

## **APPENDICES**

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## APPENDIX 1

### PRIMARY CALL RECEIVER WORKLOAD

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**Change in the Average Number of Calls to the  
Comm Center by Hour of the Day  
2001 & 1998**

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<b>Hour</b>	<b>2001</b>	<b>1998</b>	<b>% Difference</b>
0	49.9	52.2	-4.50%
1	42.4	42.8	-0.78%
2	34.9	37.1	-5.80%
3	27.3	27.8	-1.65%
4	24.5	24.9	-1.55%
5	25.7	25.4	1.17%
6	37.0	35.4	4.43%
7	55.3	52.9	4.56%
8	80.3	77.7	3.36%
9	88.3	90.5	-2.43%
10	96.2	94.5	1.81%
11	99.9	96.8	3.27%
12	103.3	98.0	5.43%
13	106.2	102.5	3.56%
14	111.6	114.2	-2.29%
15	114.9	115.1	-0.23%
16	115.8	115.2	0.49%
17	116.3	115.2	0.95%
18	108.8	108.8	-0.04%
19	99.3	101.4	-2.08%
20	93.4	96.7	-3.40%
21	89.1	94.1	-5.30%
22	83.8	87.6	-4.31%
23	63.4	66.1	-4.01%

## APPENDIX 1 (Continued)

<b>Total Call Volume from Black Bar Reports</b>		
	<b>1998</b>	<b>2001</b>
<b>January</b>	55,675	51,117
<b>February</b>	27,589	47,955
<b>March</b>	55,710	53,786
<b>April</b>	54,097	52,117
<b>May</b>	56,612	57,437
<b>June</b>	60,256	60,047
<b>July</b>	60,489	64,934
<b>August</b>	61,512	63,617
<b>September</b>	56,082	58,073
<b>October</b>	55,375	58,902
<b>November</b>	53,164	51,126
<b>December</b>	56,268	53,322
<b>TOTAL</b>	<b>652,829</b>	<b>672,433</b>

Note: Due to technical difficulties, the Comm Center's equipment did not collect data during the following times: several days in February 1998, one day in April 1998, three days in July 1998, one partial day in February 2001, one day in April 2001 and two days in November 2001.

**Source:** Comm Center "Black Bar" call volume reports.

## APPENDIX 1 (Continued)

### Calls per Call Receiver – Times of Significant Increase

#### Quarter 1

##### Weekdays Day Shift

Hour	1998	2001	
7	11.5	11.9	4%
8	16.6	20.1	21%
9	17.9	18.4	3%
10	18.4	21.2	15%
11	18.1	20.4	12%
12	18.3	22.1	21%
13	19.2	21.2	10%
14	20.7	22.1	7%
<b>shift average</b>			<b>12%</b>

##### Saturday Night Grave shift

Hour	1998	2001	
23 (sat)	10.4	11.5	10%
0 (sun)	10.5	10.4	-1%
1	10.1	12.0	19%
2	9.4	9.7	3%
3	8.3	8.7	5%
4	5.2	6.6	28%
5	5.9	7.7	31%
6	5.5	6.8	24%
<b>shift average</b>			<b>15%</b>

#### Quarter 2

##### Friday Day Shift

Hour	1998	2001	
7	12.4	14.5	16%
8	18.0	21.9	22%
9	16.4	20.0	22%
10	17.9	25.3	41%
11	18.4	21.3	16%
12	18.0	24.5	36%
13	21.1	20.1	-5%
14	22.6	20.9	-7%
<b>shift average</b>			<b>18%</b>

##### Weekday Day Shift

Hour	1998	2001	
7	13.0	12.6	-2%
8	19.3	21.0	9%
9	18.6	21.4	15%
10	20.2	24.6	22%
11	18.6	20.4	10%
12	18.1	21.8	20%
13	19.4	21.2	9%
14	20.9	22.6	8%
<b>shift average</b>			<b>11%</b>

##### Weekday Grave Shift

Hour	1998	2001	
23	9.6	10.9	13%
0	9.0	9.2	2%
1	7.3	9.1	25%
2	6.2	7.2	16%
3	6.2	6.3	2%
4	6.1	7.1	15%
5	6.7	7.2	7%
6	9.5	11.2	18%
<b>shift average</b>			<b>12%</b>

##### Sunday Swing Shift

Hour	1998	2001	
15	12.3	13.3	8%
16	15.3	16.9	10%
17	15.1	17.5	16%
18	15.8	17.3	10%
19	15.1	16.0	6%
20	14.0	16.5	17%
21	15.8	17.9	13%
22	13.3	13.8	4%
<b>shift average</b>			<b>11%</b>

##### Saturday Swing Shift

Hour	1998	2001	
15	13.6	15.1	11%
16	16.3	19.2	18%
17	15.6	17.9	15%
18	16.2	19.5	20%
19	17.2	17.3	0%
20	16.3	17.2	6%
21	18.0	19.3	7%
22	18.2	18.8	3%
<b>shift average</b>			<b>10%</b>

##### Fri to Sat Grave Shift

Hour	1998	2001	
23 (fri)	12.0	14.5	21%
0 (sat)	11.0	12.8	16%
1	10.4	11.6	12%
2	10.0	10.0	-1%
3	8.6	10.4	20%
4	7.2	8.6	21%
5	5.5	6.6	20%
6	6.7	8.3	23%
<b>shift average</b>			<b>16%</b>

