and equitable compared to surrounding agencies.	**26%**	**53%**	**10%**	**5%**
7	I currently work an appropriate and reasonable amount of overtime.	**26%**	**48%**	**5%**	**2%**
8	Our agency as a whole works an appropriate and reasonable amount of mandated overtime.	**24%**	**53%**	**10%**	**5%**
9	I am comfortable with the amount of voluntary overtime that I work.	**28%**	**53%**	**5%**	**2%**
10	Unscheduled leave (example: sick time) is only used when it is appropriate at our agency.	**14%**	**38%**	**24%**	**21%**

- Statements #1-3 all focused on the intangible attitudes of staff, and they all received strong majorities of at least 69% agreement, with no more than a third of employees disagreeing on any statement.

- Statement #4, regarding the 911 Center's ability to recruit qualified applicants, received 71% agreement and 27% disagreement.

- Statement #5, regarding retention of high-quality staff at the 911 Center, received 65% agreement and 35% disagreement, which is a slightly less positive response than Statement #4.

- Statements regarding compensation levels and overtime were all met with agreement of 75% or greater, and disagreement did not surpass 15% for any of these statements. Statement #8 however, showed that 56% of managers and supervisors believe the agency works too much mandated overtime, whereas just 9% of line staff hold this opinion.

- Statement #10 received 52% agreement and 45% disagreement: a slim majority believe that unscheduled leave is used appropriately. However, when disaggregating this data to Employees' roles, this majority was stronger among line staff (62% agree, 34% disagree), while supervisors overwhelming disagreed with the statement (11% agree, 89% disagree).

4. RATING OF TECHNOLOGY

The third section of the survey asked respondents to rate each of the primary technology systems in use by the 911 Center in terms of the level of service they allow and the reliability of the system. Ratings were given on a scale of 1-4, with 4 being excellent. The table below shows how employees rated each system.

System	4	3	2	1
Versadex CAD - Reliability	23%	56%	14%	7%
Versadex CAD - Service Level	24%	59%	11%	6%
Versadex RMS - Reliability	28%	58%	11%	4%
Versadex RMS - Service Level	28%	52%	17%	4%
Priority Dispatch ProQA - Reliability	18%	38%	25%	18%
Priority Dispatch ProQA - Service Level	17%	28%	28%	26%
Intrado Phone System - Reliability	16%	25%	30%	29%
Intrado Phone System - Service Level	10%	29%	27%	35%
Motorola Radios - Reliability	42%	38%	15%	6%
Motorola Radios - Service Level	39%	37%	18%	6%

- As the table shows, employees think highly of the Versadex products in use by the 911 Center, as well as their Motorola radio consoles.

- Opinions were less favorable regarding ProQA, where 43% of all respondents (and 51% of line staff) gave a low rating to the system's reliability, and 54% of respondents rated it poorly for the level of service it allows.

- Furthermore, ratings of the Intrado phone system were less favorable: 59% of respondents rated the system's reliability poorly (although staff hired within the last 2 years gave it an average score of 3.2, as opposed to the average of 2.1 among other staff), and 62% of them gave a poor rating to the level of service it allows.

5. OPEN-ENDED RESPONSES

The final section of the survey asked respondents to provide answers to a set of open-ended questions in their own words. The following points illustrate the primary themes raised by participants in this format.

Employees View the Teamwork Among Staff and the Quality of Leadership As the 911 Center's Key Strengths.

The first open-ended question asked respondents to list the top strengths of the 911 Center in their own words. A total of 48 responses were received, most of them with 2 or 3 topics listed. The following table shows the most common response themes.

Category	%
Teamwork	15%
Leadership	13%
Camaraderie	7%
Dedicated staff	6%
Compensation	5%
Customer Service	5%
Professionalism	5%
Quality staff	5%
Training	5%

- The sense of teamwork was the most commonly listed strength, along with the sense of camaraderie that staff share. Staff work well together, and they enjoy each other's company.

- Many staff cited strong leadership from the Director as one of the 911 Center's key strengths.

- The dedication, professionalism, and overall high quality of staff was listed as one of the primary strengths as well, with a combined 16% of responses listing some combination of the three.

- The 911 Center's compensation package was listed as a strength by some staff, but the following section reveals that other view it as a weakness.

Improved Training Opportunities, Additional Staff, and Compensation Growth Were the Top Improvement Opportunities Listed by Staff.

The second open-ended question asked respondents to list the 911 Center's most important opportunities for improvement. A total of 48 responses were received, most of them with 2 or 3 topics listed. The following table shows the most common response themes.

Category	%
Training	14%
Compensation	10%
Staffing	10%
Consistency	7%
Chain of command	5%
Policies and Procedures	5%

- More training opportunities and better quality training were the top concerns for employees in response to this question.
- Several staff listed the available compensation packages as an opportunity for improvement.
- Staffing was a common refrain: many employees believe the 911 Center is simply understaffed and would benefit from more personnel.
- Enhanced consistency and policy/procedure improvements were among the top responses as well – staff want to know what they can expect at work.
- Several responses dealt with the chain of command at the 911 Center, specifically line staff feeling that they should be valued or listened to more than at present.

6. SURVEY QUESTIONS

The survey as presented to respondents is shown below:

Survey Introduction

The Matrix Consulting Group has been retained by Salt Lake City to conduct a performance audit of the 911 Center. As part of this effort, the project team is distributing this survey to employees of the 911 Center in order to gauge employee opinions on topics important to the audit and ensure that the input of each individual within the organization is heard.

Please take a few minutes to thoughtfully complete this survey. Your responses are entirely confidential, and no participant's individual survey responses will be shared.

If you have any questions regarding this survey, you can reach the survey administrator, David Branch, at 951-295- or @matrixcg.net

1. How long have you worked for the 911 Center?

- ◯ 0-1 Years
- ◯ 2-5 Years
- ◯ 6-9 Years
- ◯ 10+ Years

Employee Background

While the survey is confidential, knowing some information about your position will help the project team recognize trends and patterns among different groups of respondents for analysis purposes.

2. Which of the following best describes your position?

- ◯ Call-taker/Dispatcher
- ◯ Supervisor/Manager
- ◯ Other (please specify)

3. Which shift do you currently work?

- ◯ Day Shift (shifts starting in the early morning or mid-morning)
- ◯ Afternoon Shift (shifts starting late morning or afternoon)
- ◯ Night Shift (shifts starting in the evening, late night, or very early morning)
- ◯ N/A, I work normal business hours instead of a shift schedule.

4. Please indicate your level of agreement or disagreement with the following statements. If a statement is not relevant to you, please select N/A.

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
1. Our agency provides a high level of service to the public that calls in.	○	○	○	○	○
2. Our agency provides a high level of service to all of our police and fire public safety partner agencies.	○	○	○	○	○
3. Our agency provides a consistent level of service (day-to-day and shift-to-shift).	○	○	○	○	○
4. Our agency's personnel are professional and polite with the public.	○	○	○	○	○
5. Our agency's personnel are professional and polite with all our public safety partner agencies.	○	○	○	○	○
6. Our agency's work ethic is strong.	○	○	○	○	○
7. I believe that I clearly understand the operations of all our public safety partner agencies well.	○	○	○	○	○
8. I believe we handle emergency phone calls in a timely manner.	○	○	○	○	○
9. I believe we handle non-emergency phone calls in a timely manner.	○	○	○	○	○
10. I believe that the dedicated non-emergency phone line improves our level of service.	○	○	○	○	○

5. Please indicate your level of agreement or disagreement with each of the following statements. If a statement is not relevant to you, please select N/A.

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
1. Workload for call-takers is equitably distributed -- I am about as busy as my colleagues.	○	○	○	○	○
2. Workload for dispatchers is equitably distributed -- I am about as busy as my colleagues.	○	○	○	○	○
3. Our staff rotation practices (reliefs) help to equally distribute workload.	○	○	○	○	○
4. Our staff rotation practices (reliefs) allow the operations of the floor to continue smoothly and uninterrupted.	○	○	○	○	○
5. We are sufficiently staffed to meet our agency's call-taking needs.	○	○	○	○	○
6. We are sufficiently staffed to meet our agency's dispatch needs.	○	○	○	○	○
7. My supervisor provides adequate direction and leadership which motivates me to work well.	○	○	○	○	○
8. My supervisor is consistent in their oversight.	○	○	○	○	○
9. My managers spend enough time with me to evaluate me individually.	○	○	○	○	○
10. My managers are available and responsive to my needs.	○	○	○	○	○

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
11. Our agency provides new staff with strong initial training so that they are prepared to do their jobs well.	○	○	○	○	○
12. The training program for our new employees is appropriate in length and content.	○	○	○	○	○
13. I have high-quality in-service training available to me.	○	○	○	○	○
14. I have high-quality outside training available to me.	○	○	○	○	○
15. I have sufficient time available to take training.	○	○	○	○	○
16. Our agency's policies and procedures are clear and answer nearly all questions I may have.	○	○	○	○	○
17. Our agency's policies and procedures are consistently applied.	○	○	○	○	○

6. Please indicate your level of agreement or disagreement with each of the following statements. If a statement is not relevant to you, please select N/A.

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
1. I feel that our agency has the respect of all our public safety partner agencies.	○	○	○	○	○
2. I currently have high work morale.	○	○	○	○	○
3. I am planning to make a career at this agency.	○	○	○	○	○
4. Our agency does a good job of recruiting qualified applicants.	○	○	○	○	○
5. Our agency does a good job of retaining high-quality staff.	○	○	○	○	○
6. Our agency offers a compensation package that is fair and equitable compared to surrounding agencies.	○	○	○	○	○
7. I currently work an appropriate and reasonable amount of overtime.	○	○	○	○	○
8. Our agency as a whole works an appropriate and reasonable amount of mandated overtime.	○	○	○	○	○
9. I am comfortable with the amount of voluntary overtime that I work.	○	○	○	○	○
10. Unscheduled leave (example: sick time) is only used when it is appropriate at our agency.	○	○	○	○	○

7. Please indicate the degree to which each of the following technologies in use by the 911 Center are 1) reliable, and 2) effective in providing a high level of service. If you do not have experience with one or more technologies, please skip them.

	Reliability (on a scale of 1-4, with 4 being highest)	Level of Service (on a scale of 1-4, with 4 being highest)
Versadex CAD system		
Versadex RMS		
Priority Dispatch ProQA		
Intrado phone system		
Motorola radios		

Processing Time

Please answer the following questions with regard to what you believe is the average amount of time required for each task. If you do not have experience with a particular task, please skip it.

While it is recognized these are only estimates, your judgment based on your professional experience is appreciated.

Please enter your answers in terms of the number of minutes and seconds required for each. For example, for a 45-second task, you would put a "0" in the minutes box, and a "45" in the seconds box. For a task taking 2.5 minutes, you would put a "2" in the minutes box and a "30" in the seconds box.

8. As a call-taker, how much time do you typically spend on an incoming emergency phone call (law enforcement)?

Minutes

Seconds

9. As a call-taker, how much time do you typically spend on an incoming emergency phone call (fire)?

Minutes

Seconds

10. As a call-taker, how much time do you typically spend on an incoming emergency phone call (medical)?

Minutes

Seconds

The following questions ask about the time required to "process" a call. We are defining this as the time required to read, understand and formulate a radio dispatch, transmit and transact with field units, and fully complete a call, including the addition of any notes to the CAD record. It should be the total amount of time that you are actively working the call.

11. As a dispatcher, how long does it typically take you to process a law enforcement call?

Minutes

Seconds

12. As a dispatcher, how long does it typically take you to process a self-initiated activity by a law enforcement officer?

