Review of Emergency Response Statistics

April 1998

Office of the City Auditor
Portland, Oregon

CITY OF

PORTLAND, OREGON

OFFICE OF CITY AUDITOR
Audit Services Division

Barbara Clark, City Auditor
Richard Tracy, Director of Audits
1221 S.W. Fourth Ave., Room 310
Portland, OR 97204

(503) 823-4005, FAX (503) 823-4459
Web: www.ci.portland.or.us/auditor/pdxaudit.htm

April 16, 1998

TO: Mayor Vera Katz
Commissioner Jim Francesconi
Commissioner Charlie Hales
Commissioner Gretchen Miller Kafoury
Commissioner Erik Sten
Charles Moose, Chief of Police
Robert Wall, Fire Chief
Sherrill Whittemore, Director, Bureau of Emergency Communications

SUBJECT: Audit of the City of Portland's Emergency Response Statistics, Report #237

Attached is our audit report on the City's Emergency Response Statistics. The audit was conducted in accordance with our Fiscal Year 1997-98 audit schedule.

We have reviewed drafts of the report with the staff from the Mayor's Office and Commissioner Kafoury's office, staff from the Bureaus of Emergency Communication, Police, and Fire, and staff from the Multnomah County EMS department.

Written responses to the audit are included at the back of the report. We ask BOEC Director Sherrill Whittemore to provide us with a written status report in six months detailing actions taken to address the report recommendations. The status report should be distributed to members of the City Council and to the Audit Services Division.

We appreciate the cooperation and assistance we received from staff at the various bureaus involved in completing this report.

Barbara Clark

Barbara Clark, CPA
Portland City Auditor

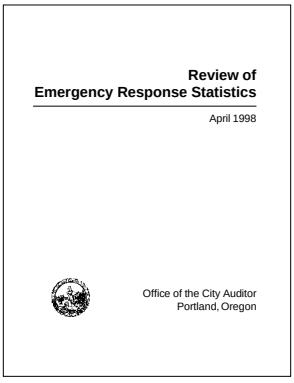
Audit Team: Richard Tracy
Peter Morris

Review of Emergency Response Statistics

April 1998

A Report by the Audit Services Division
Report #237

Office of the City Auditor
Portland, Oregon



Production/Design

This report was produced in-house using desktop publishing software on Pentium Pro personal computers, and a Compaq Pagemarq 20 Postscript laser printer. It was printed at the Printing and Distribution Division of the City's Bureau of General Services. Adobe PageMaker 6.5 was used to design and layout the finished product. Tables were created and drawn manually using PageMaker. Other graphs and charts in this report were produced with Quattro Pro for Windows and PageMaker. Text was initially written in Wordperfect for Windows then imported into PageMaker.

Desktop Publishing: Robert Cowan

Table of Contents

Introduction	Participants in the emergency response system	1
	How emergency calls are handled and statistics recorded	3
	Audit objectives, scope, and methodology	7
Audit Results	Summary	9
	Computer system produces accurate and reliable data	10
	Agencies do not always meet established goals	14
	Various factors affect goal achievement	16
	Emergency response reporting is incomplete	18
Conclusions and Recommendations		21
Responses to the Audit	Commissioner Gretchen Miller Kafoury	27
	Sherrill Whittemore, Director, Bureau of Emergency Communications	29
	Charles Moose, Chief of Police	33

List of Figures and Tables

Figure 1	Diagram of the emergency call system	4
Figure 2	Average response time by agency	19
Table 1	911 emergency call time measurement points	6
Table 2	Summary of data tests: Auditor sample data compared to Bureau of Emergency Communications reports	13
Table 3	BOEC call answering performance	15
Table 4	Comparison of actual emergency call handling and response times to established goals	15

Introduction

Police, fire, and medical emergencies in the City of Portland are handled by a number of public and private agencies working in coordination with each other. One agency receives and handles telephone calls from citizens and alarm companies, while others respond rapidly to the emergency scene to provide help and assistance. In order to minimize the loss of life and property, the emergency response system strives to achieve timely call processing and emergency response.

We analyzed the accuracy and reliability of data produced by the system, determined if call processing and response time goals were met, and evaluated the adequacy of response time reporting to management and elected officials. We did not evaluate the efficiency or effectiveness of operational procedures for call handling, dispatch or emergency response.

Participants in the emergency response system

The designated "public safety answering point" in the Portland area is the City of Portland's Bureau of Emergency Communication (BOEC). BOEC, located at 9911 SE Bush St., receives and processes over 900,000 calls annually. Most of these calls are received from the "9-1-1" emergency number but some calls are received from alarm companies

or through a non-emergency number. BOEC staff are responsible for determining the nature of the call and dispatching fire, medical or police units to the incident.