## APPENDIX 1 (Continued)

### Calls per Call Receiver – Times of Significant Increase (Continued)

#### Quarter 3

##### Friday Day Shift

Hour	1998	2001	
7	12.9	12.7	-1%
8	16.3	20.5	25%
9	18.3	21.6	18%
10	21.0	25.8	23%
11	21.4	20.6	-4%
12	20.2	23.0	14%
13	20.6	20.6	0%
14	22.3	23.4	5%
<b>shift average</b>			<b>10%</b>

##### Weekdays Day Shift

Hour	1998	2001	
7	11.4	11.9	5%
8	18.1	20.7	15%
9	17.3	20.9	21%
10	20.1	25.7	28%
11	19.8	20.9	6%
12	18.1	22.4	24%
13	19.5	21.4	10%
14	22.1	23.2	5%
<b>shift average</b>			<b>14%</b>

##### Sunday Day Shift

Hour	1998	2001	
7	6.2	5.9	-5%
8	11.7	13.2	13%
9	13.0	14.1	8%
10	18.3	22.4	22%
11	15.5	16.0	3%
12	16.7	22.1	32%
13	15.7	21.1	34%
14	17.8	21.8	23%
<b>shift average</b>			<b>16%</b>

##### Saturday Swing Shift

Hour	1998	2001	
15	12.8	15.6	22%
16	17.3	19.5	12%
17	16.0	20.6	29%
18	17.6	21.0	20%
19	16.4	19.9	21%
20	16.2	18.8	16%
21	17.2	20.4	19%
22	18.0	19.7	10%
<b>shift average</b>			<b>19%</b>

##### Weekday Grave Shift

Hour	1998	2001	
23	10.9	14.3	31%
0	10.0	12.0	20%
1	8.4	10.5	25%
2	7.3	7.8	8%
3	6.8	7.3	7%
4	7.2	7.5	4%
5	7.0	8.1	15%
6	10.7	12.2	14%
<b>shift average</b>			<b>16%</b>

##### Fri to Sat Grave Shift

Hour	1998	2001	
23	11.6	15.4	34%
0	11.3	12.8	14%
1	11.2	14.5	30%
2	10.4	12.4	20%
3	11.0	12.3	12%
4	9.6	10.0	4%
5	7.6	8.4	11%
6	7.5	8.2	8%
<b>shift average</b>			<b>8%</b>

#### Quarter 4

##### Sunday Day Shift

Hour	1998	2001	
7	6.6513	8.0449	21%
8	12.544	15.163	21%
9	15.781	15.392	-2%
10	18.188	25.263	39%
11	16.59	17.342	5%
12	17.574	20.2	15%
13	18.136	21.358	18%
14	20.67	20.758	0%
<b>shift average</b>			<b>14%</b>

##### Saturday Day Shift

Hour	1998	2001	
7	5.7552	7.199	25%
8	12.66	14.66	16%
9	17.16	18.66	9%
10	19.883	28.72	44%
11	18.896	18.13	-4%
12	19.592	21.28	9%
13	19.886	20.86	5%
14	20.631	20.64	0%
<b>shift average</b>			<b>13%</b>

##### Friday Day Shift

Hour	1998	2001	
7	10.6	12	13%
8	19.1	20.2	6%
9	18.3	20.5	12%
10	21.2	23.4	11%
11	17.5	20.7	18%
12	17.5	23.2	33%
13	18.6	22.2	19%
14	20.8	24.2	16%
<b>shift average</b>			<b>16%</b>