Minutes

Seconds

13. As a dispatcher, how long does it typically take you to process a fire call?

Minutes

Seconds

14. As a dispatcher, how long does it typically take you to process a medical call?

Minutes

Seconds

Open Response Questions

15. What do you believe are the three greatest strengths of the 911 Center?

1

2

3

16. What do you believe are the three greatest opportunities for improvement at the 911 Center?

1

2

3

17. If you have any other comments for the project team, please share them here.

Appendix C: Police and Fire Survey Analysis

As part of the Matrix Consulting Group's study for the Salt Lake City 911 Center, the project team distributed an anonymous survey to employees of public safety agencies (police and fire departments) served by the 911 Center to gauge their opinions on a variety of topics relevant to the study. Survey responses were gathered and analyzed to understand customer sentiments on the level of service, professionalism, and customer service provided by the Salt Lake City 911 Center.

The survey generally asked two types of questions:

- **Multiple Choice Questions:** Respondents were presented with a number of multiple choice questions, or statements where respondents indicated their level of agreement or disagreement with the statement.
- **Open-ended response questions:** At the end of the survey, staff were given space to provide opinions about the division's strengths and weaknesses in their own words.

The link to the online survey was distributed to staff in September via email and web link. Of the 641 emails distributed, 291 responses were received, for a rate of 45%. The remaining 27 responses came from the web link which was sent to the Sandy Police Department.

Summary of Key Findings

While a more detailed analysis can be found in the sections below, the following points summarize the key findings from the responses received to this survey:

Findings of Strengths

- More than 70% of respondents said that the 911 Center provides a high level of service to its customer public safety agencies and to the public.
- More than 70% of respondents said that the correct number and types of units are dispatched on calls.
- More than 80% of respondents said that dispatchers are responsive and polite to their agencies' staff.

Findings of Improvement Opportunities

- The 911 Center's processes for dispatching emergency and non-emergency calls were considered "efficient and effective" by fewer than 50% of respondents.
- Over 40% of respondents disagreed when asked if the initial details they receive from dispatchers are accurate. Likewise, 40% disagreed when asked if they receive dispatch information that is timely and complete.

Findings of Strengths

- 70% of respondents said that the 911 Center's dispatchers are appropriately trained for the procedures and protocols in their particular agency.
- Over 75% of respondents said that the 911 Center's supervisors are accessible and responsive when they need help.
- More than 80% of respondents agreed that their agency and the 911 Center work well together during critical incidents.
- The dedication, experience, and competence of the 911 Center's personnel were lauded as the greatest strengths of the organization.
- The Sandy Fire Department's respondents were particularly happy with the service they receive, regularly providing more agreeing responses than the other agencies.

Findings of Improvement Opportunities

- Just 40% of respondents believe that the 911 Center is appropriately staffed for their workload.
- Staff who interact with dispatch more (line-level officers) are less pleased with the Center's operations and level of service than management and civilian employees.
- The Sandy Police Department is particularly concerned about the 911 Center's dispatching. They gave 70% or more disagreeing responses to questions about the efficiency and effectiveness of the emergency dispatch process, and about the accuracy, completeness, timeliness of detail provided on calls.
- Police respondents have a very negative opinion of ProQA, repeatedly citing its elimination as a major opportunity for improvement. They said that it removes dispatchers' agency and takes too long to follow its scripted protocols, both of which impede service provision.

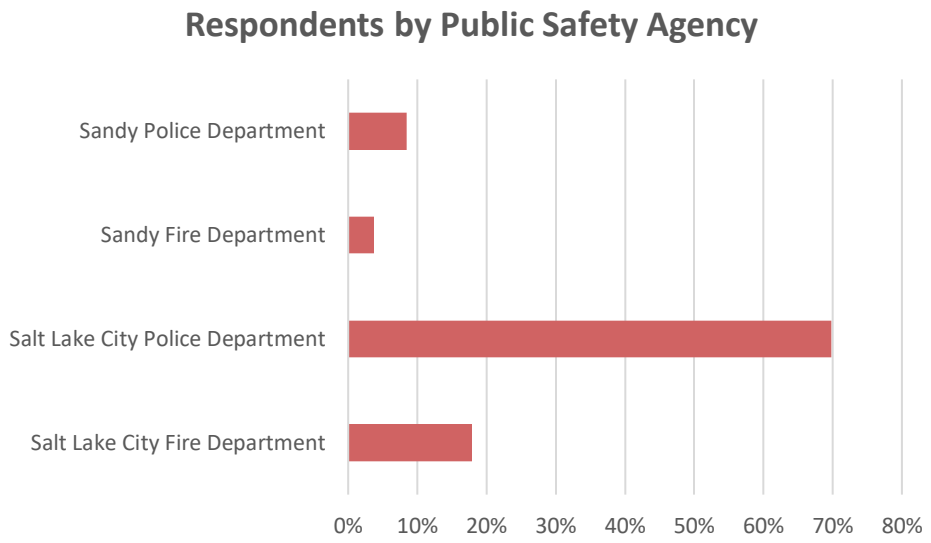
2. RESPONDENT DEMOGRAPHICS

While responses to the survey were confidential, the project team asked respondents to indicate some information about their position in order to understand the source of responses themes and identify trends among respondents.

The Salt Lake City Police Department Provided the Most Responses of Any Agency.

The following table and chart show the number of survey responses received, broken down by the employee's agency. Given the smaller size of the Sandy public safety departments, responses herein cannot be considered statistically significant but only representative of those choosing to respond.

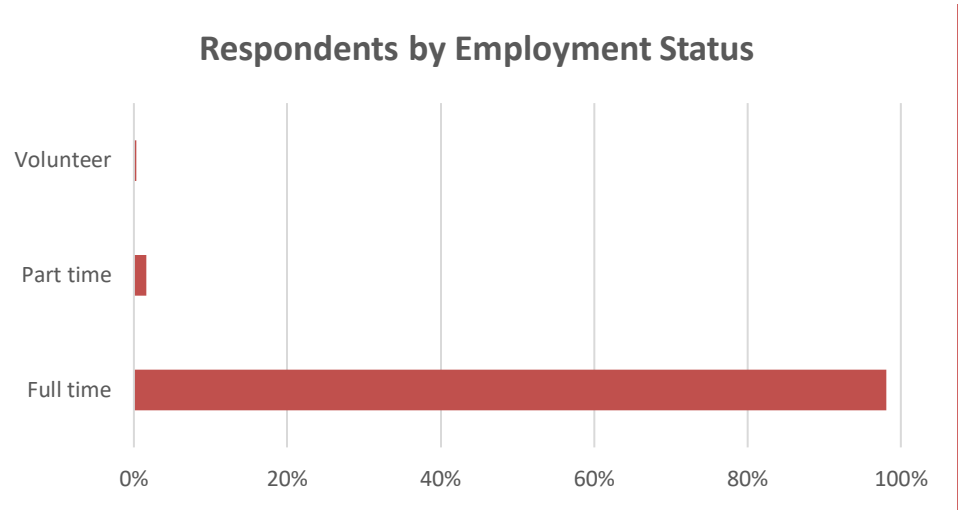
Agency	Percentage	Count
Salt Lake City Fire Department	18%	57
Salt Lake City Police Department	70%	222
Sandy Fire Department	4%	12
Sandy Police Department	8%	27
Total	**100%**	**318**



The Vast Majority of Respondents are Full-Time Staff. Just 2% Are Part-Time or Volunteers.

The table and chart below show the number of respondents who are full-time, part-time, and volunteer staff.

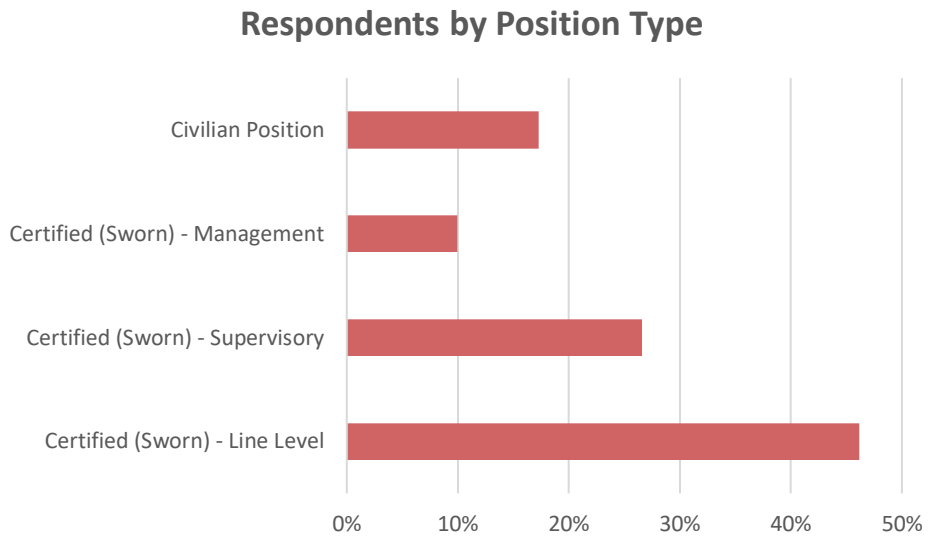
Employment Status	Percentage	Count
Full time	98%	311
Part time	2%	5
Volunteer	0%	1
Total	**100%**	**317**



Sworn Field Staff Account for About Half of Respondents, While Supervisors, Management, and Civilians Compose the Other Half.

The following table and chart show the survey's participants by their position type, whether line level staff, supervisors, management, or civilians.

Position Type	Percentage	Count
Certified (Sworn) - Line Level	**46%**	**144**
Certified (Sworn) - Supervisory	**27%**	**83**
Certified (Sworn) - Management	**10%**	**31**
Civilian Position	**17%**	**54**
Total	**100%**	**312**



3. MULTIPLE CHOICE RESPONSES

The second section of the survey asked respondents to indicate their level of agreement or disagreement with nineteen (19) statements about the 911 Center. The response options were “strongly agree” (SA), “agree” (A), “disagree” (D), and “strongly disagree” (SD). Respondents could also choose “N/A” or opt out of responding to the statement at all, in which case they were not counted among the respondents for that statement. For this reason, percentages may not add up to 100%. There were a total of 286 respondents who participated in these statements.

The table below shows the percentage of participants who responded “strongly agree” (SA), “agree” (A), “disagree” (D), or “strongly disagree” (SD) to each statement. The shading in the right-hand columns helps to illustrate trends in the comparative level of agreement or disagreement with each statement.

#	Statement	SA	A	D	SD
1	The SLC 911 Center provides a high level of service to personnel in my agency.	31%	45%	14%	6%
2	The SLC 911 Center provides a high level of service to members of the public who call.	30%	41%	13%	7%
3	The current process of dispatching emergency (911) calls for service is efficient and effective.	11%	32%	26%	25%
4	The current process of dispatching non-emergency calls for service is efficient and effective.	10%	35%	29%	19%

5	The initial details received from dispatch when responding to calls are accurate.	**7%**	**44%**	**28%**	**14%**
6	The initial priority assigned to the calls I am sent on is accurate.	**7%**	**44%**	**29%**	**8%**
7	The number and types of units dispatched to calls are appropriate.	**10%**	**63%**	**14%**	**3%**
8	Dispatch information provided to us is done so in a timely manner.	**12%**	**41%**	**29%**	**13%**
9	Dispatch information provided is complete to help ensure field safety.	**10%**	**42%**	**28%**	**12%**
10	I do not get too much unnecessary information from dispatch.	**13%**	**48%**	**25%**	**8%**
11	The SLC 911 Center personnel are responsive when I need additional information.	**31%**	**50%**	**12%**	**2%**
12	The SLC 911 Center personnel are polite to our staff.	**45%**	**47%**	**4%**	**1%**
13	Dispatch center personnel are trained to follow the appropriate policies and procedures for my agency's call responses.	**17%**	**53%**	**14%**	**5%**
14	The SLC 911 Center provides a consistent level of service (day to day, shift by shift).	**18%**	**49%**	**20%**	**6%**
15	The SLC 911 Center is adequately staffed to meet our Agency's needs.	**6%**	**34%**	**28%**	**17%**
16	Our IT and communication systems integrate well with those at the SLC 911 Center.	**5%**	**43%**	**21%**	**9%**
17	When issues arise between the SLC 911 Center personnel and my Agency, they are resolved quickly and fairly.	**15%**	**47%**	**17%**	**7%**
18	SLC 911 Center shift supervisors are available and responsive to my needs.	**25%**	**52%**	**6%**	**2%**
19	My Agency and the SLC 911 Center work well together during critical incidents.	**27%**	**56%**	**8%**	**2%**

The following points outline key takeaways from these statements, including differences in responses from different respondent groups.