BOEC provides call handling and dispatching services for public safety agencies and ambulance companies throughout Multnomah County. Within the City of Portland, the Bureau of Fire, Rescue, and Emergency Services responds to fire, medical, and other emergencies, while the Bureau of Police handles police related emergencies. Multnomah County is responsible for the emergency medical services (EMS) system throughout the county. The county manages a contract with a private ambulance company – American Medical Response – to provide advanced life support and ambulance transport.

BOEC also handles calls and dispatches emergency vehicles for other agencies in the county including the Multnomah County Sheriff's Office, Gresham police and fire, Corbett and Sauvie's Island fire agencies, and Fairview and Troutdale police services.

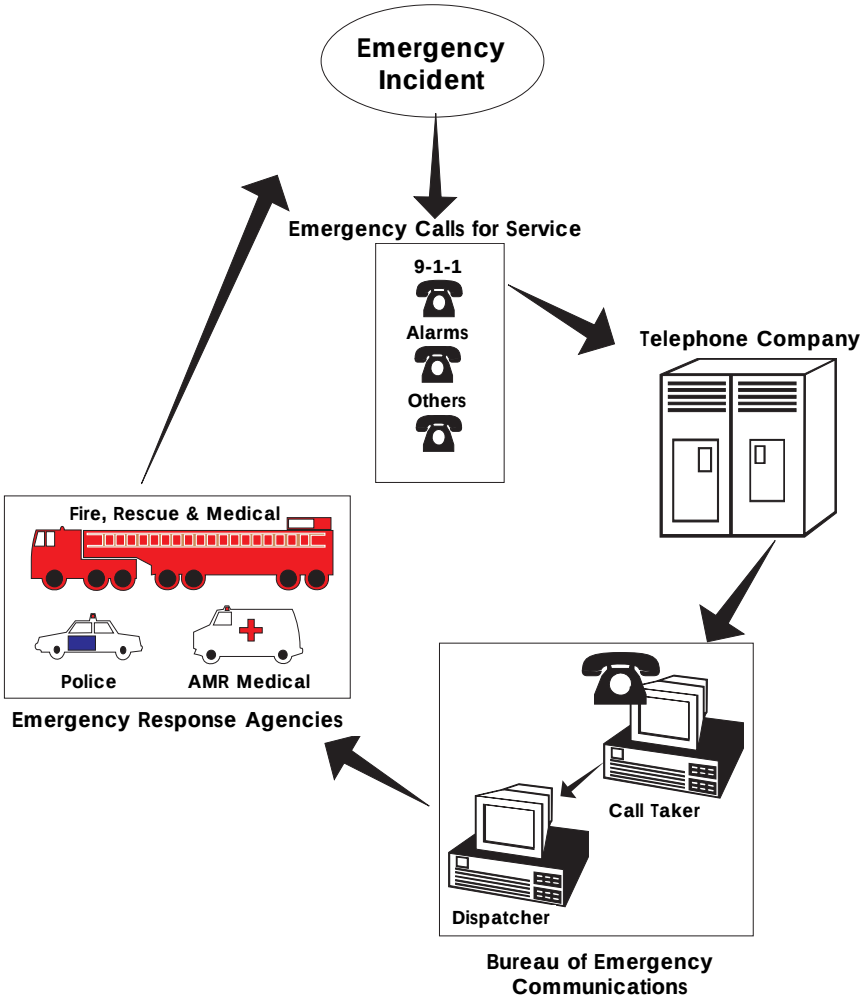
BOEC and the various public safety agencies have intergovernmental agreements to guide call answering and dispatching activities. In general, these agreements establish a user board that gives input to BOEC management on standard operating procedures. Agreements also set performance goals for how fast units will be dispatched by BOEC operators. Additionally, each agency has a goal for how long it should take to arrive at the scene of an incident after dispatch by BOEC. Typically, the level and speed of response is based on the perceived urgency of the incident.

Citizens are also very important participants in the emergency response system, although they lack formal responsibilities. We were told by BOEC managers and public safety agencies that emergency response can be faster and more effective if citizens promptly notify BOEC of an emergency incident. The severity of an incident may be reduced if citizens are quick to call 9-1-1.

How emergency calls are handled and statistics recorded

There are a number of steps in the process of handling each emergency call. As shown in the diagram below, calls from citizens and alarm companies are first handled by telephone company switching equipment at 11 locations in the Portland area and then transferred to answering equipment at BOEC. The first available operator at BOEC answers the call and determines the nature of the problem. If the call is an emergency, the operator establishes an electronic record of the incident and transfers it to another BOEC employee so that appropriate public safety agencies can be notified and dispatched. After notification by BOEC, fire, medical, or police units travel to the incident and provide assistance upon arrival at the scene.