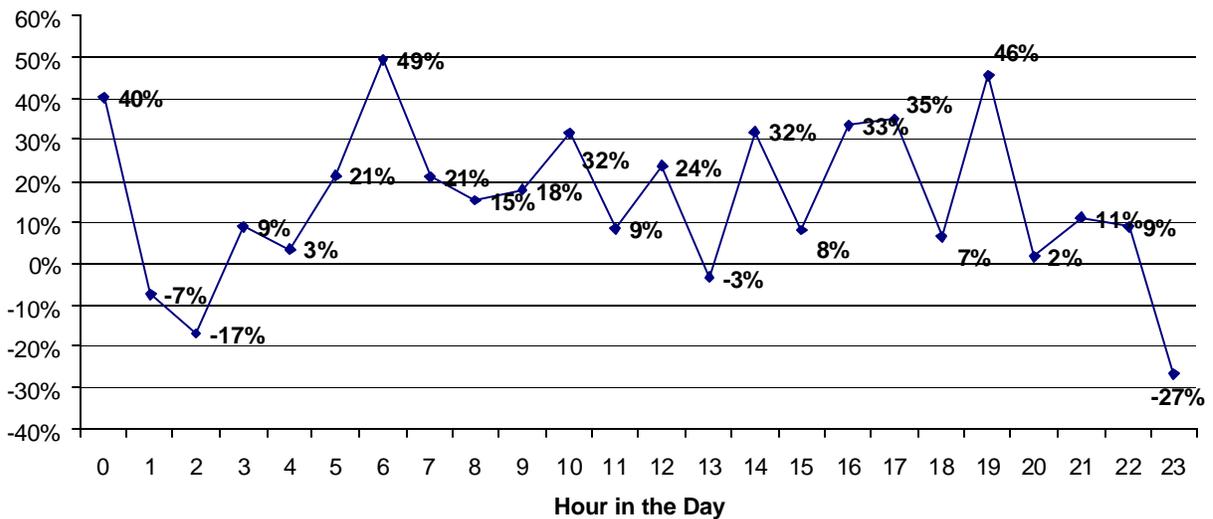
##### Friday Swing Shift

Hour	1998	2001	
15	17.146	18.202	6%
16	20.532	26.082	27%
17	20.168	25.321	26%
18	19.11	25.238	32%
19	17.544	20.181	15%
20	17.182	19.923	16%
21	15.119	18.227	21%
22	17.243	19.331	12%
<b>shift average</b>			<b>19%</b>

## APPENDIX 1 (Continued)

<b>Outbound Calls Quarter 1 Fridays</b>			
<b>Hour</b>	<b>1998</b>	<b>2001</b>	<b>% Change</b>
0	9.00	12.62	40%
1	10.73	9.92	-7%
2	9.27	7.69	-17%
3	5.09	5.54	9%
4	4.91	5.08	3%
5	5.64	6.85	21%
6	8.91	13.31	49%
7	13.55	16.38	21%
8	13.00	15.00	15%
9	15.00	17.69	18%
10	13.91	18.31	32%
11	15.09	16.38	9%
12	16.00	19.77	24%
13	21.18	20.46	-3%
14	17.09	22.54	32%
15	23.18	25.08	8%
16	21.27	28.38	33%
17	20.09	27.15	35%
18	20.36	21.69	7%
19	17.55	25.54	46%
20	19.36	19.69	2%
21	18.36	20.38	11%
22	16.82	18.31	9%
23	21.18	15.54	-27%

**Avg Outbound Call Change  
Qtr 1 Fridays 1998 to 2001**



## APPENDIX 1 (Continued)

### Instances When Call-Answering Performance Was Below 90% for an Hour

#### Qtr 4 Saturdays

	Total Hours Missed	Hours Missed in Busier Time	%
1-Dec	6	4	67%
8-Dec	6	4	67%
15-Dec	4	2	50%
22-Dec	7	5	71%
29-Dec	2	2	100%

3-Nov	4	3	75%
10-Nov	6	4	67%
17-Nov	4	4	100%
24-Nov	4	3	75%

6-Oct	3	3	100%
13-Oct	5	3	60%
20-Oct	3	3	100%
27-Oct	7	5	71%

#### Qtr 1 Saturdays

	Total Hours Missed	Hours Missed in Busier Time	%
3-Mar	5	4	80%
10-Mar	7	3	43%
17-Mar	3	3	100%
24-Mar	7	4	57%
31-Mar	no data		

6-Jan	5	3	60%
13-Jan	6	5	83%
20-Jan	2	2	100%
27-Jan	9	7	78%

3-Feb	5	1	20%
10-Feb	4	4	100%
17-Feb	10	5	50%
24-Feb	8	4	50%

#### Qtr 4 Fridays

	Total Hours Missed	Hours Missed in Busier Time	%
7-Dec	5	5	100%
14-Dec	7	7	100%
21-Dec	6	4	67%
28-Dec	13	13	100%