The Sandy Fire Department Agreed with Every Statement More Often Than the Other Agencies.

Throughout this section of the survey, the difference in opinion between agencies was clear. For every single statement, the participants from the Sandy Fire Department responded with more agreement than any other agency. This was true whether the

statement received more agreement or disagreement in general, and regardless of how the other agencies responded.

Statements About The 911 Center's Quality of Personnel Received Widespread Agreement.

Most of the statements which received the heaviest agreeing and strongly agreeing responses dealt with the 911 Center's *personnel and their interpersonal skills*. Examples include:

- **Statement #1 and #2**: the level of service provided to public safety agencies and members of the public.
- **Statement #11 and #12**: the responsiveness and politeness of the 911 Center's staff.
- **Statement #13**: the training of the 911 Center's staff related to policies and procedures.
- **Statement #14**: the consistency of the 911 Center's service level.
- **Statement #18 and #19**: the availability of supervisors and the 911 Center's ability to work with public safety agencies during critical incidents.

Statements About the Dispatch Process and the 911 Center's Staffing Levels Received More Disagreement Than Agreement.

Most statements received more agreement than disagreement, but there were three exceptions which illustrate concerns held by the 911 Center's customers. These were:

- **Statement #3 and #4**: the efficiency and effectiveness of dispatching emergency and non-emergency call.
- **Statement #15**: the sufficiency of staffing levels at the 911 Center.

The Sandy Police Department Expressed Notably More Disagreement Than Other Agencies to Statements About Dispatch Level of Service.

On a number of statements, the Sandy Police Department gave responses which were in greater disagreement than the other agencies did. Collectively, this pattern appears to

show that the Sandy PD believes the 911 Center's level of service is compromised by a failure to quickly and accurately provide the information that the Department's officers need to respond to emergency calls. The statements are:

- **Statement #1 and #2**: the level of service provided to public safety agencies and members of the public (60%+ disagreement for both).
- **Statement #3**: "the current process of dispatching emergency (911) calls for service is efficient and effective" (92% disagreement).
- **Statement #5**: the accuracy of initial details received while responding to calls (72% disagreement).
- **Statement #8 and #9**: the timeliness and completeness of dispatch information provided to field officers (80%+ disagreement for both).
- **Statement #13**: "Dispatch center personnel are trained to follow the appropriate policies and procedures for my agency's call responses" (56% disagreement).
- **Statement #14**: the consistency of the 911 Center's level of service from day to day and hour to hour (52% disagreement).

Line Staff Disagreed More Than Those in Management or Civilian Positions on Statements About Dispatching, Staffing, and Technology.

For most statements, sworn line-level staff produced the lowest levels of agreement, followed by supervisors, then management, and finally civilian employees. This was particularly pronounced in statements related directly to the dispatch process, the sufficiency of staffing, and the integration of technology. The following statements saw this pattern emerge:

- **Statement #1 and #2**: the level of service provided to public safety agencies and members of the public.
- **Statement #3 and #4**: the processes of dispatching emergency and non-emergency calls are efficient and effective.
- **Statement #5**: the accuracy of initial details received while responding to calls.

- **Statement #8 and #9**: the timeliness and completeness of dispatch information provided to field officers.

- **Statement #15**: the sufficiency of staffing at the 911 Center.

- **Statement #16**: the departments' IT and communication systems integrate well with those at the SLC 911 Center.

4. OPEN-ENDED RESPONSES

The final section of the survey asked respondents to provide answers to a set of open-ended questions in their own words. The following points illustrate the primary themes raised by participants in this format.

The 911 Center's Customers Believe that Quality Personnel Are the Center's Greatest Strength.

The first open-ended question asked respondents to list the top strengths of the 911 Center in their own words. A total of 196 responses were received, most of them with 2 or 3 topics listed. The following table shows the most common response themes by responding agency.

SLC FD	SLC PD	SANDY FD	SANDY PD
Quality staff	Quality staff	Efficient dispatch	Friendly staff
Individual Employee	Friendly staff	Friendly staff	Clear communication
Training	Dedicated staff	Quality staff	Consistency in protocols
Care and concern	Professionalism	Customer service	Responsiveness
Dedicated staff	Responsiveness	Responsiveness	Care and concern
Facility	Care and concern	Clear communication	Dedicated staff
Assignments of staff	Experienced staff	Technology	Quality staff

- As the table shows, nearly all of the most common themes have to do with the personnel at the 911 center, citing their experience, competence, dedication, responsiveness, and general high quality (many responses simply said things like "great people").

- Themes such as training, facilities, and technology utilization were also mentioned, but fewer responses focused on those topics.

- For the Sandy FD and PD, qualitative strengths were still important, but some of their top responses focused on the efficiency of dispatching, clear communication, and consistency that they experience with the SLC 911 Center.

The 911 Center's Customer Agencies Are Frustrated by the Accuracy and Completeness of Dispatch Information. Police Departments Particularly Take Issue with ProQA.

The first open-ended question asked respondents to list the 911 Center's most important opportunities for improvement. A total of 196 responses were received, most of them with 2 or 3 topics listed. The following table shows the most common response themes by responding agency.

SLC FD	SLC PD	SANDY FD	SANDY PD
Technology	ProQA	Coordination between PSAPs	Dispatch information
Call coding system	Dispatch information	Data tracking	Distinction between agencies
Dispatch information	Efficient dispatching	Dispatch information	Accuracy
Employee turnover	Understanding of field ops	Automated "Siri" Voice	ProQA
Channel assignments	Agency of dispatchers	Technology	Understanding of field ops
Attitude of Improvement	Staffing	Training	
Automated "Siri" Voice			

- The most common response theme had to do with the information received from dispatchers, particularly the completeness and accuracy of that information. A number of staff complained that important information is not always included during high-priority calls, or that they receive inaccurate information from dispatchers.

- Among Salt Lake City Police respondents, the most common response by far dealt with frustrations regarding the ProQA system currently in use by the 911 Center. The Sandy PD also mentioned it. One in five respondents from the Salt Lake City PD mentioned the system directly, and several more touched on it tangentially with statements about "not allowing dispatchers to use their judgement", "call taking protocols", or "technology utilization".

- Other common themes included the timeliness of dispatch responses and the training routinely provided to 911 Center staff.

- The Salt Lake City Fire Department had several participants mention the system of call coding used by the 911 Center, saying that is often does not accurately represent the type or urgency of calls.

- Both fire departments took issue with the automated voice (“Siri”) which sounds at their stations when they are dispatched on a call.

- Some of the Sandy Police Department’s staff stated that they believe the 911 Center does not treat them as a distinct agency, and should learn the unique aspects of their department and its procedures.

5. SURVEY QUESTIONS

The survey as presented to respondents is shown below. Results of data contained therein are noted in this report, or to be discussed in the overall Draft/Final Report.

Salt Lake City 911 Customer Survey

Survey Introduction

The Matrix Consulting Group has been retained by Salt Lake City to conduct a performance audit of its 911 Center. As part of this study, we are distributing a survey to the customer agencies which are served by the 911 Center. This survey will help the project team gather the opinions of the public safety agencies who rely on SLC911 for dispatch service and ensure that the input of stakeholders is heard.

Please take a few minutes to thoughtfully complete this survey. All responses are confidential, and your individual responses will not be shared.

If you have questions about the survey, please feel free to contact the survey administrator, David Branch, at 951-295-7581 or dbranch@matrixcg.net

1. Which agency do you work for?

- ◯ Salt Lake City Fire Department
- ◯ Salt Lake City Police Department
- ◯ Sandy Fire Department
- ◯ Sandy Police Department

Salt Lake City 911 Customer Survey

Position Background

2. Which of the following best describes your position?

- ◯ Full time
- ◯ Part time
- ◯ Volunteer

3. Which of the following best describes your position?

- ◯ Certified (Sworn) - Line Level
- ◯ Certified (Sworn) - Supervisory
- ◯ Certified (Sworn) - Management
- ◯ Civilian Position

Salt Lake City 911 Customer Survey

Multiple Choice Questions

4. Please indicate your level of agreement or disagreement with each of the following statements. If a statement is not relevant to you, please select N/A.

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
1. The SLC 911 Center provides a high level of service to personnel in my agency.	○	○	○	○	○
2. The SLC 911 Center provides a high level of service to members of the public who call.	○	○	○	○	○
3. The current process of dispatching emergency (911) calls for service is efficient and effective.	○	○	○	○	○
4. The current process of dispatching non-emergency calls for service is efficient and effective.	○	○	○	○	○
5. The initial details received from dispatch when responding to calls are accurate.	○	○	○	○	○
6. The initial priority assigned to the calls I am sent on is accurate.	○	○	○	○	○
7. The number and types of units dispatched to calls are appropriate.	○	○	○	○	○
8. Dispatch information provided to us is done so in a timely manner.	○	○	○	○	○
9. Dispatch information provided is complete to help ensure field safety.	○	○	○	○	○

	Strongly Agree	Agree	Disagree	Strongly Disagree	N/A
10. I do not get too much unnecessary information from dispatch.	○	○	○	○	○
11. The SLC 911 Center personnel are responsive when I need additional information.	○	○	○	○	○
12. The SLC 911 Center personnel are polite to our staff.	○	○	○	○	○
13. Dispatch center personnel are trained to follow the appropriate policies and procedures for my agency's call responses.	○	○	○	○	○
14. The SLC 911 Center provides a consistent level of service (day to day, shift by shift).	○	○	○	○	○
15. The SLC 911 Center is adequately staffed to meet our Agency's needs.	○	○	○	○	○
16. Our IT and communication systems integrate well with those at the SLC 911 Center.	○	○	○	○	○
17. When issues arise between the SLC 911 Center personnel and my Agency, they are resolved quickly and fairly.	○	○	○	○	○
18. SLC 911 Center shift supervisors are available and responsive to my needs.	○	○	○	○	○
19. My Agency and the SLC 911 Center work well together during critical incidents.	○	○	○	○	○

Salt Lake City 911 Customer Survey

Open Response Questions

5. What do you believe are the three greatest strengths of the SLC 911 Center?

1

2

3

6. What do you believe are the three greatest opportunities for improvement at the SLC 911 Center?

1

2

3

7. If you have other comments for the project team, feel free to provide them here.

Appendix D: Staffing Models

The following Appendix provides a more detailed explanation of the project team's analysis of line-level staffing needs at the 911 Center, including the models implemented and the resulting calculations.

1. Fixed Post Staffing Requirements (Based on Current Schedule)

The first analysis of call-taker and dispatcher staffing needs is shown in the following sections. It is intended to provide staffing numbers required based on the 911 Center's current shift schedule. This involves a discussion of the variables used to make the staffing calculation.

(1.1) Net Availability

While traditionally one Full-time Equivalent (FTE) staff position is based on a standard Monday through Friday, 0800 hours to 1700 hours work schedule consisting of 2,080 hours per year. In public safety professions, such as emergency communications, this is not always the case and it is common for non-traditional schedules to be utilized to meet service level demands. These often include a mix of 8-hour, 10-hour, or 12-hour daily schedules, such as those worked by staff at the 911 Center.

