
Study Methodology

APPENDIX A

This appendix explains the process we followed to conduct the review of best practices in 9-1-1 dispatching. It lists the steps we took and also describes assistance we received from local government representatives and others involved with 9-1-1 dispatching.

GATHERING BACKGROUND INFORMATION

In conducting this review we collected information from a variety of sources. We began with a literature review of materials pertinent to public safety dispatching and 9-1-1 emergency number systems. Next we invited public safety answering point (PSAP) administrators, law enforcement officers, county and city officials, legislators, and others interested in 9-1-1 dispatching to a roundtable discussion in midsummer 1997. At this roundtable, 49 participants had an opportunity to present their perspectives on issues they believed the review should address. We also spent time in the summer and early fall observing dispatchers at work, speaking with PSAP administrators, and interviewing emergency response agencies and state officials involved with the topic.

TECHNICAL ADVISORY PANEL

Throughout the review we relied on feedback from a technical advisory panel. The panel's primary purpose was to offer our study the perspectives of 9-1-1 dispatching professionals. Panel members were practitioners in the field, either employed in the administration or operation of PSAPs or involved in issues affecting public safety dispatching and 9-1-1 service. Some members volunteered to serve following their participation in the summer roundtable discussion and others were recruited to assemble a panel representative of various regions of the state. We met with the panel

four times, including one meeting in February 1998 to review a preliminary draft version of this report.

We are grateful for the help and advice of the panelists who gave us their comments and reactions during the review. The Legislative Auditor's Office remains responsible for the content of this report; panel members may or may not agree with the conclusions and recommendations of our study. The technical panel members were:

Jim Beutelspacher

9-1-1 Program Product Manager, Department of Administration

Ron Bolin

State Patrol Communications Coordinator

Tim Butler

St. Paul Fire Communications Chief

John Dejung / Susanne Griffin

Minneapolis Emergency Communications Director

Emergency Communications Operations Manager

Richard Dugan

Lieutenant, St. Paul Police Department Communications Center

Richard Esensten

Captain, Hennepin County Sheriff's Communications Division

Julie Heimkes

Rice and Steele County Public Safety Communications Administrator

Shari Hughes

Ramsey County Sheriff's Communications Assistant Director

Mary Jonas

Stearns County Sheriff's Office Dispatch Supervisor

James Kinsey

Captain, Cottage Grove Police Department

Diane Lind

Burnsville Police Communications Supervisor

Paul Linnee

GeoComm Corporation Sales Manager

Don McGlothlin

Captain, Washington County Sheriff's Office

Patrick Medure

Itasca County Sheriff

Jeff Nelson

W.M. Montgomery & Associates

Bill Nevin

Scott County Sheriff

Pat Pahl / John McGough

Metropolitan Radio Board Staff

Nancy Pollock

Metropolitan 9-1-1 Board Executive Director

Sue Pope

St. Peter Police Department Office Coordinator

Andy Terry

Mn/DOT Electronic Communications Office
Director

Consultant

We hired a consultant to help us with technical questions and provide information on the strengths and weaknesses of various practices. The consultant also joined us on many of our visits to PSAPs in counties and cities around the state. Our consultant was:

Glen Morrow

Retired Lieutenant, Communications Division,
Hennepin County Sheriff's Office

**SURVEYING PUBLIC SAFETY
ANSWERING POINTS**

To supplement our background information and collect data on specific PSAPs, we conducted mail surveys of the 112 PSAPs and 10 State Patrol communications centers in Minnesota. In mid-October 1997 we mailed survey instruments and cover letters, asking PSAP administrators to return the survey after two and a half weeks. About a week later we mailed reminder postcards to every PSAP that had not yet responded to the survey. Three and a half weeks after mailing the original survey, we mailed follow-up letters and surveys to those PSAPs from whom we had received no response. In this final mailing we asked for a response within nine days.

We received completed surveys from 98 PSAPs and all 10 State Patrol communications centers, for a response rate of 89 percent. Survey results have a margin of error of plus or minus three percentage points, due to incomplete responses from all PSAPs. Because some respondents chose not to answer all questions in the survey, the margin of error may be larger for certain responses where the number of respondents is low. In addition, the practical difficulties of conducting any opinion survey may introduce other sources of error that cannot be isolated.

Readers will find the aggregate results of the survey at the end of this appendix. We report survey results for the 98 local PSAPs responding to our mailed questionnaire. The results do not include responses from the 10 State Patrol communications centers; however, these data are available from the Office of the Legislative Auditor upon request.

**DEFINING EFFECTIVE AND
EFFICIENT 9-1-1 DISPATCHING**

While collecting background information, we identified goals for PSAPs and a number of actions to help meet the goals. These goals and actions were based on standards and criteria established by public safety organizations and the 9-1-1 emergency number industry and by state statutes and rules. (Appendix D contains a bibliography of our data sources.)

We used the numerous standards of effective and efficient 9-1-1 dispatching to define successful PSAPs. Using these standards, we compiled measures of performance to compare PSAPs. In December 1997, we reviewed the list of performance measures with our technical advisory panel and revised measures based on members' feedback. (Appendix B lists the performance measures we identified.) Then, in combination with survey data PSAPs had supplied, we used the performance measures to determine which Minnesota PSAPs met the definition of effective 9-1-1 dispatching.

VISITING PSAPS

Using the performance measures designed to identify effective and efficient PSAPs, we selected 13 PSAPs to visit and gather additional information. Many more PSAPs qualified as effective and efficient than we had time to visit. Consequently, we chose PSAPs representing different sizes and geographic locations of Minnesota local governments.

The examples of best practices in this report come from the 13 Minnesota jurisdictions we visited in December 1997 and January 1998. In selecting the 13 sites we do not mean to suggest that only these PSAPs use effective practices; to the contrary, we became aware of many other PSAPs that we could have readily used as examples in this report. Time constraints prevented us from visiting them all.

During visits to the 13 sites we looked first-hand at various practices. We asked PSAP personnel why the practices were begun, how they evolved, what advantages they offered, what they cost, and whether they could be transferred successfully to other PSAPs. To collect the information systematically during the visits, we used a standardized questionnaire with 13 open-ended questions. A copy of the questionnaire instrument follows.