2-Nov	6	6	100%
9-Nov	7	7	100%
16-Nov	6	5	83%
23-Nov	5	4	80%
30-Nov	4	4	100%

5-Oct	9	9	100%
12-Oct	12	12	100%
19-Oct	9	9	100%
26-Oct	9	8	89%

APPENDIX 2

MINIMUM AND MAXIMUM PATROL UNITS PER PRECINCT  
1995 – 2001

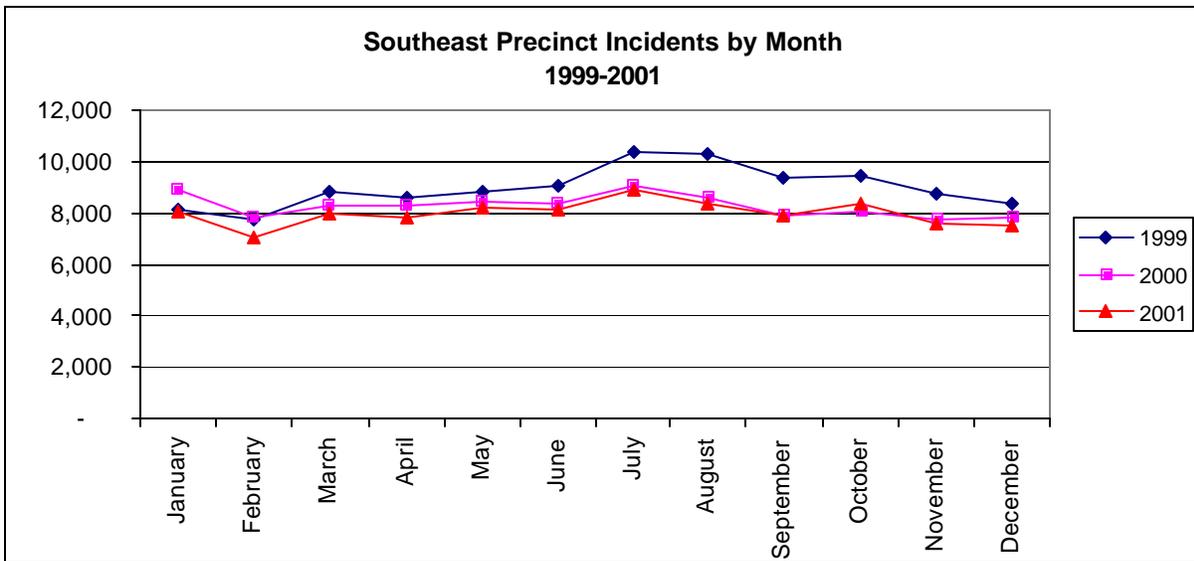
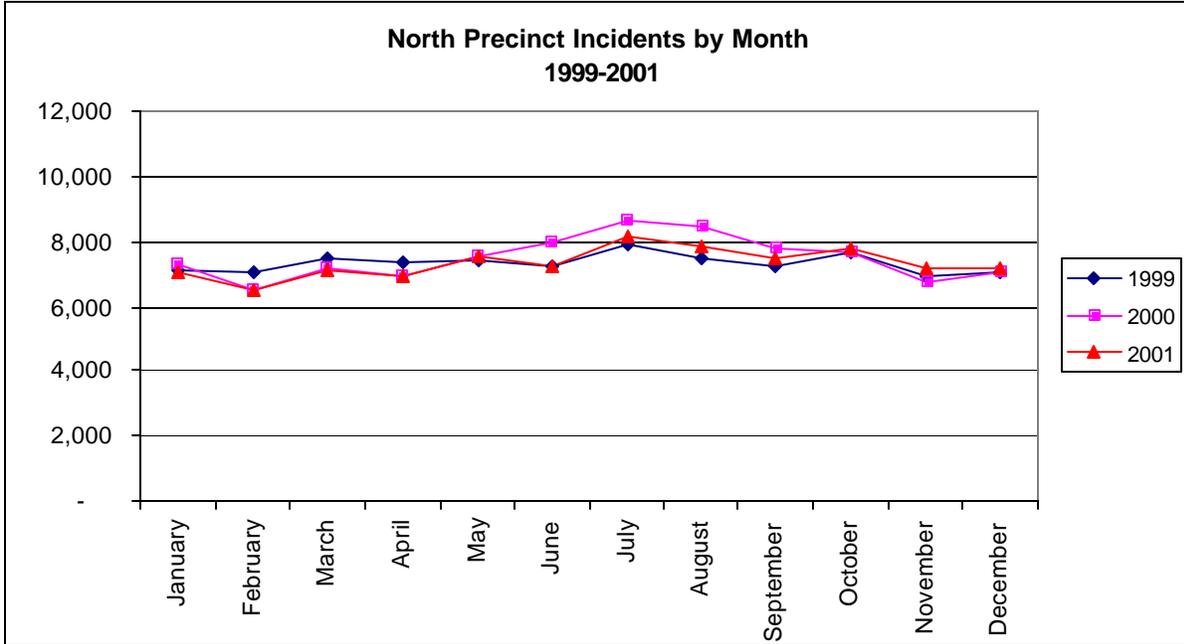
	North Precinct						SE Precinct						SW Precinct			Shoreline							
	Woodinville	Kenmore	Carnation	Sammamish	North Bend	Unincorporated	Min	Max	Covington	Valley	Maple	Newcastle	Fed. Way	Unincorporated	Min	Max	Seatac	Burien	Unincorporated	Min	Max	Shoreline	
<b>2001</b>																							
Day	1	1	1	2	1	7	15	19	1	2	1	1	1	12	16	22	3	2	11	16	24	2	6
Swing	1	1	1	2	1	7	13	18	1	2	1	1	1	11	15	24	4	2	7	13	26	2	8
Graveyard	1	1	1	2	1	6	11	16	1	2	1	1	1	10	14	22	3	2	7	12	24	2	7
<b>Total</b>	<b>39</b>	<b>53</b>				<b>38</b>	<b>53</b>							<b>45</b>	<b>68</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>	<b>6</b>	<b>21</b>
<b>2000</b>																							
Day	1	1	1	2	1	7	15	19	1	2	1	1	1	11	15	22	3	2	11	16	24	2	6
Swing	1	1	1	2	1	6	12	18	1	2	1	1	1	11	15	24	4	2	7	13	26	2	8
Graveyard	1	1	1	2	1	6	11	16	1	2	1	1	1	10	14	22	3	2	7	12	24	2	7
<b>Total</b>	<b>38</b>	<b>53</b>				<b>38</b>	<b>53</b>							<b>44</b>	<b>68</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>	<b>6</b>	<b>21</b>
<b>1999</b>																							
Day	1	1	1	2	1	6	14	19	1	2	1	1	1	11	15	22	3	2	11	16	24	2	6
Swing	1	1	1	2	1	7	13	19	1	2	1	1	1	11	15	23	4	2	7	13	26	2	8
Graveyard	1	1	1	2	1	6	11	16	1	2	1	1	1	10	14	21	3	2	7	12	24	2	7
<b>Total</b>	<b>38</b>	<b>54</b>				<b>38</b>	<b>54</b>							<b>44</b>	<b>66</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>	<b>6</b>	<b>21</b>