Most call-taker and dispatcher staff at the 911 Center work four 10-hour shifts per week. Others work a modified shift schedule utilizing 12-hour shifts. While typically working 12-hour shifts would result in 2,190 total work hours in a year, this is not the case for SLC 911 employees. The current scheduling approach for the 12-hour shifts at the 911 Center includes three 12-hour shifts and alternative 4-6 hour shifts in each week, resulting in a more traditional 2,080 hour total.

A critical workload element to determine staffing requirements is the amount of annual time available for dispatch personnel to perform their work, their "Net Availability". The Matrix Consulting Group uses net availability in our modeling and defines it as the number of hours that a dispatcher or call-takers is available to perform their key roles and responsibilities after calculating the impact of such things as scheduled leave, sick leave, training time, meals and breaks, etc. Based on leave information provided by the 911 Center, this "unavailable time" has been subtracted from their gross annual scheduled hours of work, providing the Net Available time for each position. Note that staff on 10-hour shifts (call-takers and police dispatchers) receive two 15-minute breaks per shift, while staff on 12-hour shifts (Fire/EMS dispatchers) receive three such breaks.

Leave Type	Average Annual Hours Taken (Police)	Average Annual Hours Taken (Fire/EMS)
Comp Time	1.4	1.4
FMLA	40.9	40.9
Funeral Leave	9.3	9.3
Holiday	113.7	113.7
Personal Leave	81.3	81.3
Short Term	43.9	43.9
Breaks	104.3	130.4
Vacation	171.8	171.8
Total	**566.5**	**592.6**
Net Availability	**1,519**	**1,493**

This calculation of Net Availability is used in the calculations to determine how many of an employee's annual hours can expect to be working hours.

(1.2) Turnover Rate

The attrition rate, also called turnover, is the loss of any staff due to retirement, termination, or separation by the employee. While attrition is inherent in any profession, it's impact on emergency communications is a key factor that must be accounted for in order for staff modeling to be accurate. Dispatcher turnover nationally averages 17% to 19%. In reviewing recent historical data provided by the 911 Center, the three-year average attrition rate was 22% per year.

Separations over 3-year period	49
Current Staff	74
Annual Turnover	**22%**

This percentage is used by the project team in staffing calculations to help ensure appropriate coverage of positions that could be vacant as a result of retirements, resignations, etc.

(1.3) Fixed Posts Required

The 911 Center currently deploys a fixed-post schedule which included dedicated call-takers, police dispatchers, and fire dispatchers (fire dispatchers have their own pod and also take calls related to fire incidents). The following table, provided by the 911 Center to the project team, show the number of staff assigned to each function throughout the week.

Hours		Sun	Mon	Tue	Wed	Thu	Fri	Sat
7-11	PD	3	4	4	4	4	4	4
	FD	4	4	4	4	4	4	4
	CT	4	5	5	5	5	5	4
	Total	**11**	**13**	**13**	**13**	**13**	**13**	**12**
11-15	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	5	7	7	7	7	7	6
	Total	**14**	**16**	**16**	**16**	**16**	**16**	**15**
15-17	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	8	8	9	9	9	9	8
	Total	**17**	**17**	**18**	**18**	**18**	**18**	**17**
17-19	PD	5	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	6	6	7	7	7	7	6
	Total	**15**	**15**	**16**	**16**	**16**	**16**	**15**
19-23	PD	4	5	5	5	5	5	5
	FD	4	4	4	4	4	4	4
	CT	6	6	6	6	6	8	7
	Total	**14**	**15**	**15**	**15**	**15**	**17**	**16**
23-03	PD	4	4	4	4	4	4	4
	FD	4	4	4	4	4	4	4
	CT	4	4	4	4	4	5	5
	Total	**12**	**12**	**12**	**12**	**12**	**13**	**13**
03-07	PD	3	3	3	3	3	3	3
	FD	4	4	4	4	4	4	4
	CT	3	3	3	3	3	3	3
	Total	**10**	**10**	**10**	**10**	**10**	**10**	**10**

A fixed-post position is an assignment that is typically deployed every day, irrespective of workload. Typically, it is in reference to 24-hour, 7-day/week, 365- days/year deployment,

although some fixed-posts are only for a portion of a 24-hour period to accommodate a higher workload during that time. The Matrix Consulting Group compares existing fixed-post deployment strategies against alternative deployment strategies based on workload and service-level modeling to ultimately determine staffing recommendations.

The Bureau's current schedule results in a total of 2,304 hours per week of fixed-post staffing which must be filled; 1,632 hours for police dispatchers and call-takers, and 672 hours for Fire/EMS positions. Multiplied by the 52.14 weeks in each year, this equates to 120,131 fixed-post hours per year which must be filled. The table below shows that this will require 79.5 filled positions, which would be an increase of 6% from the current allocation of 75 positions. To account for annual turnover in addition to the other factors and provide staffing backfill for an annual attrition rate of 22%, a total of 101.9 positions would be required.

Fixed Post Hours (Police)	1,632
Net Availability (Police)	1,519
Filled Positions Needed (Police)	**56.0**
Fixed Post Hours (Fire/EMS)	672
Net Availability (Fire/EMS)	1,493
Filled Positions Needed (Fire/EMS)	**23.5**
Total Filled Positions Needed	**79.5**
Turnover Rate	22%
Total Authorized Positions	**101.9**

In the following section, the fixed-post model will be compared to a workload-based model of staffing requirements. The same variables of net availability and turnover rate will be employed in the workload-based model.

2. APCO Retains Model for Dispatch Positions

The following sections provide an alternative analysis of call-taker and dispatcher staffing needs, based on call volume workload rather than the needs necessitated by the 911 Center's existing schedule. This analysis applies empirical models (the APCO RETAINS model and the Erlang model) to the agency's quantitative data to produce hour-by-hour staffing needs and the number of positions which will be required to meet them.

(2.1) Introduction to the APCO RETAINS Model

The Association of Public Safety Communications Officials (APCO) has published a PSAP staffing model as part of their Project RETAINS efforts, developed by the University

of Denver Research Institute. In effect, the APCO project RETAINS model requires several discreet data elements based on actual workloads to be effective. These include:

- **Net Availability,** as shown earlier in this chapter.

- **Average Telephone Busy Time,** (call duration in seconds), from phone or other records. This should ideally distinguish between law and fire E911 calls and administrative calls for service.

- **Average Call Completion Time,** which includes time for keyboard data entry, radio transmission, address verification, etc. Average call completion time is often not accurately available. While some agencies are capable of collecting accurate radio transmission time, other dispatcher-related workload, such as records checks or keyboard data entry by staff, is most often not available.

- **Agent Utilization Rate,** which signals the proportion of time that the agency desires a dispatcher to be occupied with core workload. Common benchmarks suggest 50% agent utilization rate with 50% "downtime" for recovery and supporting services.

In brief, the APCO project RETAINS staffing model is an accepted methodology within the industry, but it has its limitations. These include:

- The model is originally designed for a call-taker/dispatcher position whereby staff performs both functions simultaneously. This is often referred to as a "vertical" dispatch environment. Many dispatch agencies, such as BOEC, now operate with distinct call-taker positions and dispatcher positions performing separate functions, often referred to as a "horizontal" dispatch environment.

- The APCO model fails to account for the workload directly related to *other* activities that are unrelated to the tasks resulting from telephone calls. That is, for example, police officer self-initiated activities and the variety of tasks associated thereto.

- The APCO model suggests some kind of "estimate" for call wrap-up time, keyboard data entry, records checks, etc., with no suggested benchmark for this kind of workload.

For these reasons, the Matrix Consulting Group uses the APCO model as a baseline, and has augmented it by addressing the issues noted above, for determining call-taker and dispatcher staffing levels.

(2.2) Workloads Associated with Dispatching

The APCO-based model can use the actual number of radio transmission transaction time as a primary workload driver. Dispatchers are responsible for relaying information effectively via the radio and are usually multi-tasking (keyboard entry or console monitoring) while such “air time” is transacting. It is a primary responsibility of dispatch staff. The total time associated with radio transactions is calculated to determine an average amount of time spent on this key task.

While we recognize that not every CAD incident requires the same amount of radio time (many are shorter and some are longer), all radio time must be captured by a key workload element for modeling purposes.

Based on a full year of recent radio airtime data provided by the 911 Center, the project team calculated the average amount of radio time that could be allocated to each unique CAD incident. The results are shown in the table below: one minute per call for police incidents and 0.93 minutes per call for Fire/EMS incidents.

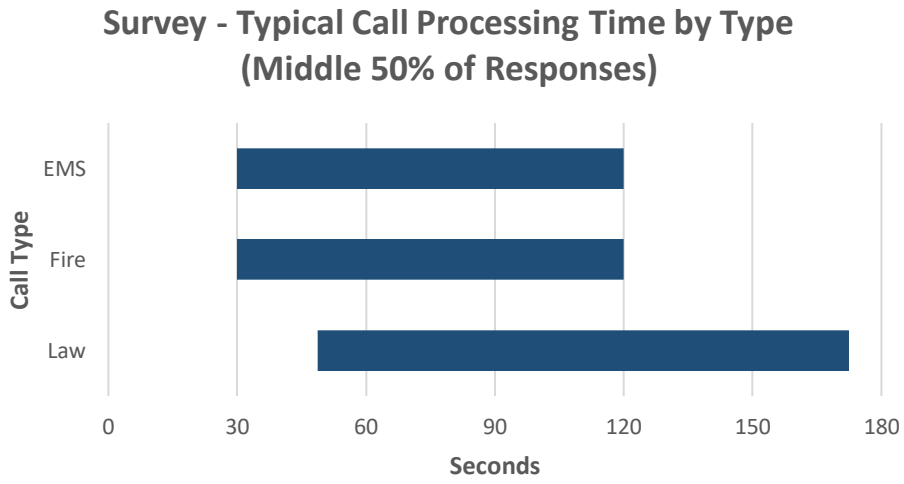
	Police	Fire/EMS
Total Radio Airtime Minutes	333,322	93,911
Salt Lake City	239,408	79,659
Sandy	93,914	14,252
Annual Volume	333,525	101,281
Minutes/Call	**1.00**	**0.93**

These timeframes are also consistent with the range of observations in the project team’s experience in PSAP’s around the country, suggesting that the 911 Center’s radio utilization practices are within the bounds of normal practice.

(2.3) Dispatch Processing Time

Perhaps one of the most difficult workload elements to capture is the task time associated with an incident that is unrelated to radio time. This includes the aforementioned keystroke entries, record checks off-line, display monitoring, administrative data entry, e-mail checking, etc. APCO, NENA and others have not provided any benchmarks with respect to this kind of workload, suggesting an estimate be developed for such work. Other dispatch organizations have developed estimates ranging from 90 seconds for each call for service (as opposed to a CAD incident), to ten seconds per telephone call (NOT dispatcher activity) for call wrap-up, to no time allocation for such activities given many of them are accomplished during radio traffic as part of multi-tasking. Consequently, developing a reasonable time estimate is the only current approach beyond an industrial engineering exercise which is beyond the scope of this study.

One estimate of the time required for call processing can be gathered using the results of the employee survey. When asked how much dispatch time is typically required for each call type, answers from staff varied widely, but a timeframe of 2.00 minutes (120 seconds) falls at the upper end (or within the upper half) of the middle 50% of responses, suggesting that employees view it as fairly accurate[9]. See the chart below:



In addition to employee survey results, these timeframes are fairly consistent with the project team's observations in a broad array of dispatch agencies. Accordingly, we believe that in the current operational environment at the 911 Center, ***2 minutes per***

[9] It is also worth noting that, while not shown here, the reported time to process a self-initiated activity by a law enforcement officer had a middle 50% range of 10-60 seconds. These types of calls, therefore, which take much less dispatcher time, would bring down the average of time spent on law enforcement calls, to a range more closely in line with Fire and EMS calls.

incident is a very reasonable estimate to capture incident "wrap-up" and related activities that include such things as keyboard entry, display monitoring, etc.