LOCAL GOVERNMENT ADVISORY COUNCIL

Before completing the report we reviewed it with two groups outside our office. One was the technical panel mentioned earlier. The second was the Local Government Advisory Council, created by the 1994 Legislature to recommend topics for Best Practices Reviews. Council members, mostly county administrators and city managers, read and provided comments on a draft version of this report in early March 1998. Members of the Local Government Advisory Council were:

Brandt Richardson (chair)

Dakota County Administrator

Dave Childs

Minnetonka City Manager

Chris Hagelie

St. Cloud City Administrator

Lynn Lander

Hermantown City Administrator

Charles Meyer

St. Louis Park City Manager

Steve Sarkozy

Roseville City Manager

James Schug

Washington County Administrator

Michele Timmons

Ramsey County Director of Risk Management

Lothar Wolter, Jr.

Young America Township Clerk

Office of the Legislative Auditor
9-1-1 Dispatching: A Best Practices Review
SITE VISIT QUESTIONNAIRE

Staff: _____ Date: _____

PSAP: _____ Phone: _____

Interviewee(s):

_____ Title: _____
_____ Title: _____

Best Practices:
(1) _____
(2) _____
(3) _____

1. Describe the practice. What is it? How does it work? When did you first implement it?
2. Why did you first begin the practice? What problems, if any, were you hoping to overcome?
3. Did the practice solve these problems? Why or why not?
4. Were there other options you considered at the time? If so, what makes this practice superior to those?
5. Does the practice produce savings in time, money, labor, resources, or hassles? Can you quantify the savings?
6. Have you found other advantages from using the practice?
7. Have you found any problems or disadvantages with the practice? Have you had to modify it over time to improve it?
8. Thinking back to when you began the practice, did you have any problems with the initial startup? If so, how did you overcome them?
9. What were the startup costs of the practice? What are its ongoing costs?
10. Do you think other PSAPs could also use the practice? What characteristics or attributes does a PSAP need if it is to successfully use the practice?
11. What would you suggest a PSAP should avoid if it is considering this practice?
12. What tips or advice would you offer to another PSAP to help make this practice a success?
13. Do you have any additional thoughts or comments?

Office of the Legislative Auditor

9-1-1 Dispatching: A Best Practices Review

SURVEY OF MINNESOTA PSAPs

Thank you for answering this survey on public safety answering points (PSAPs). Survey questions pertain primarily to the 1996 calendar year. We recognize that some questions may refer to data that you do not routinely collect, but encourage you to provide us with estimated answers in those instances where you may not have precise data. Questions using the term "telecommunicators" refer to PSAP employees who answer 9-1-1 calls, dispatch response units, or perform both of these functions. Direct questions about the survey to Jody Hauer at 612/296-8501.

Please return the completed survey in the enclosed postage-paid envelope by November 21, 1997.

1. Name _____
2. Position _____
3. City, County, or District _____
4. Phone _____

OPERATIONS

5. **How many answering positions (that is, appropriately equipped locations within the PSAP that receive incoming calls) did your PSAP have at the end of 1996?**

<u>Total</u>	<u>Median</u>	(N=95)
259	2	Answering positions

6. **For how many of the following agencies did your PSAP provide dispatching services at the end of 1996?** (*Please fill in the number of agencies in your service area.*)

<u>Total</u>	<u>Median</u>	
482	4	a. Law enforcement agencies (N=98)
787	7	b. Fire protection departments (N=96)
325	3	c. Ambulance providers (N=90)
289	4	d. Other (<i>Please specify.</i>) (N=46) _____

Comments:

7. **What was the maximum number of active public-safety response units available for dispatching at your PSAP during your busiest shift in 1996?**

<u>Total</u>	<u>Median</u>	(N=97)
2,121	23	Response units
<u>Number</u>	<u>Percent</u>	
34	35.1%	Unknown or unable to estimate

Because PSAPs record calls differently, we report the responses to questions 8 - 11 according to how agencies recorded calls: (1) all calls, (2) calls that resulted in an initial complaint report, (3) calls that resulted in a response unit dispatched, and (4) calls recorded in other ways.

8. Approximately how many of the following types of calls for service did your PSAP receive in 1996? (N=87)

Type of Call for Service	Median number of calls for service by type of call recorded			
	All Calls (N=33)	Calls/Initial Complaint Report (ICR) (N=45)	Units Dispatched (N=5)	Other (N=4)
9-1-1	a. 4,282.0	1,500.0	3,768.0	9,316.0
7-digit	b. 19,850.0	5,700.0	6,392.0	
Walk-up requests	c. 903.5	800.0	1,435.0	
TOTAL CALLS FOR SERVICE	d. 22,775.0	14,124.0	22,300.0	14,099.5

9. Approximately how many of your total calls for service referred to in Question 8 were emergency calls (calls that required immediate action) and how many were nonemergency calls (all other calls)? (N=90)

	Median number of emergency/nonemergency calls by type of call recorded			
	All Calls (N=20)	Calls/ICR (N=26)	Units Dispatched (N=3)	Other (N=1)
Number of emergency calls	3,750.0	1,468.5	4,320.0	5,000.0
Number of nonemergency calls	23,795.0	6,825.0	12,000.0	14,000.0

<u>Number</u>	<u>Percent</u>	
40	44.4%	Unknown or unable to estimate

10. What would you estimate was the total number of calls for service your PSAP received over the five-year period of 1992-1996? (N=91)

	Median total calls for service over 5 years by type of call recorded			
	All calls (N=26)	Calls/ICR (N=36)	Units Dispatched (N=4)	Other (N=3)
Total calls for service (1992-1996)	122,500.0	52,500.0	74,950.0	50,000.0

<u>Number</u>	<u>Percent</u>	
22	24.2%	Unknown or unable to estimate

11. Approximately how many of your total 1996 calls for service referred to in Question 8 were medical calls? (N=94)

	Median number of total calls for service by type of call recorded			
	All calls (N=27)	Calls/ICR (N=35)	Units Dispatched (N=5)	Other (N=2)
Number of medical calls	1,497.0	780.0	1,209.0	1,223.5

<u>Number</u>	<u>Percent</u>	
25	26.6%	Unknown or unable to estimate

12. Which of the following services regarding medical calls were generally available in 1996? (Circle the appropriate response.)