Figure 1 Diagram of the emergency call system



In order to manage the emergency response system, BOEC maintains a time record for many steps in the process. Time records associated with each emergency call allow managers to assess performance, monitor operations, and maintain appropriate staffing levels. The primary tool for recording processing times is the Computer Aided Dispatch (CAD) system maintained and operated by BOEC. Other tools operated by BOEC, US West, and various pub-

lic safety agencies interact with the CAD system to produce information on emergency response times. The following is a list of the major steps in call processing and the electronic tools used to answer calls, dispatch and create automated time records:

* telephone switching - US West provides periodic reports on the time needed to process 9-1-1 calls through the telephone circuitry. Routing a 9-1-1 call to BOEC may require 4 to 8 seconds depending on whether primary or secondary circuits are used.

* call answering - BOEC equipment records how long it takes for each call to be answered by BOEC operators. Emergency calls are automatically queued so that BOEC operators answer them in order received. If all operators are still busy after a 20 second wait, a recording asks the caller to stay on the line until an operator answers. The number of incoming 9-1-1 calls is tracked at BOEC.

* incident recording - Once the operator determines that a call is an emergency incident, the call-taker creates a record of the incident on the CAD system. All processing times and actions related to the incident are electronically entered on the incident record. The call taker enters details on the incident record and then electronically forwards the record to a BOEC dispatcher.

* dispatching - Based on the type, location, and urgency of the incident, the dispatcher determines the most appropriate response unit to dispatch. The dispatcher conveys and receives

information on the incident by radio communications and Mobile Data Terminals (MDTs).

* travel and arrival - Public safety agencies use the radio, Mobile Data Terminals and Automated Vehicle Locators to convey the status of the response to BOEC dispatchers. The CAD system captures the data in the incident record to track travel time, arrival times, and completion times.

The following are the six critical CAD measurement points used by BOEC and public safety agencies to track performance and assess timeliness:

Table 1 9-1-1 emergency call time measurement points

BOEC measurement points			Responder measurement points		
Receive	Enter	Dispatch	Enroute	On scene	Close

Receive	Time when BOEC call taker gets the call
Enter	Time when BOEC call taker has finished gathering information and transfers the call to a dispatcher
Dispatch	Time when BOEC dispatcher assigns responsibility to an emergency responder (fire, police, medical)
Enroute	Time when responder begins travelling to the emergency location
On scene	Time when responder arrives at the location of the emergency
Close	Time when emergency responder completes emergency work

Audit objectives, scope, and methodology

The objectives of our audit were to:

1. Test the accuracy of emergency response data produced and reported by BOEC and City of Portland public safety agencies,
2. Evaluate the degree to which BOEC and agencies meet established call processing and response time goals, and
3. Assess the adequacy of response time reporting to user groups, managers, and elected officials.

To evaluate the accuracy and validity of processing and response data we reviewed the general and application controls established by BOEC. In addition, we tested a two month sample of data from the CAD system from January and February of 1997. We used Statistical Package for the Social Sciences (SPSS) software to analyze the data and reproduce call processing and response time data. We then compared the results of our sample months to the reports of the same months produced by BOEC and the public safety agencies. We limited our analysis to high priority response categories where rapid response is considered most important for public safety and health.

To evaluate the accomplishment of call processing and response time goals, we compared the actual processing and response times we found in the two sample months to goals established by BOEC, the Bureau of Fire, Rescue, and Emergency Services, the Bureau of Police, and the Multnomah County Emergency Medical Services agency. Again, we limited our review to high priority response time goals.

Finally, to assess the adequacy of response time reporting, we reviewed current management reporting to check for completeness, timeliness, and consistency.

We interviewed managers at BOEC and at each of the public safety agencies.

In the course of our audit, we also reviewed written policies and procedures at BOEC, interviewed managers and staff to understand call processing and dispatch processes, observed call handling and dispatch operations on several shifts, and reviewed literature on emergency dispatch operations. We also spent time with CAD system administrators and management information system staff to understand the workings of BOEC systems.

We did not evaluate or audit the efficiency or effectiveness of call handling and dispatch operations at BOEC. In addition, we did not evaluate BOEC staff training methods or personnel and supervision practices. Finally, we did not evaluate or analyze the programming of the CAD system, the adequacy of hardware and software resources, or the management of BOEC operations as a whole.

In addition, we did not evaluate the efficiency or effectiveness of the operational procedures employed by City of Portland public safety agencies.

This audit was included on our Fiscal Year 1996-97 audit schedule, and was conducted in accordance with generally accepted government auditing standards.

Audit Results

Summary

Our review of emergency response statistics produced and reported by BOEC and City of Portland public safety agencies resulted in the following findings:

- Data produced by the CAD system are generally accurate and reliable. We found some opportunities to ensure more complete data that should further increase the reliability of computer generated information produced by BOEC.
- BOEC and the Bureaus of Police and Fire, Rescue and Emergency Services do not always meet established targets for call processing and response. Private ambulances respond to medical incidents within established targets set by Multnomah County.
- Reporting of response time information to City Council and the public is incomplete.