(2.4) Telephone Time

For agencies which utilize combined dispatcher/call-taker positions, telephone time is factored into the dispatcher workload because it occupies dispatcher time. In Salt Lake City, call-takers and dispatchers are separate, although the fire pod is unique in that a majority of fire and EMS-related calls are transferred immediately to a call-taking position in that pod (since only supervisors and a small group of "Dispatcher 3" staff can handle fire and medical calls from the call-taking stations). Based on this arrangement, the following process was used to determine workload and staffing needs.

- For police dispatch posts, telephone call time is not factored into workload because they do not make or receive telephone calls as part of their routine duties.

- For call-taking posts, the entirety of a 12-month telephone call data set is used to calculate workload, because every incoming call (emergency and non-emergency) comes through the call-taking posts.

- For fire dispatch posts, the number of incoming Fire and EMS emergency calls is determined from the provided data set, and the phone time for those calls is applied to the fire pod.

(2.5) Call Taking and Dispatching Utilization Rates

The calculation for net (hour) annual availability for dispatchers noted previously essentially results in the amount of time each dispatcher is available to perform work. However, as in any profession, no position is occupied 100% of the time.

The amount of time dedicated to actual work in emergency communications is based on several inter-related variables and an allowance needs to be made regarding the proportion of time a dispatcher or call-taker is actively involved in call handling. An allowance needs to be made regarding the proportion of time desirable to have a dispatcher actually involved in call handling, radio transmissions, keyboard entry, records search, etc. There are several reasons why tasks performed by the 911 Center's staff should not occupy 100% of their time. These include:

- Dispatch centers which have excessively high utilization levels tend to "burn-out" staff and consequently have high levels of employee turnover.

- Professions which require extreme concentration during work activities, such as dispatch, air traffic control, trauma centers, or other professions in which failure brings unacceptable risk, should have lower work utilization rates to incorporate “down time.”

- Dispatch centers which have high utilization levels experience "queuing" problems in which responses to incoming telephone calls and radio transmissions are regularly delayed because the dispatcher is preoccupied with other concurrent workload.

- In dispatch centers with high utilization levels quality begins to suffer because dispatchers must cut calls and radio exchanges short, thereby impacting dispatcher effectiveness, customer-friendly service, and safety in the field for law enforcement, fire, and emergency medical response professionals.

- The Matrix Consulting Group has used a utilization rate of **50%** for dispatchers to perform core dispatcher-related functions. This implies that dispatchers will be busy performing work an average of 30 minutes per hour or one second every two seconds of net available time. It should be noted that this utilization or “occupancy rate” is one of the primary drivers in workload-driven staffing requirements. Modifying this variable by relatively small increments can have an important impact on staffing requirements.

These utilization rates will be used in the following staff modeling exercises.

(2.6) Initial APCO Results for Fire and PD Dispatch

Based on the totality of the information and assumptions outlined in the subsections above, the project team used the APCO model to conduct a staffing needs assessment for dispatchers. This model includes CAD incident volume for police and fire/EMS, the net availability rate for dispatchers, target utilization rates, and current turnover rates. The following tables reflect the staffing baseline necessary to handle the workload related to all unique incident activity with different staffing levels calculated dependent upon changes in staff availability and utilization.

The first two iterations of the model show the number of filled positions and authorized positions needed for Police and Fire/EMS dispatchers at a 50% utilization rate.

POLICE DISPATCHER STAFFING – 50% UTILIZATION RATE	
Workload	
Average Task Completion Time Per CAD Incident (in minutes)	2
Average Radio Time Per CAD Incident (in minutes)	1
Average Total Processing Time Per CAD Incident (in minutes)	3
Avg. Hourly Processing Capability	20.0
Total CAD Incidents (2017)	333,525
Workload Hours for Dispatchers	16,676
Net Availability	
Net Annual Available Work Hours	1,519
Target Utilization Rate	50%
True Annual Availability (based on utilization rate)	759.5
Total Filled Positions Needed	**22.0**
Turnover	
Turnover Rate Per Year	22%
Total Authorized Positions Needed	**28.1**

FIRE/EMS DISPATCHER STAFFING – 50% UTILIZATION RATE	
Workload	
Average Task Completion Time Per CAD Incident (in minutes)	2
Average Radio Time Per CAD Incident (in minutes)	0.93
Average Phone Time Per CAD Incident (in minutes)	2.35
Average Total Processing Time Per CAD Incident (in minutes)	5.28
Avg. Hourly Processing Capability	11.36
Total CAD Incidents (2017)	101,281
Workload Hours for Dispatchers	8,913
Net Availability	
Net Annual Available Work Hours	1,493
Target Utilization Rate	50%
True Annual Availability (based on utilization rate)	746.5
Total Filled Positions Needed	**11.9**
Turnover	
Turnover Rate Per Year	22%
Total Authorized Positions Needed	**15.3**

To summarize, the following table shows the Police and Fire/EMS results of the APCO model.

	Police	Fire/EMS
Filled Positions Needed	22.0	11.9
Authorized Positions Needed (with turnover)	28.1	15.3

These figures can be used as a baseline for determining the number of positions which should be created and filled to ensure adequate dispatcher staffing. The following section will provide a more detailed analysis of hour-by hour dispatcher staffing needs.

(2.7) Hour-By-Hour Dispatcher Needs Under the APCO Formula

The following tables show the average volume of Police and Fire/EMS CAD incidents over the course of 2017, by hour of day and day of week.

FIRE/EMS

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	7.3	7.9	7.2	6.6	7.5	10.3	10.6
1	5.7	5.6	5.6	6.8	7.2	9.9	10.2
2	5.3	5.5	4.5	5.4	6.3	7.2	10.1
3	5.3	5.6	4.6	5.3	4.6	6.7	6.6
4	5.3	4.7	4.6	4.1	4.3	3.8	5.9
5	5.5	4.1	4.4	4.8	5.5	4.7	5.4
6	7.3	7.3	6.5	6.2	6.0	6.4	6.7
7	9.0	8.6	9.4	8.8	9.6	7.2	7.6
8	12.3	10.7	13.0	11.1	12.0	10.3	8.7
9	13.0	13.5	15.6	15.4	15.3	11.3	10.3
10	13.8	13.1	13.8	15.7	14.9	13.6	11.2
11	14.5	13.8	16.4	14.8	14.5	13.3	10.7
12p	14.5	13.5	13.4	15.4	17.9	14.4	10.9
13	15.5	17.3	17.1	16.8	17.6	17.6	11.8
14	14.0	15.2	16.1	18.2	15.3	15.8	11.4
15	14.3	16.3	17.3	16.8	17.5	13.9	12.4
16	13.8	17.6	17.7	19.1	16.7	15.2	13.2
17	15.9	15.4	16.6	18.2	19.8	15.6	13.1
18	14.9	16.3	14.5	15.2	15.4	17.0	13.4
19	14.3	13.1	17.3	15.5	16.7	15.3	13.6
20	14.3	13.0	13.8	15.3	13.3	15.2	13.2
21	11.7	12.2	12.2	12.8	14.8	12.7	11.8
22	10.6	11.5	12.0	12.3	14.5	14.2	11.2
23	8.1	11.4	9.8	9.1	11.3	11.7	8.5

POLICE

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	28.9	28.5	28.6	31.3	33.2	47.2	53.4
1	22.7	21.0	26.7	26.4	32.6	42.1	52.5
2	21.0	18.8	19.5	19.8	25.2	33.6	36.6
3	17.5	18.3	15.7	17.5	15.9	24.1	26.4
4	14.4	14.7	14.0	14.6	13.5	17.5	20.5
5	14.3	10.7	11.2	12.5	13.4	12.1	14.4
6	20.3	18.2	21.8	21.8	22.6	18.3	15.5
7	29.7	31.3	32.8	32.8	31.8	23.8	21.6
8	38.7	37.8	44.1	41.0	45.0	35.3	27.4
9	46.7	44.2	50.3	45.7	44.4	36.1	29.7
10	44.7	40.5	48.1	46.4	48.4	38.7	35.0
11	43.8	40.9	49.0	43.6	43.4	42.5	32.5
12p	43.6	41.1	50.4	45.0	47.0	39.7	33.7
13	45.5	40.1	47.4	40.4	43.4	38.8	35.3
14	44.9	42.1	46.1	44.4	42.8	39.1	37.2
15	52.8	54.0	49.5	46.8	47.9	42.8	39.8
16	52.9	55.3	52.2	52.7	52.5	49.9	48.3
17	52.9	56.2	56.5	53.8	53.3	51.7	48.1
18	48.2	55.1	49.5	49.6	45.4	44.8	43.2
19	40.7	46.7	45.0	47.7	45.3	46.3	41.7
20	43.5	49.2	44.6	44.9	42.3	48.8	39.8
21	42.9	43.3	45.1	42.6	46.1	46.9	41.6
22	45.8	50.3	47.7	50.9	57.5	61.1	47.5
23	38.0	43.1	40.1	46.0	54.5	56.3	40.5

Using the calculations from the previous subsection, the number of dispatcher posts needed to handle the expected call volume of a particular hour can be determined. The following table shows an example with an incident volume of 17.5 calls per hour, which would be common for the Fire/EMS pod on Friday at 3pm, or for police dispatchers on Monday at 3am.

	Police	Fire/EMS
Calls/Hour	17.5	17.5
Mins/Call	3	5.28
Mins/Hour	52.5	92.4
Positions Needed at 50% Utilization	1.75	3.08

For the tables below, the number of positions needed will be rounded up to the nearest whole number, e.g. the 1.75 positions needed for police dispatching in this example would be rounded up to 2 dispatching posts.

This calculation has been applied to each hour of the day and day of the week in the following tables.

FIRE/EMS

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	2	2	2	2	2	2	2
1	2	1	1	2	2	2	2
2	1	1	1	1	2	2	2
3	1	1	1	1	1	2	2
4	1	1	1	1	1	1	2
5	1	1	1	1	1	1	1
6	2	2	2	2	2	2	2
7	2	2	2	2	2	2	2
8	3	2	3	2	3	2	2
9	3	3	3	3	3	2	2
10	3	3	3	3	3	3	2
11	3	3	3	3	3	3	2
12p	3	3	3	3	4	3	2
13	3	4	4	3	4	4	3
14	3	3	3	4	3	3	2
15	3	3	4	3	4	3	3
16	3	4	4	4	3	3	3
17	3	3	3	4	4	3	3
18	3	3	3	3	3	3	3
19	3	3	4	3	3	3	3
20	3	3	3	3	3	3	3
21	3	3	3	3	3	3	3
22	2	3	3	3	3	3	2
23	2	3	2	2	2	3	2

POLICE

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	3	3	3	4	4	5	6
1	3	3	3	3	4	5	6
2	3	2	2	2	3	4	4
3	2	2	2	2	2	3	3
4	2	2	2	2	2	2	3
5	2	2	2	2	2	2	2
6	3	2	3	3	3	2	2
7	3	4	4	4	4	3	3
8	4	4	5	5	5	4	3
9	5	5	5	5	5	4	3
10	5	5	5	5	5	4	4
11	5	5	5	5	5	5	4
12p	5	5	5	5	5	4	4
13	5	5	5	5	5	4	4
14	5	5	5	5	5	4	4
15	6	6	5	5	5	5	4
16	6	6	6	6	6	5	5
17	6	6	6	6	6	6	5
18	5	6	5	5	5	5	5
19	5	5	5	5	5	5	5
20	5	5	5	5	5	5	4
21	5	5	5	5	5	5	5
22	5	6	5	6	6	6	5
23	4	5	5	5	6	6	5

The number of dispatchers needed follows a similar pattern over the course of the week to that of call-takers, although the increase in late night weekend call volume is more pronounced for dispatchers than call-takers, likely because dispatchers deal exclusively with emergency calls and are thus unaffected by the patterns of non-emergency calls throughout the week, which are heaviest at the end of working hours on weekdays.