Service	Our PSAP Offered This for Medical Calls		We Referred Medical Calls to Another Agency That Offered This		This Service Was Not Available for Medical Calls		Uncertain/Don't Know	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
a. Prerarrival instructions (N=93)	37	39.8%	10	10.8%	42	45.2%	4	4.3%
b. Emergency priority response system (PRS) approved by a medical director (N=92)	11	12.0	7	7.6	61	66.3	13	14.1
c. Emergency medical protocol prompts (on either flip cards or computer) (N=94)	43	45.7	6	6.4	42	44.7	3	3.2
d. Appropriately trained emergency medical response telecommunicators (N=94)	35	37.2	6	6.4	49	52.1	4	4.3
e. A process to monitor and review EMS calls and practices to assure ongoing quality (N=92)	21	22.8	4	4.3	58	63.0	9	9.8
f. Other (Please describe.) (N=2)	2	100.0	0	0.0	0	0.0	0	0.0

13. What percent of calls at your PSAP do you estimate were answered within 10 seconds, with no more than three rings, during the busy hour of an average week of your busy month in 1996? (Mark the appropriate box.)

Number	Percent	(N=97)
76	78.4%	a. At least 90 percent
17	17.5	b. At least 75 percent
1	1.0	c. At least 50 percent
1	1.0	d. Fewer than half
2	2.1	e. Unknown or unable to estimate

14. What was the average time it took to answer a call at your PSAP in 1996? (That is, the average time between the first audible ring and the time the telecommunicator answered.)

Median (N=98)
5 Seconds

Number	Percent
18	18.4%

Unknown or unable to estimate

15. What was the average time it took to complete a call at your PSAP in 1996? (That is, the average time between the time the telecommunicator answered and ended the call--including time spent on call transfers.)

Median (N=96)
51 Seconds

Number	Percent
42	43.8%

Unknown or unable to estimate

16. Approximately what percent of outgoing calls transferred by telecommunicators at your PSAP do you estimate were transferred to the appropriate location in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=96)
25	26.0%	a. 100 percent
53	55.2	b. At least 95 percent
10	10.4	c. At least 90 percent
1	1.0	d. At least 85 percent
0	0.0	e. At least 80 percent
0	0.0	f. Fewer than 80 percent
7	7.3	g. Unknown or unable to estimate

17. Approximately what percent of calls transferred into your PSAP do you estimate were misdirected in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=96)
71	74.0%	a. 0 to 5 percent
12	12.5	b. 6 to 10 percent
3	3.1	c. 11 to 15 percent
2	2.1	d. 16 to 20 percent
0	0.0	e. More than 20 percent
8	8.3	f. Unknown or unable to estimate

18. For which of the following functions, if any, did your PSAP have written standard operating procedures in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=98)
69	70.4%	a. Receiving calls for service
60	61.2	b. Receiving and processing TDD calls
54	55.1	c. Prioritizing calls (by level of severity and urgency)
45	45.9	d. Controlling calls (directing the call through structured questions)
65	66.3	e. Obtaining information from callers
65	66.3	f. Identifying and contacting available response units
67	68.4	g. Dispatching response units
63	64.3	h. Communicating with response units
57	58.2	i. Retrieving information for officers and other public safety units in the field
32	32.7	j. Debriefing telecommunicators between shifts
49	50.0	k. Managing unanticipated malfunctions in the 9-1-1 system or other equipment
66	67.3	l. Radio communication
8	8.2	m. Other (Please describe.) _____
4	4.1	n. None of the above
21	21.4	o. Standard operating procedures were under development
9	9.2	p. Standard operating procedures were not developed

19. How often did PSAP employees meet or network with public safety personnel (or others for whom you dispatched) to discuss PSAP operations in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=96)
15	15.6%	a. Monthly
16	16.7	b. Quarterly
1	1.0	c. Annually
45	46.9	d. On an as-needed basis
19	19.8	e. Other (Please describe.) _____

20. Which of the following techniques, if any, did your PSAP use to communicate information on 9-1-1 services to the public in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=97)
60	61.9%	a. Public speeches to, or informational meetings with, community groups and civic organizations
15	15.5	b. Posters
15	15.5	c. Flyers
30	30.9	d. Brochures
10	10.3	e. Informational videos
16	16.5	f. Public service announcements on radio or television
40	41.2	g. Interviews with local media
14	14.4	h. Advertisements in local newspapers or on radio or television
20	20.6	i. Newsletter articles
30	30.9	j. Press releases
13	13.4	k. Other (Please describe.) _____
11	11.3	l. None of the above
6	6.2	m. Public communication techniques were under development
7	7.2	n. Public communication techniques were not developed

21. How did your PSAP track complaints (expressions of dissatisfaction) about PSAP service delivery in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=95)
24	25.3%	a. With a systematic tracking system that documented our responses to complaints
42	44.2	b. Through informal tracking without extensive documentation
15	15.8	c. Other (Please describe.) _____
6	6.3	d. None of the above
0	0.0	e. Complaint tracking was under development
8	8.4	f. Complaint tracking was not developed

Comments:

22. Approximately how many complaints about PSAP service delivery do you estimate were received from the following groups, and approximately what percent of the complaints were resolved (that is, appropriate action was taken), in 1996? (N=95)

<u>Complainant</u>	<u>Median Number of Complaints</u>	<u>Median Percent Resolved</u>
Citizens	a. 4 (N=55)	b. 100% (N=58)
Response units (fire, police, EMS, public works, etc.)	c. 5 (N=50)	d. 100% (N=54)
<u>Number</u>	<u>Percent</u>	
35	36.8%	e. Unknown or unable to estimate

Comments:

23. How, if at all, did your PSAP measure citizen satisfaction with dispatching services in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=95)
10	10.5%	a. With questionnaires, surveys, or focus groups on dispatching
7	7.4	b. With a survey on local government services of which dispatching was a part
31	32.6	c. By tracking citizen requests and complaints
54	56.8	d. By informal word-of-mouth
27	28.4	e. Through comments brought to the elected city council or county board
5	5.3	f. Other (Please describe.) _____
16	16.8	g. None of the above
2	2.1	h. Measurement of citizen satisfaction was under development
16	16.8	i. Measurement of citizen satisfaction was not developed