The sections that follow provide additional detail on the results of our audit.

Computer systems produce accurate and reliable data

Our review of system controls and tests of sample data show that data produced by the Bureau of Emergency Communication's emergency response computer systems are accurate and reliable. Although we found a few design and control weaknesses, they do not significantly affect the accuracy of the data or conclusions based on the data. BOEC has developed policies and procedures that provide reasonable assurance that computer-based data is complete and accurate.

General controls: Based on our interviews, we believe that BOEC top management has a strong commitment to the integrity and performance of the CAD and other systems. Management was very responsive to our information needs and receptive to any suggestions that would improve system performance. Top managers are involved in system design decisions and controls exist to ensure only authorized individuals are permitted to conduct certain operations. Separation of duties is enforced by password security clearances and physical restrictions to certain locations in the BOEC building. Disaster planning is extensive. System software and data backup are stored off-site.

Application controls: Although the BOEC lacks adequate software documentation in several areas, we found adequate controls over the authorization and testing of program software, and input and output transactions. Only authorized persons can input data and data in key fields is automatically validated. Important data fields cannot be overridden or bypassed. In addition, output data that do not correspond to normal parameters are analyzed in exception reports. Because most software programs are commercially obtained, software integrity and reliability are also checked by vendors.

We did not thoroughly review the adequacy of supervision over data input. BOEC indicated new procedures are being developed to control the accuracy of discretionary data input. The accuracy of data output is largely dependent on the quality of data input and the degree to which employees fully comply with established policies and procedures for input. Since call receipt and dispatch data are automatically generated, the information is reliable. Discretionary tasks such as incident details appear reliable but are not as well controlled.

Data tests: We tested two months of sample data obtained from January and February 1997 in order to assess the accuracy and reliability of BOEC emergency response data. Using SPSS statistical software we analyzed raw data from the CAD data base, determined the type and nature of the call, counted the number of urgent and priority fire, EMS, and police incidents, and computed elapsed times at six measurement points in the call processing/ response continuum. We then compared our results with BOEC management reports for the same two months.

As shown in Table 2 (page 13), our results closely matched BOEC results. In most cases our computation of the number of incidents and related response times were within 10% of BOEC reported results.

We also found that complete transaction data for some fire and police calls was missing. Although the missing data does not materially affect response time calculations, we found that the system was not using one component of fires (multiple family dwellings) when summarizing statistics. In addition, more than 20 percent of police “on scene” times were not entered into the CAD incident records.

The missing fire data was a result of system modifications earlier in the year and was remedied easily. However, we were unable to determine the cause for missing "on scene" times for police calls. Officials at BOEC and the Police Bureau offered several possible explanations including failure of officers to report arrival times verbally or automatically by MDT, and failure of dispatchers to key the information onto the record.

We also found that 500 to 600 police incidents out of about 30,000 are listed on a BOEC monthly summary, but do not appear in the daily live data feed. Police receive "live" incident data from BOEC on a daily basis, and BOEC provides a written monthly summary of these incidents to police. According to BOEC, the monthly summary is complete and accurate but the live data feed may not include some incidents such as self-dispatched police incidents. BOEC and the Police Bureau are working to improve the accuracy of the live data feed but the discrepancy has not been fully corrected.

Finally, some calls to BOEC do not automatically generate call information. Calls from cellular telephones and calls from alarm companies or calls to the non-emergency number do not automatically generate an initial call time, but do generate dispatch times. Cellular telephone calls and calls from alarm companies, while generating time information, do not provide location information. According to BOEC officials, this problem is caused by limitations in the telephone company switching equipment.

Table 2 Summary of data tests: auditor sample data compared to Bureau of Emergency Communications reports

		Number of Incidents	Received to Dispatch Times (seconds)	Dispatch to Arrival Times (seconds)
Fire, Rescue and Emergency Services	Urgent Fire Calls			
	BOEC Reports	194	58	242
	Audit Sample	196	59	240
	Difference (+ or -)	1.03%	0.85%	-0.59%
	Priority Fire Calls			
	BOEC Reports	269	79	287
	Audit Sample	271	88	303
	Difference (+ or -)	0.74%	11.60%	5.52%
	Priority EMS Calls			
	BOEC Reports	5,749	75	269
	Audit Sample	5,647	81	268
	Difference (+ or -)	-1.77%	8.68%	-0.20%
Emergency Medical Services (Ambulance)	Priority 1 Calls			
	BOEC Reports	6,854	86	330
	Audit Sample	6,912	92	332
	Difference (+ or -)	0.85%	6.40%	0.45%
Police	Emergency Calls			
	BOEC Reports	725	92	
	Audit Sample	739	101	
	Difference (+ or -)	1.93%	6.40%	
	Priority 1 Calls			
	BOEC Reports	2,171	115	
	Audit Sample	2,423	133	
	Difference (+ or -)	11.61%	15.70%	
	Priority 2 Calls			
	BOEC Reports	17,388	156	
	Audit Sample	18,356	204	
	Difference (+ or -)	5.57%	30.63%	