The model above takes into account the various elements of dispatcher workload and ensures that the utilization rate does not exceed 50% in any hour of the week (and in most cases falls far below it), but it requires significantly fewer dispatcher hours per week than the current staffing model in use. The model above produces a total of **723 Police dispatch hours per week and 421 Fire/EMS dispatch hours per week**. This is very close to the 720 police dispatch hours needed under the current staffing plan, and a decrease of 151 hours from the current 672 Fire/EMS dispatch hours per week. This is a total decrease of 148 hours per week. While a number of factors (the logistics of shift staffing, the need for dispatchers on dedicated channels, or a policy to always have more than one dispatcher available in each pod) may prevent the 911 Center from aligning dispatch levels to the level outlined in this model, it should be used as a baseline for the number of dispatchers needed throughout the week.

(2.8) Dispatcher Staffing Required

The following table shows the number of filled and authorized positions which are required, based on the net availability and current turnover rates of staff, to meet the staffing requirements provided by the model. These are the figures used in the staffing section of the project team's report.

	Police	Fire/EMS
Total Dispatch Hours Per Week	723	421
Current Dispatch Hours Per Week	720	672
Increase (Decrease)	3	(151)
Total Dispatch Hours Per Year	37,726	21,968
Annual Net Availability	1,519	1,493
Total Filled Positions Needed	24.8	14.7
Turnover Rate Per Year	22%	22%
Total Authorized Positions Needed	**31.7**	**18.9**

The following section will discuss staffing needs for call-taker positions, using a model specifically suited to this function.

3. Erlang Model for Call-Taker Staffing

Call-taker staffing needs are not determined using the APCO RETAINS model, and are instead calculated using a process based on the work of Danish engineer Agner Erlang. Unlike the APCO model which estimates staffing based upon different kinds of work outputs and a desired agent occupancy rate, the Erlang model uses workload variables but the primary driver is related to developing staffing recommendations based on desired levels of performance or "response time." In effect, the Erlang Model is a predictive performance model that calculates the number of staff required to meet a given level of service at a given success rate.

One of the primary criticisms of the Erlang model is that it assumes an acceptable "on-hold" time for the caller. While initially this may seem to make the Erlang model impractical for use in an E9-1-1 Public Safety Answering Point (PSAP) environment, using national or local policy-driven standards for call answering times eliminates the shortcoming of an assumed hold time. The Erlang model uses calculations to find the amount of time it takes to answer a call based on a certain level of staffing; these times can then be compared to standards to assure performance minimums are achieved. Although the Erlang model has been traditionally used to estimate staffing needs and performance predictions for non-emergency call center operations, the input values can be manipulated such that the model is well adaptable to a Public Safety Answering Point.

(3.1) Variables Used

The four variable inputs used in this model are:

1. The anticipated call volume in a given hour.
2. The desired level of service (length of ring time).
3. The required success rate (percent of calls which must be answered within the target ring time).
4. The average call duration.

Currently, the 911 Center aims to answer 95% of all incoming 911 calls within 10-15 seconds, and 98% within 20 seconds. These metrics are similar to those adopted by the National Emergency Number Association (NENA), which state that 95% of calls should be answered within 15 seconds, and 99% within 40 seconds. Both sets of standards are used by the project team in this modeling exercise.

(3.2) Call Volume

The project team analyzed phone data provided by the 911 Center, which shows that about 170,000 incoming 911 phone calls were received over a recent 12-month period. In addition to this, about 434,000 administrative (non-emergency) calls were received, and about 191,000 outgoing calls were made from the floor. The table below illustrates this data.

	Total Calls	Average Call Time	Total Call Time (mins)	% of Total Call Time
Emergency	170,591	133 seconds	378,143	20.5%
Non-Emergency	433,786	159 seconds	1,149,533	62.4%
Outgoing	191,496	99 seconds	315,904	17.1%

Because our project team recommends eliminating the PBX position and instead staffing sufficiently to handle incoming non-emergency calls with trained and certified dispatchers, our staff modeling must address the receipt of all incoming calls. To allow a complete understanding of the 911 Center's call taking needs our modeling was conducted first with 911 calls only (the Erlang model), and then with all inbound calls.

The Erlang staffing model relies on the volume of incoming calls per hour as a baseline from which to calculate necessary staffing. As noted earlier, staffing levels are based on performance expectations linked to call-answering criteria and are not influenced by the expected utilization (e.g. agent occupancy) of staff. Analysis of the call data allowed the project team to populate the following "heat map" tables showing the rate of 911 and non-emergency calls per hour for each hour of the week.

Emergency Calls Per Hour

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	11.3	10.2	10.5	11.7	12.7	19.0	22.1
1a	9.4	9.6	9.2	9.1	10.6	17.9	20.6
2a	7.0	7.1	7.2	7.9	9.4	13.1	15.3
3a	6.8	6.6	6.4	7.3	7.0	9.6	10.9
4a	6.8	6.4	7.2	7.1	6.8	7.2	9.0
5a	7.7	7.2	7.1	6.6	8.1	6.6	8.8
6a	10.1	10.7	10.0	9.3	10.4	7.2	8.4
7a	15.0	15.9	14.3	14.5	14.5	9.4	8.9
8a	19.0	18.8	18.4	20.0	20.5	13.3	11.2
9a	21.3	21.7	21.7	21.3	20.3	19.4	13.1
10a	22.0	22.7	23.1	22.8	23.1	20.6	17.6
11a	24.6	24.6	24.0	24.2	25.7	22.8	18.2
12p	24.0	25.3	25.5	25.0	28.3	26.5	20.0
1p	26.1	27.2	30.3	27.3	28.1	27.1	20.7
2p	27.1	29.0	28.0	28.4	32.3	28.5	21.5
3p	30.8	29.4	32.9	32.6	36.4	26.1	22.7
4p	29.3	31.8	33.0	29.2	30.4	24.6	21.0
5p	28.7	30.9	34.5	32.7	32.4	27.7	22.1
6p	26.4	27.9	30.8	28.6	30.9	28.4	20.5
7p	23.1	24.4	24.5	24.7	27.2	25.6	22.1
8p	21.9	21.1	25.0	25.8	24.7	25.3	21.0
9p	21.1	23.8	21.9	22.7	27.1	24.2	19.8
10p	17.5	19.2	19.1	20.2	23.6	26.8	18.1
11p	14.5	14.9	14.5	17.6	20.3	23.6	13.1

Non-Emergency Calls Per Hour

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	21.6	22.6	23.6	23.4	27.4	36.5	34.9
1a	17.2	18.5	19.7	19.2	22.0	30.5	29.2
2a	13.7	13.9	15.3	14.3	17.3	21.8	23.7
3a	10.5	10.8	12.3	13.1	12.5	15.1	18.0
4a	10.8	9.7	11.3	11.3	12.1	12.8	15.1
5a	14.8	12.5	13.1	13.5	14.5	13.0	13.3
6a	21.9	21.5	22.2	23.9	20.8	15.7	12.3
7a	40.7	43.1	42.4	41.0	38.3	25.6	19.1
8a	65.6	64.3	59.9	64.5	60.9	41.7	31.5
9a	76.5	74.3	74.9	73.9	72.6	52.1	38.3
10a	78.8	77.8	75.3	73.8	74.4	58.8	43.1
11a	79.9	78.1	77.7	72.3	77.4	63.5	47.9
12p	73.5	74.4	81.4	74.5	77.3	65.5	50.3
1p	84.7	85.0	89.0	85.5	82.9	69.2	49.9
2p	89.7	89.6	93.5	83.6	86.4	67.0	49.6
3p	94.6	98.2	99.2	89.9	88.9	64.8	49.4
4p	91.3	99.3	93.9	90.7	88.4	59.9	47.6
5p	81.2	84.3	86.1	82.9	81.8	55.2	45.4
6p	64.6	69.6	69.0	68.6	68.1	51.6	43.3
7p	57.4	61.4	62.0	59.8	60.2	50.1	44.5
8p	49.4	51.8	56.3	58.1	52.5	50.2	42.3
9p	47.7	48.2	51.1	52.5	54.2	49.4	40.1
10p	38.8	43.3	44.2	46.4	52.7	47.6	36.8
11p	27.2	31.2	32.9	36.3	43.2	44.4	28.7

As the table shows, call volume for both emergency and non-emergency calls fluctuates throughout the week, peaking during weekday afternoons. These call volume tables are used to calculate the number of call-takers needed below.

(3.3) Call-Takers Needed for Incoming Emergency Calls

First, the emergency calls are used to populate the Erlang model, which ensures that there are sufficient staff at each hour of the week to meet the required service levels for emergency calls. The parameters used include the following:

- The standard of service for all hours of the day is 95% of calls answered within 10 seconds, and 99% of calls answered within 40 seconds.

- The average call duration for emergency calls is 133 seconds, as shown in the table in section 2.8. In the project team's experience, the length of a telephone call is most often influenced by: 1) standardized versus freer-form questioning; 2) the amount of time the dispatcher believes they have available to speak without impacting other incoming calls; and 3) The customer service philosophy of the agency. The time spent by SLC911 is somewhat greater than many other public safety agencies but not by a wide margin (approximately 30-45 seconds more). As such, using this reasonable time-on-call is appropriate for determining staffing needs.

The results of this portion of the model are shown in the table below, ranging from 3 call-takers during low-volume periods to 5 call-takers during high volume.

Erlang Model Results – Emergency Call-Takers Only

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	3	3	3	3	3	4	4
1a	3	3	3	3	3	4	4
2a	3	3	3	3	3	3	4
3a	3	3	3	3	3	3	3
4a	3	3	3	3	3	3	3
5a	3	3	3	3	3	3	3
6a	3	3	3	3	3	3	3
7a	3	4	3	3	3	3	3
8a	4	4	4	4	4	3	3
9a	4	4	4	4	4	4	3
10a	4	4	4	4	4	4	4
11a	4	4	4	4	4	4	4
12p	4	4	4	4	4	4	4
1p	4	4	5	4	4	4	4
2p	4	5	4	4	5	5	4
3p	5	5	5	5	5	4	4
4p	5	5	5	5	5	4	4
5p	5	5	5	5	5	4	4
6p	4	4	5	5	5	4	4
7p	4	4	4	4	4	4	4
8p	4	4	4	4	4	4	4
9p	4	4	4	4	4	4	4
10p	4	4	4	4	4	4	4
11p	3	3	3	4	4	4	3

(3.4) Call-Takers Needed for Non-Emergency Calls

Secondly, the non-emergency call volume is used to calculate the number of additional call-takers needed to handle non-emergency calls. This is essential because the PBX Operator position is recommended for elimination, and incoming non-emergency calls will be handled by trained and certified dispatchers.

Because there is no urgent level of service requirement for non-emergency calls, this is a simple arithmetic calculation: The non-emergency call volume for each hour is multiplied by the average duration of incoming non-emergency calls (159 seconds), and converted into the number of hours of call time which can be expected for non-emergency calls in each particular hour. When rounded up, this yields the number of additional staff which are required to handle non-emergency call volume for that hour. The table below shows the results of this calculation.

Staffing Model Results – Non-Emergency Call-Takers Only

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	1	1	2	2	2	2	2
1a	1	1	1	1	1	2	2
2a	1	1	1	1	1	1	2
3a	1	1	1	1	1	1	1
4a	1	1	1	1	1	1	1
5a	1	1	1	1	1	1	1
6a	1	1	1	2	1	1	1
7a	2	2	2	2	2	2	1
8a	3	3	3	3	3	2	2
9a	4	4	4	4	4	3	2
10a	4	4	4	4	4	3	2
11a	4	4	4	4	4	3	3
12p	4	4	4	4	4	3	3
1p	4	4	4	4	4	4	3
2p	4	4	5	4	4	3	3
3p	5	5	5	4	4	3	3
4p	5	5	5	5	4	3	3
5p	4	4	4	4	4	3	3
6p	3	4	4	4	4	3	2
7p	3	3	3	3	3	3	2
8p	3	3	3	3	3	3	2
9p	3	3	3	3	3	3	2
10p	2	2	2	3	3	3	2
11p	2	2	2	2	2	2	2

(3.5) Call-Takers Needed for Emergency and Non-Emergency Combined

Finally, the numbers from these two tables are combined to result in the number of staff at each hour which are required to both 1) meet the required service levels for 911 calls, and 2) handle incoming non-emergency calls. This table, as seen in the body of the report, is shown below.