24. How, if at all, did you measure the performance of your PSAP in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=96)
12	12.5%	a. Through a formal process of setting goals and objectives and measuring them
16	16.7	b. With a peer review process
48	50.0	c. With performance appraisals of PSAP staff
51	53.1	d. Informally, without extensive documentation
5	5.2	e. Other (Please describe.) _____
4	4.2	f. None of the above
5	5.2	g. Performance measurement was under development
7	7.3	h. Performance measurement was not developed

Comments:

25. What methods did you have, if any, for determining whether telecommunicators dispatched the appropriate response to calls for service in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=98)
26	26.5%	a. Samples of taped calls were reviewed and critiqued by trained reviewers
24	24.5	b. Telecommunicators' responses were monitored while they were on-line
29	29.6	c. Telecommunicator peers periodically reviewed dispatching techniques and operating procedures
84	85.7	d. Management monitored complaints about perceived inadequate responses to incidents and took appropriate action
7	7.1	e. Other (Please describe.) _____
3	3.1	f. None of the above
2	2.0	g. Methods for determining appropriate responses were under development
3	3.1	h. Methods for determining appropriate responses were not developed

Comments:

26. What steps had you taken in 1996 or earlier years to reduce the potential for liability at your PSAP? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=97)
6	6.2%	a. Prepared a risk management plan
9	9.3	b. Purchased liability insurance
58	59.8	c. Implemented methods, such as standard operating procedures, to assure quality control for the communication center's operations
30	30.9	d. Periodically checked the validity of PSAP databases
52	53.6	e. Provided training to employees on liability issues
6	6.2	f. Other (Please describe.) _____
9	9.3	g. None of the above
8	8.2	h. Steps for reducing liability were under development
6	6.2	i. Steps for reducing liability were not developed

Comments:

PSAP AND NETWORK EQUIPMENT

27. Did your PSAP center have the following telephone features available in 1996? (Circle the appropriate response.)

Telephone Feature	Available		Unavailable		Under Development		Uncertain/Don't Know	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
a. Call queuing or automatic call distribution (ACD) (N=89)	25	28.1%	54	60.7%	1	1.1%	9	10.1%
b. Ability to place call on hold (N=98)	97	99.0	0	0.0	0	0.0	1	1.0
c. Transfer capability (N=98)	85	86.7	11	11.2	1	1.0	1	1.0
d. Distinctive ring tones for 9-1-1 calls (N=98)	76	77.6	21	21.4	0	0.0	1	1.0
e. 3-way conferencing (N=98)	84	85.7	8	8.2	2	2.0	4	4.1
f. Speed dial library with minimum of 16 phone numbers (N=98)	82	83.7	9	9.2	5	5.1	2	2.0
g. Last number redial (N=95)	74	77.9	16	16.8	3	3.2	2	2.1
h. Caller ID on 7-digit lines (N=92)	19	20.7	64	69.6	9	9.8	0	0.0
i. Other (Please describe.) (N=6)	6	100.0	0	0.0	0	0.0	0	0.0
(N=1)	1	100.0	0	0.0	0	0.0	0	0.0

28. Which of the following information, if any, was displayed to the telecommunicator via your automatic location identification (ALI) for some or all calls in 1996? (Mark all that apply.)

Number	Percent	(N=97)
69	71.1%	a. Subscriber name
68	70.1	b. Full street address
67	69.1	c. Community
33	34.0	d. Additional location information (e.g., records of caller or call-location history)
57	58.8	e. PSAP name
68	70.1	f. Responsible law enforcement, fire, and EMS agencies
17	17.5	g. Other (Please describe.) _____
5	5.2	h. None of the above
14	14.4	i. ALI was under development (Go to Question 30.)
13	13.4	j. ALI was not available (Go to Question 30.)

29. How long did the ALI display take for 95 out of 100 attempts during the busy hour of an average week of your busy month in 1996? (Mark the appropriate box.)

Number	Percent	(N=69)
48	69.6%	a. 5 seconds or less
0	0.0	b. More than 5 seconds
15	21.7	c. Although we are unable to calculate it precisely, usually within 5 seconds
1	1.4	d. Although we are unable to calculate it precisely, usually more than 5 seconds
5	7.2	e. Unknown or unable to estimate

30. With which of the following, if any, did your PSAP's computer-aided dispatch (CAD) interface in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=92)
26	28.3%	a. Your agency's incident records system
18	19.6	b. Crime information systems (e.g., CJIS, NCIC, or NLETS)
11	12.0	c. Law enforcement centers, fire stations, or ambulance stations
10	10.9	d. Mobile data terminals in patrol, fire, or other response vehicles
5	5.4	e. Other (Please describe.) _____
13	14.1	f. None of the above
8	8.7	g. CAD was under development
42	45.7	h. CAD was not available

Comments:

31. Which of the following data, if any, did your PSAP's management information system (MIS) provide for some or all calls in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=96)
40	41.7%	a. Number of total calls received
22	22.9	b. Number of abandoned calls
19	19.8	c. Number of calls on a per trunk basis
24	25.0	d. Number of calls on a call type basis
6	6.3	e. Number of calls transferred
13	13.5	f. Number of calls per answering position
13	13.5	g. Average time to answer
11	11.5	h. Average length of call
6	6.3	i. Average hold time
5	5.2	j. Other (Please describe.) _____
21	21.9	k. None of the above
10	10.4	l. MIS was under development
32	33.3	m. MIS was not available

Comments:

32. What was the percent of locatable addresses in your PSAP's jurisdiction in 1996?

<u>Median</u>	(N=95)
95	Percent of locatable addresses

<u>Number</u>	<u>Percent</u>
45	47.4%

Unknown or unable to estimate

33. How did your PSAP designate responsibilities with local service providers for updating the master street address guide (MSAG) in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=93)
20	21.5%	a. Written contracts
6	6.5	b. Tariffs
15	16.1	c. Informal agreements
8	8.6	d. Other (Please describe.) _____
5	5.4	e. None of the above
12	12.9	f. MSAG was under development
19	20.4	g. MSAG was not available
7	7.5	h. Metro 911 board manages
1	1.1	i. PSAP updates own MSAG
0	0.0	j. Not applicable

34. How accessible was a local service provider for resolving 9-1-1 system problems should they have occurred at your PSAP in 1996? (Mark the appropriate box.)