<b>1998</b>																							
Day	1	1	1	2	1	10	13	18	1	2	1	1	1	11	15	22	3	2	11	16	24	2	6
Swing	1	1	1	2	1	12	15	22	1	2	1	1	1	11	15	24	4	2	7	13	26	2	8
Graveyard	1	1	1	2	1	10	13	18	1	2	1	1	1	11	15	22	3	2	7	12	24	2	6
<b>Total</b>	<b>41</b>	<b>58</b>				<b>41</b>	<b>58</b>							<b>45</b>	<b>68</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>	<b>6</b>	<b>20</b>
<b>1997</b>																							
Day	1	2	1	1	1	12	16	24	1	2	1	3	3	10	16	24	3	2	11	16	24		
Swing	1	2	1	1	1	14	17	24	1	2	1	3	3	11	17	26	4	2	7	13	26		
Graveyard	2	2	1	1	1	10	12	20	1	2	1	3	3	10	16	24	3	2	7	12	24		
<b>Total</b>	<b>45</b>	<b>68</b>				<b>45</b>	<b>68</b>							<b>49</b>	<b>74</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>		
<b>1996</b>																							
Day	1	2	1	1	1	11	15	24					3	11	14	22	3	2	11	16	24		
Swing	1	2	1	1	1	13	16	23					3	12	15	24	4	2	7	13	26		
Graveyard	2	2	1	1	1	10	12	20					3	11	14	23	3	2	7	12	24		
<b>Total</b>	<b>43</b>	<b>67</b>				<b>43</b>	<b>67</b>							<b>43</b>	<b>69</b>		<b>41</b>	<b>74</b>		<b>41</b>	<b>74</b>		
<b>1995</b>																							
Day					1	14	15	22						11	11	16	3	2	10	15	23	0	0
Swing						16	16	23						12	12	18	4	2	7	13	26	0	0
Graveyard						12	12	20						11	11	16	3	2	7	12	24	0	0
<b>Total</b>						<b>43</b>	<b>65</b>							<b>34</b>	<b>50</b>		<b>40</b>	<b>73</b>		<b>40</b>	<b>73</b>		
<b>Change Day Shift</b>						0%	-14%							45%	38%		7%	4%				N/A	N/A
<b>Change Swing Shift</b>						-19%	-22%							25%	33%		0%	0%				N/A	N/A
<b>Change Graveyard Shift</b>						-8%	-20%							27%	38%		0%	0%				N/A	N/A
<b>Overall Change</b>						-9%	-18%							32%	36%		3%	1%				N/A	N/A