Call-Taker Staffing – Emergency and Non-Emergency Combined

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
12a	4	4	5	5	5	6	6
1a	4	4	4	4	4	6	6
2a	4	4	4	4	4	4	6
3a	4	4	4	4	4	4	4
4a	4	4	4	4	4	4	4
5a	4	4	4	4	4	4	4
6a	4	4	4	5	4	4	4
7a	5	6	5	5	5	5	4
8a	7	7	7	7	7	5	5
9a	8	8	8	8	8	7	5
10a	8	8	8	8	8	7	6
11a	8	8	8	8	8	7	7
12p	8	8	8	8	8	7	7
1p	8	8	9	8	8	8	7
2p	8	9	9	8	9	8	7
3p	10	10	10	9	9	7	7
4p	10	10	10	10	9	7	7
5p	9	9	9	9	9	7	7
6p	7	8	9	9	9	7	6
7p	7	7	7	7	7	7	6
8p	7	7	7	7	7	7	6
9p	7	7	7	7	7	7	6
10p	6	6	6	7	7	7	6
11p	5	5	5	6	6	6	5

Because call-taking is a stressful activity, a measure of open time should be reserved as “refresh time” for call-taker positions, similar to dispatcher positions. Call-takers receive both emergency and non-emergency calls concurrently, and they are able to prioritize emergency calls over non-emergency in order to ensure that target service levels are maintained.

To ensure that these activities combined do not create an unreasonable workload, the expected amount of refresh time for each hour is calculated. The amount of call time expected in each hour is calculated by multiplying the call volume in each hour for emergency and non-emergency calls, respectively, by the average duration for each. This

is divided by the number of call-takers on duty in that hour and subtracted from the 60 minutes available in each hour to yield the expected amount of refresh time.

For the table above, the expected refresh time does not fall below 23 minutes in any hour. This means that call-takers under this model can typically expect to have at least 23 minutes free in each hour of the week to decompress, make outbound calls, and take care of tasks which do not require being on the phone.

(3.6) Call-Taker Staffing Needs

Based on the previous tables, a **weekly total of 1,083 call-taker hours** are needed to provide required service levels. Given the existing call-taker staffing levels of 912 hours per week, this represents an **increase of 171 hours per week, or 19%.**

The table below shows the filled and authorized positions which will be needed to staff call-taking positions at the optimal level according to the model's results, based on the net availability and current turnover rates of staff.

	Call-Takers
Total Call-Taker Hours Per Week	1,083
Total Call-Taker Hours Per Year	56,468
Annual Net Availability	1,519
Total Filled Positions Needed	**37.2**
Turnover Rate Per Year	22%
Total Authorized Positions Needed	**47.7**

As the table shows, this results in a total of 37.2 positions which should be filled, and 47.7 positions which should be authorized to account for staff turnover.

4. SUMMARY

The table below provides a summary of the current schedule's hourly staffing needs, as well as the results of our modeling for hourly staffing and total filled and authorized positions for each position.

	Current	Proposed	Percent Change
Weekly Hours	**2,304**	**2,227**	**-3.3%**
Police Dispatch	720	723	0.4%
Fire/EMS Dispatch	672	421	-37.4%
Call-Taker	912	1,083	18.8%
Filled Positions	**74.0**	**76.7**	**3.6%**
Police Dispatch/Call-Taker	54.0	62.0	14.8%
Fire/EMS Dispatch	20.0	14.7	-26.5%
Authorized Positions	**75.0**	**98.4**	**31.2%**
Police Dispatch/Call-Taker	55.0	79.5	44.5%
Fire/EMS Dispatch	20.0	18.9	-5.5%

The following points are relevant regarding this table and call-taker and dispatcher staffing analysis at a broad level:

- The proposed 76.7 filled positions can meet the proposed weekly workload of 2,227 total scheduled hours while working 1,513 hours per year, which is in line with historical leave utilization rates for the agency.

- The agency's current authorized dispatcher staffing of 75 positions (74 of which are filled) is very close to the recommended figure of 76.7. The recommended changes focus on

- The proposed authorized strength of 98.4 positions considers the rate of staff turnover over the last three years, which averages 22% annually. This ensures that the agency can hire and train new staff to replace departed employees without an unsustainable increase in workload. If the 911 Center finds that improved training methodologies allow new staff to become available over a 6-month cycle rather than a full year, then a turnover rate of 11% could be used to project authorized strength.

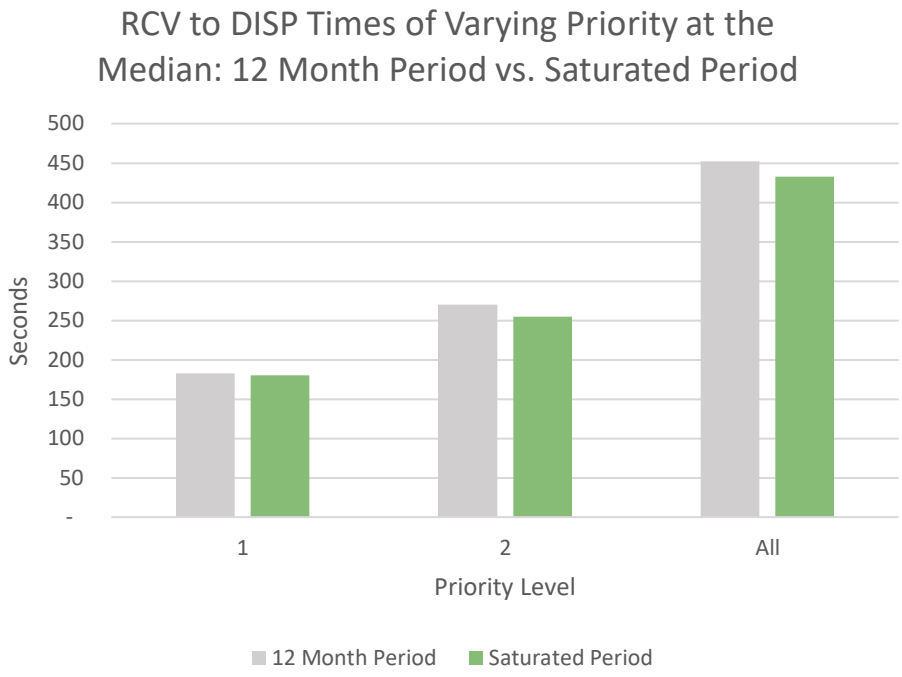
Appendix E: Impact of Patrol Saturation in 2018

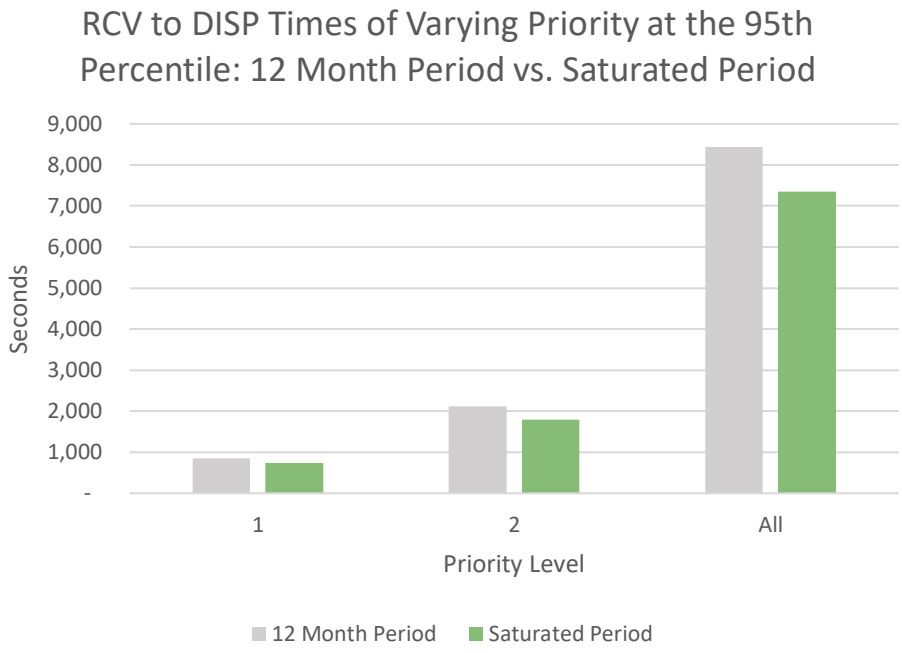
As noted in the body of the report, the Salt Lake City Police Department implemented an initiative in 2018 which involved placing non-patrol staff on patrol assignments in an attempt to improve field staffing levels and services through saturation patrol. This initiative took place from June 10th to October 6th. At the request of the steering committee, the Matrix Consulting Group analyzed the available data to determine the difference, if any, between call dispatching times during that period compared to the year as a whole.

The metric used for this analysis is the RCV to DISP figure, which is the number of seconds from when a call is received by the 911 Center's phone system to when a unit is assigned to respond. As detailed in the body of this report, this number is too high in most cases (even for Priority 1 and 2 calls) for the Salt Lake City PD, due in all likelihood to a lack of available field units to respond.

The following tables and charts compare the elapsed time from RCV to DISP from the entire year of data against the same metric from June 10th to October 6th. The comparisons are made for Priority 1 and 2 calls, as well as calls of all priority levels. The median and the 95th percentile are used to give a sense of the typical timeframes experienced by callers and the frequency with which they occur.

	12 Month Period		Saturated Period	
Priority	Median	95th Percentile	Median	95th Percentile
1	183	851	180	735
2	270	2,120	255	1,789
All	452	8,440	433	7,349





As the tables and charts show, the Department experienced a consistent but small improvement in RCV to DISP times at the median and the 95th percentile during the period of saturation.

Appendix F: Ancillary Observations from Study

In the context of a 911 dispatch study that involves numerous public safety agencies and customer service research, some additional observations can be made with respect to areas the City might wish to further explore in the future. As a result of this study, the following is provided.

- As part of an expanded needs assessment, determine if certain existing policing practices, such as overall Salt Lake City police response times, are appropriate. As replicated in the table below, Salt Lake City's police response times are in most priority instances well above Sandy PD.

Police CAD Incidents

		RCV to QUEUE (seconds)				RCV to DISP (seconds)			
Priority	Count	Median	90th%	95th%	99th%	Median	90th%	95th%	99th%
Salt Lake City									
1	9,350	35	146	204	1,038	183	519	851	1,839
2	40,995	34	119	178	1,051	270	1,315	2,120	4,854
3	42,773	44	146	207	885	700	4,634	7,053	12,998
4	21,007	47	151	218	1,267	2,036	13,928	19,662	29,666
5	63	33	132	398	475	384	20,063	28,713	43,705
6	5	30	73	74	75	775	3,306	3,623	3,876
7	335	52	117	158	424	1,478	4,648	6,395	7,856
8	78	95	192	255	537	223	840	917	979
9	2,653	73	152	198	350	418	6,390	9,130	22,492
All	117,259	41	139	200	954	452	4,777	8,440	19,884
Sandy									
1	1,499	22	87	145	723	147	302	382	968
2	6,966	31	122	176	973	205	535	846	1,920
3	12,693	41	132	185	612	243	1,087	1,785	3,853
4	9,416	41	128	177	634	290	1,987	3,007	5,930
5	2	-	-	-	-	-	-	-	-
6	115	35	157	190	417	707	3,484	4,028	10,481
7	65	66	196	243	443	283	1,018	1,421	3,029
8	-	-	-	-	-	-	-	-	-
9	2	-	-	-	-	-	-	-	-
All	30,758	38	127	180	706	235	1,212	2,020	4,484

- The extended police response times at SLCPD point to a possible issue of patrol staffing levels in the police department. Moreover, response time was a source of dissatisfaction for some survey customers. This should be explored further such that patrol service levels can best meet the needs of the community.