Emergency, Priority 1 & 2 Calls	
309	Police Reports
307	Audit Sample
0.38%	Difference (+ or -)

Source: BOEC Reports/Records and Audit Services Division sample analysis

Agencies do not always meet established goals

Each of the agencies involved in the emergency response system have established goals for timely processing and response to emergency calls. Our analysis of actual times in January and February of 1997 compared to goals at that time showed that agencies do not always meet their established goals. As shown in Table 3 and 4, for the two month sample we reviewed:

- BOEC call-answering times are slightly slower than goals. The average time to answer calls is eight seconds, compared to a goal of five seconds. However, the eight seconds includes a four-second delay caused by the U.S. West call queuing equipment. If the U.S. West equipment did not add time to the calls, the average time to answer would be four seconds – within the five-second average time to answer goal.

- BOEC dispatching times were slower than established goals. Call handling and dispatching time goals were met only 30 percent of the time for urgent calls and 29 percent for priority calls.

- Fire, Rescue and Emergency Services responders did not meet targeted response times. Fire and EMS runs arrived at the scene of incidents within four minutes of dispatch only 48 percent of the time for urgent calls 46 percent of the time for priority fire calls, and 45 percent of the time for priority EMS calls. Each of these response times is less than the established target of 90 percent within four minutes.

- Police responses were very close to meeting response time goals. Average response to all emergency calls was 5:07 minutes compared to goal of 5:00.

Table 3 BOEC call-answering performance
(January / February 1997)

	January	February	Goal
Number of calls	**38,073**	**34,430**	
Average time to answer	**8.1 secs.**	**7.9 secs.**	**5 secs. (or less)**
% of calls answered within 20 seconds	**92.8%**	**92.4%**	**94.5%**

Source: BOEC records

Table 4 Comparison of actual emergency call dispatching and response times to established goals
(January/February 1997)

	BOEC call-dispatching times		Emergency agency response times	
	Goal	Achievement of Goal	Goal	Achievement of Goal
FIRE				
Urgent Calls	**90%** *(dispatched in 45 Secs)*	**40.9%**	**90%** *(on scene in 4 minutes)*	**48.5%**
Priority Fire Calls	**90%** *(dispatched in 45 Secs)*	**18.6%**	**90%** *(on scene in 4 minutes)*	**45.8%**
Priority EMS Calls	**90%** *(dispatched in 90 Secs)*	**70.0%**	**90%** *(on scene in 4 minutes)*	**44.9%**
E.M.S.				
High Priority Calls	**90%** *(dispatched in 60 Secs)*	**23.3%**	**90%** *(on scene in 8 minutes)*	**90.1%**
POLICE				
Emergency Calls	**90%** *(dispatched in 60 Secs)*	**27.9%**	*5:00* *(average time to arrive on scene - all priorities)*	5:07
Priority 1 Calls	**90%** *(dispatched in 60 Secs)*	**14.8%**		
Priority 2 Calls	**90%** *(dispatched in 90 Secs)*	**20.3%**		

Source: BOEC and bureau records

- EMS ambulances met targeted response goals, arriving at the scene of medical incidents within 8 minutes 90.1% of the time, slightly more frequently than the target of 90%.

Various factors affect goal achievement

We did not evaluate the various conditions that affect the ability of emergency response agencies to meet processing and time goals. However, our discussions with managers point to several factors that could influence the speed of processing and response times, and the ability to meet established goals. These factors include:

unrealistic call-handling, dispatch, and response time targets: Officials from BOEC and the Bureaus of Police and Fire and Rescue believe that some of the emergency call handling and response time targets may be unrealistic. Most of the targets were set prior to implementation and operation of the new CAD system and most have not been revised based on actual experience with the system over the past three years. BOEC and the County EMS system have recently revised EMS dispatch goals upward from 60 seconds to 90 seconds. In addition, following the recent Fire Station Location study, the Bureau of Fire, Rescue, and Emergency Services has established a new fire response time goal of 90% of all calls responded to within 5.20 minutes, up from 4 minutes. Officials believe that additional analysis is needed to determine the most appropriate targets for call-handling, dispatch, and emergency response.

proximity of response units to emergency scene: One factor influencing the amount of time needed to respond to an incident is how close the response unit is to the scene.