Number	Percent	(N=94)
76	80.9%	a. 24-hour per day access
11	11.7	b. Part-time access
3	3.2	c. Other (Please describe.) _____
4	4.3	d. None of the above

35. Did your PSAP have the following equipment or services available in 1996? (Circle the appropriate response.)

<u>Equipment or Service</u>	<u>Available</u>		<u>Unavailable</u>		<u>Under Development</u>		<u>Uncertain/ Don't Know</u>	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
a. Uninterruptible power system (UPS) (N=96)	79	82.3%	10	10.4%	4	4.2%	3	3.1%
b. Backup generator or power supply (N=96)	94	97.9	2	2.1	0	0.0	0	0.0
c. Selective routing (N=93)	45	48.4	30	32.3	7	7.5	11	11.8
d. Alternate routing (N=90)	42	46.7	30	33.3	6	6.7	12	13.3
e. Master clock for date/time stamping (N=94)	37	39.4	48	51.1	4	4.3	5	5.3
f. Audio recorder with automatic second deck or second drive for each phone and any line on it (N=96)	86	89.6	10	10.4	0	0.0	0	0.0
g. Call detail logging (CDL) that records time and processing of calls (N=89)	49	55.1	29	32.6	2	2.2	9	10.1
h. Shared radio frequencies for interagency communication (N=96)	91	94.8	4	4.2	0	0.0	1	1.0
i. Dedicated phone lines (N=96)	93	96.9	3	3.1	0	0.0	0	0.0
j. Mobile or cellular phones (N=95)	82	86.3	11	11.6	1	1.1	1	1.1
k. Communication capabilities with mobile data terminals in response vehicles (N=92)	24	26.1	57	62.0	9	9.8	2	2.2
l. Communication capabilities with mobile emergency communication command posts (N=94)	62	66.0	24	25.5	4	4.3	4	4.3
m. TDD detection device (N=94)	75	79.8	13	13.8	1	1.1	5	5.3
n. Access to weather reports (N=95)	88	92.6	5	5.3	1	1.1	1	1.1
o. Other (Please describe.) (N=0)	0	0.0	0	0.0	0	0.0	0	0.0

36. Of the answering positions at your PSAP, how many had access to telecommunications devices for the deaf or speech-impaired (TDD, TTD, or TTY) at the end of 1996? (Mark the appropriate box.)

Number	Percent	(N=96)
58	60.4%	a. All answering positions
25	26.0	b. Half or more of the answering positions
12	12.5	c. Fewer than half of the answering positions
1	1.0	d. None of the answering positions (Go to Question 38.)
0	0.0	e. Telecommunications devices for the deaf or speech impaired were being installed (Go to Question 38.)

Comments:

37. Which of the following TDD features, if any, were available at your PSAP in 1996? (Mark all that apply.)

Number	Percent	(N=93)
61	65.6%	a. Same level of service (ANI, ALI, etc.) for TDD callers as provided to other callers
72	77.4	b. Capability for telecommunicator to call back using TDD
8	8.6	c. A TDD recorded message for callers who may be placed into a queue waiting for call to be received
13	14.0	d. Alternatives for receiving TDD calls in the event of a single line or system failure
12	12.9	e. Equipment capable of providing TDD access to other numbers or agencies to which the call may be transferred
39	41.9	f. A systematic way of periodically testing the TDD service and maintaining TDD equipment
6	6.5	g. Voice amplification for telecommunicator's voice
5	5.4	h. Other (Please describe.) _____
3	3.2	i. None of the above

38. How many incoming 9-1-1 trunks did your PSAP have at the end of 1996?

Total	Median	(N=79)
541	5	9-1-1 trunks

39. Was the number of trunks your communications center had at the end of 1996 sufficient to meet the needs of your PSAP? (Mark the appropriate box.)

Number	Percent	(N=98)
89	90.8%	a. Yes
9	9.2	b. No

Comments:

40. What level of service did your communication center's trunks and other equipment allow your PSAP to provide during the busy hour of an average week of your busy month in 1996? (Mark the appropriate box.)

Number	Percent	(N=95)
40	42.1%	a. No more than one call in 100 attempts was blocked
4	4.2	b. More than one call in 100 attempts was blocked
51	53.7	c. Unknown or unable to estimate

Comments:

41. Did your PSAP have an equipment replacement plan in 1996 that provided funding to replace obsolete or worn-out telephone, radio, and other communications equipment? (Mark the appropriate box.)

Number	Percent	(N=97)
62	63.9%	a. Yes
35	36.1	b. No

42. How did your PSAP maintain its telephone, radio, and other communications equipment in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=97)
25	25.8%	a. We maintained our equipment on a routine basis
70	72.2	b. We maintained our equipment on an as-needed basis
0	0.0	c. Other (Please describe.) _____
0	0.0	d. None of the above
2	2.1	e. A routine maintenance program was under development
0	0.0	f. A routine maintenance program was not developed

43. What remote maintenance capabilities, if any, were available to access PSAP telephone equipment from a remote location to help isolate and correct trouble in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=90)
9	10.0%	a. Accumulate statistics on system performance
12	13.3	b. Provide automatic remote alarm report
21	23.3	c. Enable remote or local programming of all functions
14	15.6	d. Constantly monitor system performance
30	33.3	e. Take corrective actions
17	18.9	f. Access the system for resetting alarm
5	5.6	g. Other (Please describe.) _____
30	33.3	h. None of the above
5	5.6	i. Remote maintenance capabilities were under development
16	17.8	j. Remote maintenance capabilities were not available

44. How did telecommunicators track, if at all, the location and availability of squads and other vehicles they dispatched in 1996? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=97)
1	1.0%	a. We used an automatic vehicle location (AVL) system
1	1.0	b. We used a global positioning system (GPS)
30	30.9	c. We used computer-aided dispatch (CAD)
67	69.1	d. We required public safety personnel to radio or call in their location to telecommunicators
34	35.1	e. Public safety personnel in the field used their judgment to decide when to alert the telecommunicator
1	1.0	f. Other (Please describe.) _____
3	3.1	g. None of the above
7	7.2	h. Squad and vehicle tracking was under development
15	15.5	i. Squad and vehicle tracking was not available

45. How many radio frequencies did your PSAP have at the end of 1996?

<u>Total</u>	<u>Median</u>	(N=93)
755	7	Radio frequencies

46. Was the number of radio frequencies your communications center had at the end of 1996 sufficient to meet the needs of your PSAP? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=97)
73	75.3%	a. Yes
24	24.7	b. No

Comments:

47. For what percent of locations within your communication center's service area did your PSAP have reliable radio coverage between the center and either mobile or hand-held radio units in 1996? (Mark the appropriate box.)