Source: KCSO Field Operations. Patrol figures include deputies, CSOs, and frequent radio users.  
Note: 2001 figures are actual. Prior years are estimated. The minimums and maximums reflect averages for each year.

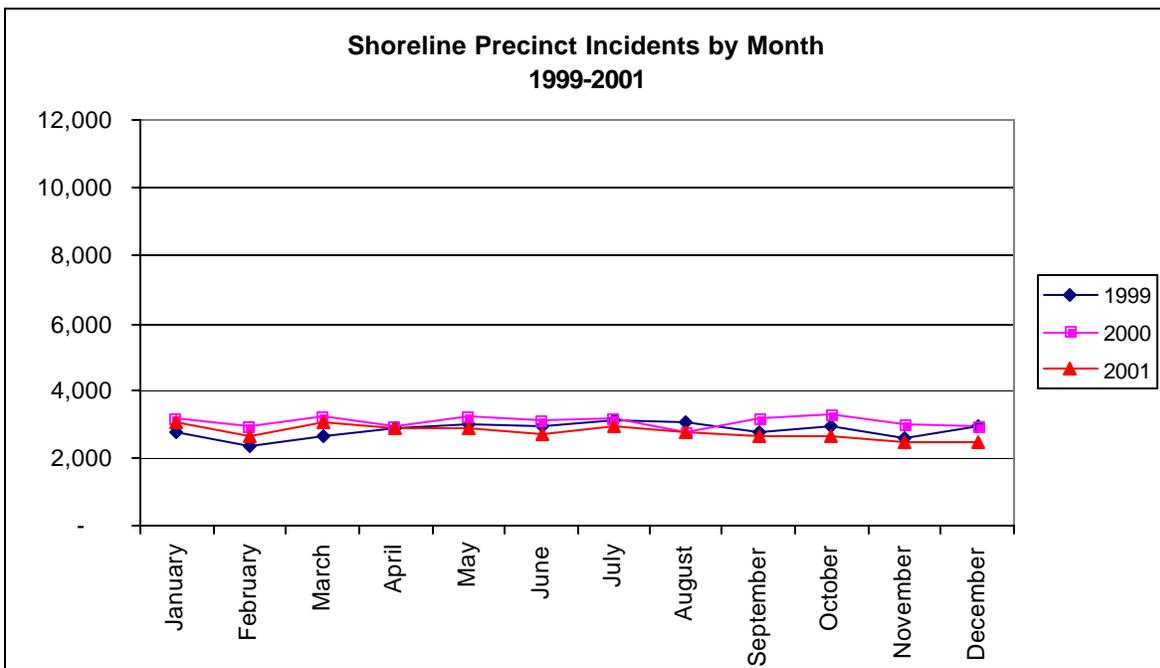
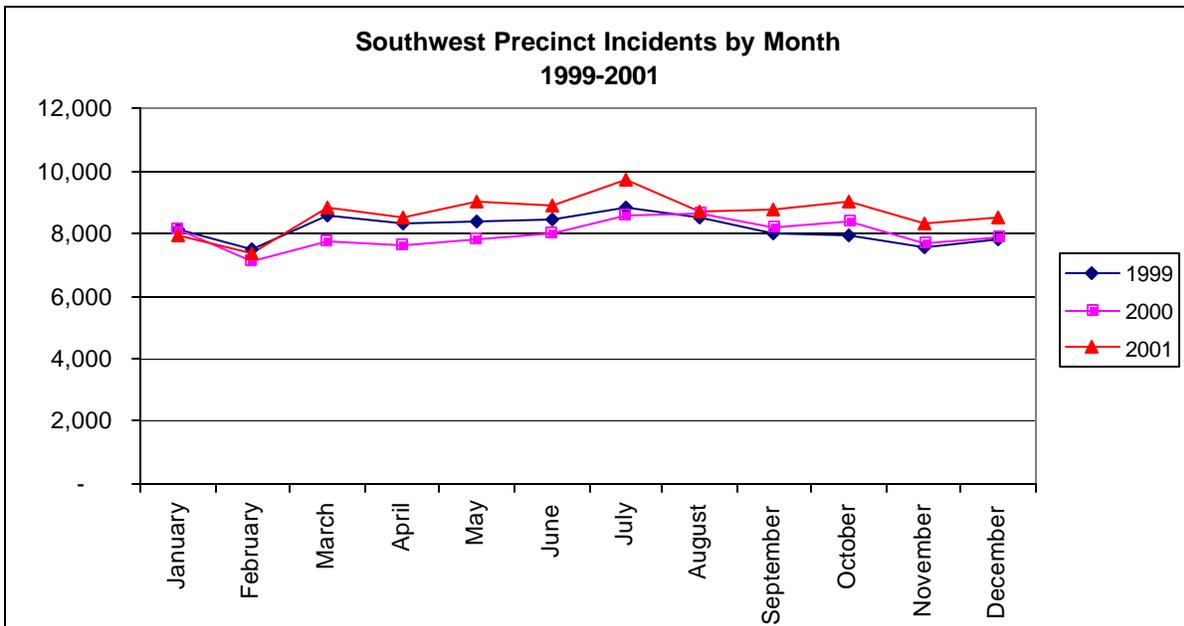
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### APPENDIX 3

### MONTHLY INCIDENTS BY PRECINCT DISPATCH RADIO 1999 - 2001



### APPENDIX 3 (Continued)



## APPENDIX 4

### AVERAGE TALK TIME BY DISPATCH RADIO AND TIME SEPTEMBER 10-23, 2001

Time of Day	North	Southeast	Southwest	Shoreline	Metro	Animal Control	Total Talk Time
12:00 AM	20.6%	27.8%	34.1%	4.6%	10.1%	0.0%	27.5%
1:00 AM	22.4%	23.7%	29.2%	2.1%	12.8%	0.3%	25.1%
2:00 AM	16.8%	22.1%	29.7%	1.2%	8.0%	0.2%	22.9%
3:00 AM	20.4%	16.0%	27.3%	0.2%	2.1%	0.0%	21.3%
4:00 AM	14.2%	12.0%	24.0%	0.0%	2.0%	0.0%	16.7%
5:00 AM	13.8%	11.8%	18.1%	0.0%	2.9%	0.0%	14.6%
6:00 AM	19.9%	18.8%	21.2%	0.0%	2.6%	0.0%	20.0%
7:00 AM	18.9%	19.1%	19.1%	0.0%	3.4%	3.4%	19.0%
8:00 AM	23.1%	21.3%	23.6%	0.0%	2.4%	3.5%	22.7%
9:00 AM	19.0%	21.5%	27.2%	4.6%	2.6%	8.5%	22.6%
10:00 AM	18.0%	20.8%	28.1%	7.7%	3.3%	10.1%	22.3%
11:00 AM	15.6%	22.1%	28.9%	6.4%	2.3%	13.2%	22.2%
12:00 PM	17.8%	23.9%	30.4%	8.0%	5.2%	10.9%	24.0%
1:00 PM	17.2%	22.2%	26.9%	8.3%	5.0%	11.4%	22.1%
2:00 PM	25.1%	30.2%	31.8%	8.4%	5.8%	10.3%	29.0%
3:00 PM	22.0%	27.8%	29.4%	10.7%	6.1%	9.6%	26.4%
4:00 PM	21.7%	28.5%	28.3%	11.5%	7.4%	9.3%	26.2%
5:00 PM	25.0%	27.2%	30.4%	11.6%	6.2%	6.2%	27.5%
6:00 PM	26.3%	28.9%	30.5%	11.0%	4.9%	4.2%	28.6%
7:00 PM	26.3%	32.6%	32.1%	10.9%	4.3%	2.0%	30.3%
8:00 PM	28.6%	33.8%	32.3%	9.1%	7.3%	0.5%	31.6%
9:00 PM	30.3%	32.4%	32.0%	13.3%	6.1%	0.1%	31.6%
10:00 PM	31.3%	36.1%	37.7%	9.9%	6.4%	0.0%	35.0%
11:00 PM	27.0%	29.8%	37.0%	13.1%	3.9%	0.1%	31.2%
<b>Total</b>	<b>22%</b>	<b>25%</b>	<b>29%</b>	<b>8%</b>	<b>5%</b>	<b>4.3%</b>	<b>25.0%</b>
<b>Day</b>	<b>19%</b>	<b>22%</b>	<b>26%</b>	<b>5%</b>	<b>4%</b>	<b>7.9%</b>	<b>21.9%</b>
<b>Swing</b>	<b>26%</b>	<b>30%</b>	<b>31%</b>	<b>11%</b>	<b>6%</b>	<b>9.0%</b>	<b>28.9%</b>
<b>Graveyard</b>	<b>21%</b>	<b>22%</b>	<b>30%</b>	<b>4%</b>	<b>6%</b>	<b>9.6%</b>	<b>24.3%</b>