Long distances, geographic barriers such as hills and rivers, and the location of response units in relation to the incident can affect the length of response times. Public safety and health agencies are considering various approaches to improving proximity including better locations for fire stations, different deployment strategies for response units, and improved use of technology to help dispatch the closest units.

performance by operators, dispatchers, and public safety personnel: Officials from emergency response bureaus believe that dispatching and response times can also be improved by following and improving standard operating procedures. Excellent performance by operators, dispatchers, and emergency response personnel can help reduce seconds lost in the receipt, dispatch, and travel to incidents. Improved training and supervision can help address performance problems.

traffic congestion and roadway barriers: Slower response times also occur due to traffic congestion and traffic calming barriers throughout the city. Our discussions with several bureau representatives indicates that the fire and transportation bureaus are attempting to better coordinate actions to address both emergency response and traffic calming objectives.

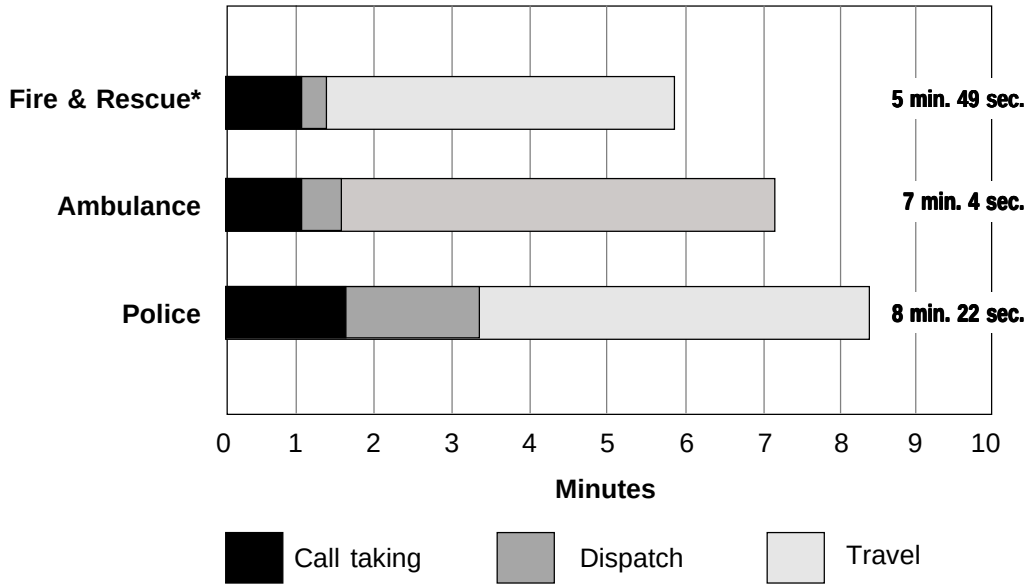
Emergency response reporting is incomplete

We found that no single City agency is responsible for reporting comprehensive response time information to elected officials and the public. Although BOEC provides performance information on call handling and dispatch times, it does not provide information on the response times of public safety agencies. Each public safety agency provides response time information on their specific service, but they do not include BOEC call-handling and dispatch times. As a result, complete information on the time required to arrive at the scene of an incident from the time a call is received by 9-1-1 is not easily available to the public or Council.

The following graph illustrates total average response times for each type of emergency call. We spent considerable time analyzing BOEC and public safety agency data to develop a comprehensive picture of response time from 9-1-1 call receipt to arrival at the scene of an incident. Non-emergency and low priority calls are not included.

As shown, average fire and rescue response was 5.82 minutes, ambulance response was 7.06 minutes, and police response was 8.35 minutes.

Figure 2 Average response time by agency (January 1997)



* Fire travel time includes "turn-out" time component of 1.32 minutes

Source: Auditor analysis and bureau reports

Our interviews with managers show that there are several factors leading to incomplete reporting of emergency response times. Major factors include:

- user agreements established by BOEC with public safety agencies do not clearly specify roles and responsibilities for developing and issuing public reports on total response time to emergency incidents
- public safety agencies have not defined their public reporting responsibilities nor established specific procedures and methods for periodically developing response time performance reports.

Conclusions and Recommendations

The information produced by the Bureau of Emergency Communications is generally reliable and accurate. Additional efforts, however, can be taken to improve completeness and accuracy of data by working with the Bureau of Police and U.S. West Communications. In addition, all City of Portland bureaus responsible for emergency response activities can improve response time performance by addressing various strategies. More complete information on response time performance would also improve public accountability.