- Consider conducting focus group research to better understand public expectations regarding response time and on-scene personnel and to identify strategies for improving service and/or educating the public. Survey results, for example, suggest that customers are more satisfied when told how long they will have to wait for service to arrive.

- Similarly, consider focus group research to understand the concerns and barriers that cause residents to be reluctant to use online reporting services. Online reporting services were not popular among survey respondents; however, variations on the approach and alternative reporting models might be explored.

- Customer survey contacts under-represented the overall Latino population in Salt Lake City. Data is not readily available with respect to the reason for such, whether a statistical artifact or refusal upon the potential reporting party to participate in the survey. As such, exploration of how to reach-out to the Latino community effectively, with respect to public safety services, might be explored in the aforementioned focus group approach.

- Customer survey contacts under-represented the overall Latino population in Salt Lake City. Data is not readily available with respect to the reason for such, whether a statistical artifact or refusal upon the potential reporting party to participate in the survey. As such, exploration of how to reach-out to the Latino community effectively, with respect to public safety services, might be explored in the aforementioned focus group approach.

- The use of script-based inquiry software for law enforcement 911 services remains a divisive topic nationally. This was also an issue in this engagement. Fundamentally, the issue is not the use of standard inquiries but the feature-sets and flexibility of the vendor software. As such, Salt Lake City and Sandy should use the software product that best meets their unique law enforcement needs. This may or may not be the existing ProQA software product.
- As discussed with the Steering Committee, recommended staffing levels for line dispatch staff include an over-hire component to ensure appropriate staffing levels are consistently available. Similar to SLCPD, a portion of the totality of recommended positions can be authorized but unfunded in the budget, thereby

allowing budgetary flexibility while providing necessary authority to expedite on-going recruitment, selection, and training of new staff.

JACQUELINE M. BISKUPSKI
Mayor

LISA BURNETTE
EXECUTIVE DIRECTOR

Lisa Burnette
Director, Salt Lake City 911
P.O. Box 145520
Salt Lake City, UT 84114

Gregory Mathews
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201 San Antonio Circle, Suite 148
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May 3, 2019

Dear Mr. Mathews:

After reviewing the Performance Audit of 911 and Non-Emergency Dispatch Services, SLC911 has begun implementing changes based on recommendations by your consulting firm. In your key findings and conclusions section found on page 3, you indicate that "there are a number of positive attributes of the 911 Center which should be acknowledged." Among those attributes are that:

- SLC911 has created a staffing plan that meets most of the organizational needs
- Staff members have expressed positive feedback because of new management and associated changes.
- Residents of Salt Lake City and Sandy City believe that SLC911 is doing a good to excellent job overall.
- Customers are more satisfied with their interactions with dispatch operators than they are with the time it takes for help to arrive of on-scene emergency personnel.
- Overall, the 911 Center operates at a high customer service level.

While those attributes are encouraging, SLC911 continues to strive for excellence. As a direct result of this audit, the seventeen recommendations regarding staffing, operations and technology and management and oversight, have either been addressed or are in the process of implementation. This audit was instrumental in providing a roadmap for next steps and future improvement. Attached, please see our commentary on each recommendation. It is our hope that this additional information will be helpful to you as you work with other governmental entities.

Sincerely,

Lisa Burnette

Lisa Burnette

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COMMENTARY FOR RECOMMENDATIONS: (See Performance Audit p. 5-6)

Operations and Technology

1. The 911 Center should eliminate the PBX Operator job classification position and instead use trained and certified dispatchers to handle incoming non-emergency call volume.

> Because of this audit recommendation, the PBX operator positions have been moved to 911 dispatch positions. These positions were filled on April 22, 2019.

2. The 911 Bureau should ensure that the Center's new CAD/RMS allows patrol officers to view Fire/EMS calls as they occur to optimize the level of support they provide.

> This was a simple adjustment in the software. We have tested the functionality and it is working well.

3. The 911 Bureau should continue to use script-based software, such as ProQA, to help ensure consistent questioning of 911 callers and support the optimization of customer service. Initial and on-going refresher training should be provided on such software, with expectations of call-takers clearly delineated as part of the quality assurance and quality control process, to help facilitate the best call-taking experience.

> Salt Lake City's current 911 Bureau software, a product called ProQA, has not performed to our required standards. We met with Priority Dispatch Corporation on March 26, 2019 to discuss our endowment and to notify them that we will discontinue using their police protocols. Our resolution is to work with Unified Police Dispatch and other agencies in the State to implement a solution recommended by the audit, that will decrease call processing times and avoid unnecessary questions. While the audit indicates that we should continue to use a script-based software, it leaves the option open as to how we may facilitate that structure. SLC911 has complied with national standards set forth in APCO (Association of Public Safety Communications Officials) as well as, the State, for script-based questions, and will be implementing the new structure on Tuesday, June 18, 2019. Currently, staff members are being trained in the new method of call-taking and the expectations associated with this model.

Staffing

4. The 911 Center should authorize 98 Dispatcher/Call-Taker positions to meet staffing needs for both emergency and nonemergency call volume, which includes the PBX workstation, while accounting for 22% annual turnover.

> The PBX Operator positions were reclassified as Dispatcher positions as explained in our response to question number 1 above. SLC911 has been meeting the national standard for answering 911 calls since January 2018 and is working towards reducing the time-in-queue

(caller on hold waiting for a call-taker) for nonemergency calls. We have been successful in meeting national standards for 911 calls due to an overhaul of shift schedules and supervisor involvement in answering overflow calls. As a result, our answer times for nonemergency calls have improved by almost 6%. We still have improvements to make and hope to reach our goal of 85% of nonemergency calls answered in 40 seconds or less. Regarding turnover in the dispatch office, a tight Utah employment market still exists. We are looking at ways to combat this issue through recruitment tactics and competitive salaries.

5. The 911 Center should increase the number of authorized Police Dispatcher/Call-Taker positions to 79.

There are currently 58 police dispatch positions now that the PBX positions have been converted. Matrix recommends 21 additional police dispatch positions to ensure adequate staffing based on the number of calls coming into the office; this recommended number, 21, added to our current positions, 58, would bring a grand total of 79 Dispatcher / Call-Taker positions. The additional 21 would be used to cover incoming calls for service, retirement, resignations, and terminations. While additional staff members would help, we recognize that 21 additional employees would be a significant financial burden to the City. With that in mind, we have converted most of our shifts to 10 and 12 hours. This affords maximum staffing opportunities during peak hours.

6. The 911 Center should reduce authorized Fire/EMS Dispatcher/Call-Taker positions to 19.

We currently have 20 fire dispatch positions. By reducing those positions by 1 person, we would have to redevelop the existing shift bids. The employees would have to work different hours and there would be an increased need for overtime, possibly resulting in mandatory overtime. Currently, we use a team approach with our staff, based on position and hours. If we made the reduction, the staff would be split up and would have different coworkers each day thereby eliminating the team concept which is necessary to resolve large incidents.

7. The 911 Center should eliminate two Supervisor positions by promotion or attrition, bringing the total to 8. One of these will still be an Administrative Supervisor.

Currently we staff 10 operations supervisors for our 78 employees. If we eliminate 2 of these supervisory positions, per the audit, each supervisor would be responsible for 11 people. Standard span of control is 5-6. This would increase their performance management and quality assurance duties by at least 25%. A large part of the changes to overtime and mandatory overtime decreases were a direct result of moving Supervisors to fill in open overtime slots cannot critique employees accurately if they cannot do the job themselves. Staffing would be impacted causing a higher likelihood of shifts running without a supervisor.

8. Maintain management and support staffing in the 911 Bureau consisting of 1 Executive Director, 1 Deputy Director, 1 Administrative Assistant, 1 Administrative Supervisor and 2 Operations Managers for a total of 6 positions of these classifications.

This has been accomplished. All support staff have been hired and are in place.

9. The 911 Center should use overtime at similar levels to 2018, minimizing mandatory overtime while offering voluntary overtime up to a reasonable limit of about 10,500 hours per year.

We are on a steady path to repeat voluntary overtime hours. Mandatory overtime has been reduced/eliminated by slotting in administrative team members to assist when employees call-out and other staffing shortages that occur during the work week.

10. Ensure the public safety committee composed of the police and fire chiefs and 911 Bureau Director all report directly to the Mayor's Chief of Staff. No position in this committee should be subordinate to others vis-à-vis decision-making authority.

The public safety committee members have equal power. All agree that there is not a subordinate reporting structure.

11. The 911 Center should eliminate 1:1 reporting relationships and flatten the organizational structure so that the Executive Director supervises the Deputy Director and Operations Managers.

The administrative team at SLC911 has adopted a servant-leadership management philosophy and as a result, the Director has the greatest amount of oversight. The organizational chart remains the same but adopts a reverse pyramid model to preserve proficiency for the entire department. HR is familiar with this philosophy and supports it.

12. When updating the 911 Bureau strategic plan, accomplish this in concert with the development of police and fire strategic planning efforts.

The 911 Strategic plan update is currently in process and is expected to be completed by mid-August. We are coordinating with SLCFD and SLCPD to develop a plan that is in concert with each department's goals.

13. The 911 Center should expand the existing quality assurance program into a formal performance management program overseen by the Deputy Director. The program should include regular review of call recordings and quantitative metrics, planning and goal-setting for improvement, concrete incentives for performance, and long-term tracking of results over time.

SLC911 Supervisors participated in the HR pilot of the SLCBe program, a goal-oriented work planning map. This program has been well-received and has helped staff succeed. Through SLCBe, staff will be able to find corresponding training courses through Cornerstone, HR's learning management system, to help work towards established goals. We are currently implementing the system to those staff members who have not yet received training. This

training is held in conjunction with the quality assurance program for dispatching and call-taking that is already in place.

14. The 911 Center should prepare citizens to use 911 and enhance public relations and recruitment efforts by continuing to build its public education program.

SLC911 met with the Community Empowerment team and has submitted talking points to the Mayor's Communication Team and Dr. Seelig to begin a public education campaign on when to call 911 and when to call the nonemergency line. On April 16, Director Burnette appeared as a guest on KSLs Dave and Dujanovic radio broadcast to talk about the differences and when to call. Additionally, SLC911 is printing materials to provide to the Mayor's and Council offices to disseminate to the public. SLCTV will assist with an in-house interview and this campaign will be provided on our internet site. We have already been invited to several schools to educate young people about when to use 911 and provide a PowerPoint of educational information.

15. The 911 Center should expand and formalize existing recruitment efforts to maximize awareness and job applications among qualified candidates.

911 has been involved with and continues to participate in job fairs. We are working with SLCPD on formalizing recruitment and establishing a list of perspective employees for anticipated turnover.

16. The 911 Bureau should ensure that the results of exit interviews conducted by the City's HR Department are regularly provided to the Executive Director or their designee for analysis.

Human Resources explained that because the exit interview is not mandatory it can be difficult to get enough information to pass on to department heads. Director Burnette is working with the HR Director to refine exit interviews and to obtain that important data for close analysis.

17. The 911 Bureau should conduct a classification and compensation survey every 3-5 years to determine the appropriateness of compensation and ensure that the agency is well-positioned in the labor market.

A reclassification was just completed with the help of Human Resources and Finance. Because of the audit, both departments plan on revisiting compensation in 3 years.