Source: King County Radio Communication Services

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## APPENDIX 5

### CALCULATION OF ESTIMATED RELIEF FACTOR FOR COMMUNICATION SPECIALISTS

A relief factor is used to determine the number of *full time employees* needed to cover a given position by making adjustments for time that employees are not available (such as having two days off a week, and time off for vacation and sick leave). The table below demonstrates how the audit team developed an *estimated* relief factor for Communication Specialists to evaluate the staffing and budgetary impact of the Comm Center's new staffing responsibilities.

	<b>With New Employee Training<sup>29</sup></b>	<b>Without New Employee Training</b>
<b>Total paid work hours per year, per Comm Specialist<sup>30</sup></b>	<b>2,088</b>	<b>2,088</b>
<b>Average number of hours unavailable for scheduling</b>		
Average meal and break hours per year <sup>31</sup>	217	238
Average annual vacation hours <sup>32</sup>	162	162
Average annual sick leave <sup>33</sup>	94	94
Average hours spent in Call Receiver & Dispatcher training	235	<i>Not included</i>
Other training	<i>Not included</i>	<i>Not included</i>
Other leave (disability, bereavement, etc.)	<i>Not included</i>	<i>Not included</i>
Comp time	<i>Not included</i>	<i>Not included</i>
<b>Sum of unavailable hours</b>	<b>708</b>	<b>494</b>
<b>Average available hours per Comm Specialist</b>	<b>1380</b>	<b>1594</b>
<b>Hours per year required to staff one 8-hour shift position, 365 days a year</b>	<b>2920</b>	<b>2920</b>
<b>Relief Factor: Number of FTEs needed to staff one 8-hour shift position, 365 days a year</b>	<b>2.12</b>	<b>1.83</b>
(Hours per year required to staff a shift, divided by the average available hours per Comm Specialist)		
<b>FTEs required for a post requiring coverage 24 hours, 365 days a year</b>	<b>6.3</b>	<b>5.5</b>
(Three 8-hour shift positions, multiplied by the relief factor)		

<sup>29</sup> "New employee" training time reflects actual training taken in 2000. The time includes training for new and returning call receivers and for new dispatchers.

<sup>30</sup> Standard number of hours for which county employees are paid annually.

<sup>31</sup> Includes one hour per day for meal and break times, for each day worked.

<sup>32</sup> From Comm Center records for vacation time taken by Communication Specialists *in 2000 only*. Supervisors and Data Control staff are not included.

<sup>33</sup> From payroll records for sick leave taken by Communication Specialists *in 2000 only*. Supervisors and Data Control staff are not included.

## APPENDIX 5 (Continued)

### Important notes about this relief factor analysis:

1. In addition to the actual staffing time required to cover positions in the Comm Center, there are typically a number of trainees who are in the “pipeline” to fill dispatcher and call receiver vacancies, but who are still unavailable for scheduling. This training time is part of the “fully loaded” staffing requirements (and budgetary costs) of staffing Comm Center positions, and needs to be included when resource and staffing needs are planned.

Therefore, when adjusting for the addition (or subtraction) of new dispatch or call receiver positions, or when calculating the staffing requirements and costs of providing Comm Center services to other agencies, the Comm Center should use a staffing relief factor that includes time for new employee training. If a relief factor is not used and new employee training is not included, the Comm Center will not have sufficient staff (and the KCSO will not receive sufficient funds from other agencies) to cover the positions.

2. When scheduling coverage for an individual position, a dispatch radio for example, new employee training should not be included in the relief factor calculation. This is because the employees are already trained and will not be missing work to attend training. The table above reflects an estimated relief factor without new employee training.
3. The average training, vacation, and sick leave figures listed above are based on only one year of data and are thus not representative of Comm Center averages over time. When developing its relief factor, the Comm Center should develop averages from several years of data, or the resulting relief factor may under, or over, estimate staffing needs.
4. Information on the amount of other types of employee leave taken, such as for professional development training, disability, bereavement, and comp time, is not included in the audit’s relief factor calculations. The Comm Center should include the average amount of time employees are absent for these reasons when developing its relief factor.