In order to continue to improve the quality of emergency response statistics, we recommend that the Bureau of Emergency Communications take the following actions:

1. Improve the completeness of emergency incident counts and response time calculations.

a. Work with the Bureau of Police to identify causal factors and solutions to the following problems:

- discrepancies in police incident counts between live data transmissions and summary monthly reports,
- missing on-scene time reports from police

b. Strongly urge U.S. West Communications to improve the quality of 9-1-1 switching equipment and the accuracy of management reporting. Specifically, the Bureau should strive to:

- include emergency calls from non-9-1-1 sources into incident counts
- reduce telephone company switching delays
- improve accuracy and timeliness of telephone company management reporting

In order to improve performance in meeting call answering, dispatching, and responses time targets, the Bureaus of Emergency Communications, Police, and Fire, Rescue and Emergency Services should:

2. Explore several strategies for improving call processing and response times. Strategies should include:

a. developing appropriate call-handling, dispatch, and response-time targets.

b. improving proximity of response units to emergency scenes.

c. continuing to improve performance of operators, dispatchers, and public safety personnel.

d. reducing the impact of traffic congestion and roadway barriers by better coordination with transportation agencies.

In order to provide City Council and the public with complete response time information from the receipt of an emergency call to the arrival at the incident scene, the Bureaus of Emergency Communications, Police, and Fire, Rescue, and Emergency Services should:

3. Develop a single annual report to Council that compares actual emergency response performance to established goals.

The report should include all time components of the emergency response process including call handling, dispatch, turnout, travel, and arrival at scene. The report should compare actual time performance to goals established for each response activity. In addition, the report should discuss deviations from target response times and propose corrective action needed to address problem areas. We believe that BOEC should take the lead role in preparing the report and coordinating the data from the other bureaus.

Responses to The Audit

CITY OF
PORTLAND, OREGON

Gretchen Miller Kafoury, Commissioner
1220 S.W. 5th Avenue
Portland, Oregon 97204
Telephone: (503) 823-4151
Fax: (503) 823-3036

April 3, 1998

TO: Richard Tracy, Director of Audits
FR: Commissioner Gretchen Miller Kafoury

RE: **Emergency Response Statistics Audit**

Thank you for the fine work on the Emergency Response Statistics Audit. Your research assures me that our investments in the CAD system, in BOEC management, and in training have resulted in an emergency response system that is efficient, effective, and accountable.

It is important to note that this effort depends on a team of private and public agencies. We will continue to work closely with all parties to implement your recommendations. As Commissioner-in-charge of both BOEC and the Bureau of Fire, Rescue, and Emergency Services, I am committed to strengthening the system with the cooperation of Portland's major emergency response agencies.

I appreciate the role your staff and the audit play in assisting our system with continual improvements.

CITY OF

PORTLAND, OREGON

Bureau of Emergency Communications

Gretchen Miller Kafoury, Commissioner
Sherrill L. Whittemore, Director
9911 S.E. Bush Street
Portland, Oregon 97266-2562
(503) 823-0911
Fax: (503) 823-4630

April 9, 1998

FAXED 4-9-98

TO: Richard Tracy
Director of Audits

FROM: Sherrill L. Whittemore, Director

SUBJECT: Emergency Response Statistics Audit

Thank you for the time and diligence put into the audit of Emergency Response Time Statistics. This audit has attempted to review all the factors involved in emergency response, of which 9-1-1 call-taking and dispatch are the critical contacts for citizens in need. It is clear from the report that you have identified many of the complexities of the 9-1-1 system.

To reiterate, the Bureau provides 9-1-1 and non-emergency response calltaking services to all citizens within the cities and unincorporated areas of Multnomah County. We also provide dispatch services to the law enforcement agencies for Portland, Gresham, Troutdale, Fairview and the Multnomah County Sheriff's Office. We provide dispatch for Portland's Bureau of Fire Rescue and Emergency Services, Gresham Fire Department, Fire Districts 14 and 30, and the Multnomah County EMS provider. These services are coordinated through a User Board, established by intergovernmental agreements, which provides for input into how the system operates and the Bureau's performance standards. The goals are constantly under review based on the information we gather through our various tracking systems.

As a multi-jurisdictional service entity we take pride in the efforts of our staff to provide the best possible emergency response to calls from the citizens of Multnomah County. We have developed and continue to develop systems that allow us to monitor, review and report on our performance goals and benchmarks. The primary source of information is the CAD (Computer Aided Dispatch) system, but we also use data from the telephone system and various other sources to monitor process times.

We know that time is critical in responding to emergency situations. However, there are many factors affecting the processing and dispatching of emergency calls which are beyond the control of the 9-1-1 calltaker and dispatcher. Subsequently, the performance parameters for both calltaking and dispatch may be affected by these factors. Items such as unit availability or a caller's ability to promptly respond to questions can dramatically impact our ability to gather necessary information and then process a dispatch or provide a timely referral. Systems have been developed to assist the calltaker in obtaining the location, selecting response units, and providing support information to the responder. We strive, through our training, to provide calltakers with techniques which they utilize to maintain control of the 9-1-1 call and the elicitation of information from callers who may be tense, confused and/or hysterical.