Number	Percent	(N=98)
21	21.4%	a. 100 percent
53	54.1	b. At least 90 percent
12	12.2	c. At least 80 percent
6	6.1	d. At least 70 percent
6	6.1	e. Fewer than 70 percent
0	0.0	f. Not applicable

Comments:

48. For incidents when security was required, how did you maintain secure communication between telecommunicators and response units in 1996? (Mark all that apply.)

Number	Percent	(N=98)
20	20.4%	a. Through the use of mobile data terminals
6	6.1	b. Through a trunked radio communications system
77	78.6	c. Through the use of mobile or cell phones
68	69.4	d. Through the use of land lines or hard wire phones
23	23.5	e. With electronic scramblers and disabling repeater
6	6.1	f. Other (Please describe.) _____
3	3.1	g. None of the above
2	2.0	h. Security features were under development
7	7.1	i. Security features were not available

49. How satisfied were you with the security of radio communication between telecommunicators and response units in 1996? (Mark the appropriate box.)

Number	Percent	(N=97)
25	25.8%	a. Very satisfied
32	33.0	b. Somewhat satisfied
16	16.5	c. Neither satisfied nor dissatisfied
18	18.6	d. Somewhat dissatisfied
6	6.2	e. Very dissatisfied

Comments:

50. For what percent of the time would you estimate PSAP equipment and communication links enabled telecommunicators to communicate successfully with the following personnel involved with responding to incidents in 1996? (Circle the appropriate response.)

Percent of Time Communication was Successful

Communication Between Telecommunicator and:	100%		At Least 90%		At Least 80%		At Least 70%		Less than 70%		Unknown/Unable to Estimate		Not Applicable	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
a. Law enforcement (N=97)	31	32.0%	58	59.8%	3	3.1%	4	4.1%	0	0.0%	1	1.0%	0	0.0%
b. Fire fighters (N=97)	27	27.8	50	51.5	16	16.5	3	3.1	0	0.0	1	1.0	0	0.0
c. EMS (N=96)	28	29.2	49	51.0	7	7.3	4	4.2	1	1.0	2	2.1	5	5.2
d. Ambulance (N=96)	27	28.1	51	53.1	6	6.3	3	3.1	0	0.0	1	1.0	8	8.3
e. Public works employees (N=96)	17	17.7	37	38.5	10	10.4	6	6.3	5	5.2	4	4.2	17	17.7
f. Telecommunicators from other communication centers (N=95)	27	28.4	47	49.5	8	8.4	3	3.2	2	2.1	2	2.1	6	6.3
g. Area hospitals (N=92)	19	20.7	33	35.9	3	3.3	2	2.2	1	1.1	0	0.0	34	37.0
h. Other (Please describe.) (N=0)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

51. How did your PSAP plan, if at all, in 1996 for recovering from such problems as PSAP outage, 9-1-1 network failure, or potential natural disasters? (Mark all that apply.)

Number	Percent	(N=96)
22	22.9%	a. We had written disaster recovery plans
22	22.9	b. We had written agreements with a back-up facility
22	22.9	c. We had written agreements with a neighboring PSAP
42	43.8	d. We had disaster recovery plans or agreements but they were not written
7	7.3	e. Other (Please describe.) _____
6	6.3	f. None of the above
8	8.3	g. Written disaster recovery plans or agreements were under development
13	13.5	h. Written disaster recovery plans or agreements were not developed

Comments:

52. How did your PSAP prepare in 1996 for handling unanticipated malfunctions in the 9-1-1 system? (Mark the appropriate box.)

Number	Percent	(N=96)
27	28.1%	a. We had backup procedures and had ongoing tests of the system under varying conditions, such as using test calls throughout the service area
37	38.5	b. We had backup procedures but had not conducted ongoing tests of the system
6	6.3	c. Other (Please describe.) _____
19	19.8	d. None of the above
2	2.1	e. Backup procedures were under development
5	5.2	f. Backup procedures were not developed

Comments:

53. In the event of a single equipment component failure in 1996, for what percent of the time would at least half of the 9-1-1 trunks and answering positions been operational (that is, providing indications of incoming calls and voice communication with callers)? (Mark the appropriate box.)

Number	Percent	(N=96)
27	28.1%	a. 100 percent
24	25.0	b. At least 90 percent
4	4.2	c. At least 80 percent
0	0.0	d. At least 70 percent
3	3.1	e. Less than 70 percent
38	39.6	f. Unknown or unable to estimate

54. For what percent of the time was all PSAP electrical equipment properly grounded and expected to function normally in 1996 in the presence of electric stress conditions, such as static discharge? (Mark the appropriate box.)

Number	Percent	(N=97)
59	60.8%	a. 100 percent
15	15.5	b. At least 90 percent
0	0.0	c. At least 80 percent
0	0.0	d. At least 70 percent
0	0.0	e. Less than 70 percent
23	23.7	f. Unknown or unable to estimate

EXPENDITURES

55. What were your PSAP's total operating expenditures in 1996 (excluding capital purchases)?

Mean	Median	(N=74)
\$512,762.00	\$238,112.50	Total 1996 operating expenditures

Comments:

56. Which of the following items were included in your estimate of total 1996 operating expenditures? (Mark all that apply.)

Number	Percent	(N=80)
78	97.5%	a. Salaries or wages (compensation for telecommunicators, supervisors, and other personnel involved with dispatching)
73	91.3	b. Benefits (such as medical insurance, workers' compensation, leave, pension contributions, disability insurance)
64	80.0	c. Supplies (such as office supplies, manuals, and noncapital equipment purchases)
67	83.8	d. Training and professional development
48	60.0	e. Insurance premiums
24	30.0	f. Office building use and maintenance (such as space rental and utilities)
46	57.5	g. Other current expenditures (operating costs, such as monthly billed costs for 9-1-1 system maintenance, that exclude capital expenses for furniture, major office equipment, computer hardware, display terminals, generators, land, or other capital purchases)

Comments:

57. Of your PSAP's total 1996 operating expenditures, approximately how much do you estimate was spent on the following areas?