We also monitor call volumes to determine the impacts of various types of calls to the 9-1-1 system. Because of these efforts we must continually remind citizens of the need to only call 9-1-1 for emergencies and to use the non-emergency telephone number for all other situations.

Communication tools have been provided to the dispatch personnel and to the responder units in an attempt to provide better information flow and the tracking of activities. The ability of the dispatcher to route information directly to the MDT (Mobile Digital Terminal) in a responder vehicle reduces broadcast time and helps to eliminate confusion over locations, patient condition, suspect location and other information considered important to responders. The AVL (Automatic Vehicle Locator) system helps the dispatcher select the closest medical response unit to each call for service. MDTs allow all responders to change their status, place themselves in or out of service, mark when they arrive on scene to a call, and various other functions involved in dispatch and resolution of problems. These systems have functioned well and have had a major impact on how the dispatch of calls occurs.

The calltaking and dispatch process is very well monitored and reviewed through supervisory oversight during operations, and through the Quality Assurance/Quality Improvement process employed by the Bureau management. These systems help insure consistency throughout the processing of very critical information. Coordination of the activities and application by over 100 dispatch personnel is challenging and sometimes difficult. These difficulties lie in the very nature of the job: communication between people. Although we continue to provide exceptional service in almost all cases, we are always looking for opportunities to improve.

We have already taken steps to implement the recommendations contained in this report.

- We are working with the police agencies to verify data elements and incident counting methods.

- We have been pursuing clarification of telephone data and reports from our telephone companies, including US West.

- We are also working with the State Office of Emergency Management / 9-1-1 Program regarding issues of telephone network call set-up and processing times.

- The User agencies are currently reviewing, in conjunction with BOEC management, the appropriateness of the response-time targets, and unit deployment issues.

- Finally, we are reviewing the practical nature of a single consolidated response time report for the dispatch system.

Thank you again for the thoroughness of your report and the items identified for review.

CITY OF
PORTLAND, OREGON
BUREAU OF POLICE

VERA KATZ, MAYOR
Charles A. Moose, Chief of Police
1111 S.W. 2nd Avenue
Portland, Oregon 97204

April 1, 1998

TO: Richard Tracy, Director of Audits

SUBJECT: Response to Final Draft of Emergency Response Statistics audit

In responding to issues raised by this audit I will first respond to the data collection transmitted to the Portland Police Data System (PPDS) from the BOEC CAD system. The audit found that 500-600 police incidents out of approximately 30,000 listed by BOEC are not transferred to PPDS every month. This is a major area of concern as the Police Bureau implements the Crime Analysis & Mapping Information Network (CAMIN). If we are "losing" this many calls it represents 1-2% of all data which impacts the accuracy of the CAMIN system and over 12 months losing 7,000 calls for service is clearly a significant amount of crime data.

Additionally, I would request that BOEC or US West respond to the issue of not generating location information for calls received from cellular telephones or alarm companies. Again, this will present significant challenges to the validity of the CAMIN data. Given that alarm calls represent 7 to 8 percent of all calls for service we need to have complete data. This finding was also very significant given the increased use of cellular telephones to report crime or request police assistance.

The next issue which was of interest was the data which indicated that while the police were meeting their response time of 5:00 minutes, it was taking over 3 minutes to process 911 calls and that BOEC was only meeting their goal of dispatching priority 1 calls 14.8% of the time. Clearly there needs to be a review of call taking protocols to determine if the 60 second goal is realistic, or, if the call taking information protocols needs revision.

The recommendations made by this audit regarding data collection, and getting complete data to PPDS, are valid and should be remedied. The missing on-time reports from police units responding to calls should also be examined to determine if it is a training, mechanical, or procedural issue to be addressed. Strategies also need to be developed to address call processing issues as outlined above. Finally, the development of an annual report which compares actual emergency response performance to established goals would be of great value to BOEC users as well as City Council.

Charles A. Moose, Ph.D.
Chief of Police

CAM/cht

THIS REPORT IS INTENDED TO PROMOTE
BEST POSSIBLE MANAGEMENT OF PUBLIC RESOURCES

The first copy of audit reports published by the Audit Services Division is free.
Additional copies are $5 each.

Requests for printed reports should be sent to the following address,
accompanied by a check or money order, if applicable, made out to the City of Portland.

Audit Services Division
City of Portland
1221 S.W. 4th Avenue, Room 310
Portland, Oregon 97204

If you received a free copy and you no longer need it you may return it to the
Audit Services Division. We maintain an inventory of past audit reports
and your cooperation will help us save on printing costs.

Full copies of the report may also be accessed via the Audit Services Division's web page located at:
http://www.ci.portland.or.us/auditor/pdxaudit.htm
The web page version of the report is the same as the printed version,
and can be downloaded and printed from most laser printers.