Mean	Median	
\$3,316.00	\$2,100.00	Total spent on training and professional development of PSAP employees (N=67)
701.00	0.00	Total spent on public education programs (N=55)

58. What do you estimate were your PSAP's capital expenses on communications equipment over the five-year period of 1992-1996?

<u>Mean</u>	<u>Median</u>	(N=79)
\$299,293.00	\$101,383.50	Total capital expenditures on equipment (1992-1996)

<u>Number</u>	<u>Percent</u>	
31	39.2%	Unknown or unable to estimate

Comments:

PERSONNEL

59. How many full-time, part-time, and full-time equivalent (FTE) employees were employed at your PSAP at the end of 1996? (N=97)

<u>Employee</u>	<u>Number of Full-Time</u>		<u>Number of Part-Time</u>		<u>Number of Full-Time Equivalent (FTE)</u>	
	<u>Total</u>	<u>Median</u>	<u>Total</u>	<u>Median</u>	<u>Total</u>	<u>Median</u>
Telecommunicators	790	6.0	207	2.0	870.0	7.0
Supervisors or managers	121	1.0	2	0.0	122.0	1.0
Information systems technical support	28	0.0	4	0.0	30.0	0.0
Clerical support	68	0.0	17	0.0	74.1	0.0
Other (<i>Please describe.</i>)	9	0.0	3	0.0	9.2	0.0

60. Did you typically use one-stage dispatching (one telecommunicator both answers incoming 9-1-1 calls and dispatches response units) or two-stage dispatching (a call taker answers incoming 9-1-1 calls and a separate dispatcher dispatches response units) in 1996?

<u>Number</u>	<u>Percent</u>	(N=98)
91	92.9%	a. One-stage dispatching
7	7.1	b. Two-stage dispatching

61. Based on your dispatch operations (one-stage or two-stage), what approximate percent of time did a telecommunicator at your PSAP spend on average performing the following duties during your busy month in 1996?

<u>Type of Duty</u>	<u>ONE-STAGE DISPATCHING</u> (N=78)		<u>TWO-STAGE DISPATCHING</u> (N=6)	
	<u>Percent Time Spent by Telecommunicator</u>		<u>Percent Time Spent by Call Taker</u>	<u>Percent Time Spent by Dispatcher</u>
	<u>Median</u>		<u>Median</u>	<u>Median</u>
Taking calls	30.0%		75.0%	7.5%
Dispatching response units	20.0		2.5	25.0
Monitoring field units	10.0		7.5	20.0
Providing information to field units	10.0		10.0	15.0
Reporting and record keeping	10.0		5.0	5.0
Clerical duties	3.0		2.5	2.5
Receptionist duties	5.0		0.0	0.0
Jailer duties	0.0		0.0	0.0
Other (Please describe.)	0.0		0.0	0.0

62. Did your PSAP provide, or have access to, interpreter services for communicating with any non-English speaking callers in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=97)
10	10.3	a. Yes, we had in-house interpreters
71	73.2	b. Yes, we contracted for interpreters
16	16.5	c. No, we did not have access to interpreters

63. Did your PSAP have written personnel policies and procedures for staff in 1996? (Mark the appropriate box.)

<u>Number</u>	<u>Percent</u>	(N=96)
78	81.3%	a. Yes, we had written personnel policies
9	9.4	b. No, we did not have written personnel policies
9	9.4	c. Written personnel policies were under development

64. Which of the following practices did your PSAP use during the process of hiring new telecommunicators in 1996 or earlier years? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	(N=97)
75	77.3%	a. Realistic job previews that provide an applicant with an accurate picture of the job
95	97.9	b. Probation periods
68	70.1	c. Testing before hiring (e.g., psychological or keyboard tests)
93	95.9	d. Background checks
10	10.3	e. Other (Please describe.) _____
0	0.0	f. None of the above
3	3.1	g. Hiring practices were under development

Comments:

65. How frequently were formal performance evaluations of telecommunicators conducted in 1996? (Mark the appropriate box.)

Number	Percent	(N=97)
2	2.1%	a. Twice a year
66	68.0	b. Annually
8	8.2	c. Other (Please describe.) _____
6	6.2	c. None of the above
2	2.1	e. Formal performance evaluations were under development (Go to Question 67.)
13	13.4	f. Formal performance evaluations were not conducted (Go to Question 67.)

66. Which of the following practices were available for use during the process of evaluating employees' performance in 1996? (Circle the appropriate response.)

Practice	Available		Unavailable		Under Development	
	Number	Percent	Number	Percent	Number	Percent
a. Performance appraisals that included goal setting and review of employee's goal achievement (N=74)	57	77.0%	13	17.6%	4	5.4%
b. Incentives to encourage good performance, such as merit pay increases (N=69)	14	20.3	55	79.7	0	0.0
c. Identification of employee's needs for personal development, training, or counseling (N=77)	68	88.3	8	10.4	1	1.3
d. Administrative decisions that resulted in corrective or disciplinary actions (e.g., probations, transfers, or terminations) (N=76)	69	90.8	6	7.9	1	1.3
e. Employee recognition awards (Please describe.)						
(N=55)	29	52.7	22	40.0	4	7.3
(N=8)	5	62.5	3	37.5	0	0.0
f. Other (Please describe.)						
(N=3)	3	100.0	0	0.0	0	0.0

67. For which employees, if any, did your PSAP require annual training targeted to individual training needs in 1996? (Mark all that apply.)

Number	Percent	(N=90)
52	57.8%	a. Telecommunicators
39	43.3	b. PSAP supervisors or managers
14	15.6	c. Other PSAP staff
20	22.2	d. Individual training needs were identified but training was optional
20	22.2	e. Individual training needs were not identified but some annual training was required
10	11.1	f. Individual training needs were not identified and annual training was not required

68. What types of employee training did your PSAP pay for in 1996? (Mark the appropriate box.)

Number	Percent	(N=96)
61	63.5%	a. All training
17	17.7	b. Training customized to individual needs and training related to job functions
0	0.0	c. Only training customized to individual needs
16	16.7	d. Only training related to job functions
2	2.1	e. No training

69. As of 1996, how many hours of the following types of training did your PSAP require for new employees within their first year? (Circle the appropriate response.)

Training Required	More than 8 hours		8 hours		7 hours		6 hours		5 hours		4 hours		3 hours		2 hours		Less than 2 hours		None	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
a. Roles and responsibilities of the PSAP and telecommunicators (N=87)	65	74.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	6	6.9%	1	1.1%	4	4.6%	5	5.7%	6	6.9%
b. Legal aspects of law enforcement, fire, and EMS agencies (N=87)	35	40.2	6	6.9	1	1.1	2	2.3	0	0.0	8	9.2	4	4.6	4	4.6	12	13.8	15	17.2
c. Interpersonal communications including listening skills, processing information, and cultural diversity issues (N=87)	48	55.2	7	8.0	1	1.1	2	2.3	1	1.1	5	5.7	3	3.4	8	9.2	3	3.4	9	10.3
d. Technology use (wire v. wireless phones, basic v. enhanced 911, recorders, CAD, radios, etc.) (N=88)	56	63.6	6	6.8	0	0.0	3	3.4	1	1.1	6	6.8	0	0.0	2	2.3	5	5.7	9	10.2
e. TDD equipment use and call processing (N=88)	13	14.8	5	5.7	0	0.0	0	0.0	2	2.3	10	11.4	4	4.5	16	18.2	35	39.8	3	3.4
f. Telephone techniques/call processing (N=88)	58	65.9	6	6.8	1	1.1	4	4.5	0	0.0	6	6.8	0	0.0	3	3.4	6	6.8	4	4.5
g. Call classification by type of call and priority (N=87)	53	60.9	4	4.6	0	0.0	6	6.9	1	1.1	5	5.7	3	3.4	4	4.6	6	6.9	5	5.7
h. Radio communication protocols, rules, and responder safety (N=88)	59	67.0	5	5.7	1	1.1	1	1.1	3	3.4	5	5.7	0	0.0	5	5.7	4	4.5	5	5.7
i. Stress management (N=86)	9	10.5	4	4.7	0	0.0	2	2.3	5	5.8	5	5.8	4	4.7	9	10.5	21	24.4	27	31.4
j. Other (Please describe.) (N=13)	8	61.5	2	15.4	0	0.0	0	0.0	0	0.0	1	7.7	0	0.0	2	15.4	0	0.0	0	0.0
(N=6)	5	83.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0

70. How many telecommunicators and supervisors or managers at your PSAP had completed training in, earned certification from, or earned degrees in, the following at the end of 1996? (N=96)

<u>Professional Area</u>	<u>Number of Telecommunicators Trained</u>		<u>Number of Supervisors/Managers Trained</u>	
	<u>Total</u>	<u>Median</u>	<u>Total</u>	<u>Median</u>
CJIS certification	741	7	69	0
BCA police management/supervision certificate	5	1	10	0
APCO basic telecommunicator course	111	0	10	0
APCO supervisor and management courses or instructor courses	12	0	18	0
NENA certified emergency number professional program	6	0	3	0
Law enforcement associates degree	34	0	9	0
Community/Technical College diploma or associates degree in public safety communications	40	0	2	0
First responder	183	0	26	0
Emergency medical technician — basic, intermediate, or paramedic	82	0	10	0
Other (<i>Please describe.</i>)				
_____	69	0	6	0
_____	10	0	1	0

71. Which of the following, if any, did your PSAP provide for telecommunicators in 1996 to help manage the stress of their job? (Mark all that apply.)

<u>Number</u>	<u>Percent</u>	<u>(N=95)</u>
63	66.3%	a. Opportunities to participate in critical incident stress debriefing teams following particularly stressful emergency events
37	38.9	b. Stress management training
31	32.6	c. Exercise and general health programs
12	12.6	d. Peer support groups
58	61.1	e. Opportunities for professional counseling
32	33.7	f. Innovative shift scheduling to minimize demands of the job
6	6.3	g. Other (<i>Please describe.</i>) _____
10	10.5	h. None of the above
2	2.1	i. Stress management initiatives were under development
7	7.4	j. Stress management initiatives were not developed

Comments:

72. For what percent of the answering positions at your PSAP were the following features available in 1996? (Circle the appropriate response.)

Feature	100%		75%		50%		25%		None	
	#	%	#	%	#	%	#	%	#	%
a. Individually-controlled lighting at answering positions (N=94)	57	60.6%	6	6.4%	3	3.2%	2	2.1%	26	27.7%
b. Self-adjustable seating (N=96)	88	91.7	3	3.1	1	1.0	0	0.0	4	4.2
c. Height-adjustable consoles at answering positions (N=93)	13	14.0	1	1.1	0	0.0	0	0.0	79	84.9
d. Immediately adjacent restroom facilities (N=94)	77	81.9	1	1.1	0	0.0	0	0.0	16	17.0
e. Opportunities for physical exercise in same or adjacent building (N=93)	22	23.7	2	2.2	0	0.0	4	4.3	65	69.9
f. Other (Please describe.)										
(N=4)	3	75.0	0	0.0	0	0.0	0	0.0	1	25.0
(N=3)	1	33.3	0	0.0	0	0.0	0	0.0	2	66.7

73. Over the five-year period of 1992-1996, what was the retention rate for telecommunicators at your PSAP? (Mark the appropriate box.)

Number	Percent	(N=95)
15	15.8%	a. 100 percent
52	54.7	b. 99 to 75 percent
23	24.2	c. 74 to 50 percent
3	3.2	d. 49 to 25 percent
2	2.1	e. 24 to 0 percent

Comments:

CONCLUSION

74. What innovations or effective methods does your PSAP employ that improve its ability to provide service?
75. Are you aware of any innovative or effective methods or equipment used by other PSAPs? If so, please describe.
76. Do you have any additional comments?

Thank you for completing this survey!

Please return the completed survey in the postage-paid envelope by **November 21st** to:

**Legislative Auditor's Office
Centennial Building - First Floor South, 658 Cedar Street
St. Paul, MN 55155**

Or fax to: 612/296-4712