**APPENDIX 6**

**ESTIMATED COST AND STAFFING ANALYSIS FOR  
METRO TRANSIT POLICE AND ANIMAL CONTROL DISPATCHING**

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<b>Estimated cost of one Comm Center FTE*</b>	\$87,881		
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<b>Metro Dispatch Radio</b>			
<i><b>Current Arrangement</b></i>			
FTE given Comm Center for Metro dispatchers	3.5		
Total \$ needed for 3.5 FTEs	\$307,584		
Current Metro Funding	\$250,000		
Current FTEs funded	2.8		
Difference in \$	(\$57,584)		
		<b>With New Hire Training**</b>	<b>Without New Hire Training***</b>
<i><b>Fully-funded scenario</b></i>			
FTEs needed	4.9	4.2	
Total funding needed	\$430,617	\$369,100	
Current funding	\$250,000	\$250,000	
Funding Difference	(\$180,617)	(\$119,100)	
<b>Animal Control Funding</b>			
FTEs needed	3.2	3.2	
Total funding needed	\$281,219	\$278,952	

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\*Source : KCSO's Budget and Finance Division

\*\* Using an estimated relief factor of 2.12

\*\*\*Using an estimated relief factor of 1.83

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## APPENDIX 7

### SHERIFF'S OFFICE RESPONSE



KING COUNTY SHERIFF'S OFFICE  
516 Third Avenue W-116  
Seattle, WA 98104-2312  
Tel: (206) 296-4155 • Fax: (206) 296-0168

*David G. Reichert*  
Sheriff

**RECEIVED**

**APR 18 2002**

**KING COUNTY AUDITOR**

April 18, 2002

TO: Cheryle A. Broom, King County Auditor

FROM: David G. Reichert, King County Sheriff 

RE: PERFORMANCE AUDIT OF THE KING COUNTY SHERIFF'S OFFICE COMMUNICATION CENTER – KCSO RESPONSE TO PRELIMINARY REPORT

Thank you for providing the preliminary audit report for review by the King County Sheriff's Office (KCSO). We have found this audit process to be informative and productive, and appreciate your efforts to help us analyze a vital aspect of law enforcement.

I am pleased to learn that the audit team found our operations fundamentally sound and our performance good. Overall, the KCSO agrees with the findings and recommendations of the audit team. In some cases, we already have begun to implement the recommendations; for example, we have begun to collect some of the data suggested by the team, and are exploring the feasibility of updating systems to fulfill other data needs.

We consider the implementation of other recommendations more challenging due to budget considerations. The audit recommends that the KCSO pursue the implementation of mobile data communications. The KCSO has long considered this technological advancement as a way to improve public safety service. Nevertheless, a lack of funding has prohibited us from doing more than ensuring that existing systems are equipped to support a mobile communications system. With the understanding that the county budget scenario is bleak, our next step is to present a proposal to the county for developing mobile data capability .

Implementation of other recommendations will require changes in county policy. For example, the auditor correctly notes that the KCSO is providing dispatch services to Animal Control and King County Metro Transit without adequate reimbursement. Service to Animal Control is a result of an unfunded mandate to a previous KCSO administration. The scope and duration of Metro Transit dispatching has changed over time, and payment issues are the subject of further deliberations. We believe these are opportunities to bring past arrangements into alignment with KCSO and county fiscal policy.

Again, I thank you for conducting this audit and helping us to improve service to citizens.

DGR:rcc

Attachment

cc: Chief Fabienne Brooks  
Chief Pat Lee  
Chief Susan Rahr  
KCSO Finance Director Jon McCracken

## APPENDIX 7 (Continued)

### King County Sheriff's Office Response to the Performance Audit of the KCSO Communication Center

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**Recommendation 2-4-1: The Sheriff's Office should evaluate the feasibility of restarting the Stats channel during peak hours.**

**KCSO Response:**

The KCSO concurs with the recommendation, and already has explored several options for restarting the channel and reducing the workload for dispatchers.

The stats channel would operate during selected peak hours and days. The purpose of the channel is to reduce the workload for the dispatchers who manage the primary radio frequencies.

**Schedule for implementation:**

The KCSO has already taken several steps to reduce the workload for dispatchers. In 1999, we reached an agreement with Public Safety Employees (PSE) Local 519 to designate the Animal Control radio as non-law enforcement dispatching. Consequently, we can now train call receivers to staff that radio, thereby freeing up dispatchers for police radios.

Restarting the channel, and ensuring that it is consistently available, will require the addition of at least six trained dispatchers. The additions are necessary so that the KCSO can staff the primary radio frequencies without reassigning staff from the stats channel (and thereby taking it off-line).

The KCSO also has taken action to increase the number of trained dispatchers in the Communications Center.

- The KCSO established an aggressive campaign to attract and hire dispatchers from other agencies. These "lateral" dispatchers are already trained, which reduces the amount of time between their hiring date and the time that they become fully-functioning KCSO dispatchers. Unfortunately, no qualified candidates accepted the positions.
- The KCSO considered diverting existing staffing from NW Radio to a STATS channel assignment. Doing so would have required that NW Radio and North Radio be recombined. This plan was rejected because of concerns that the recombination would jeopardize officer safety.
- Two factors led to a lack of trained KCSO dispatchers: attrition and the KCSO's inability to require current employees to enter dispatcher training. The KCSO eliminated the latter by reaching an agreement PSE Local 519, which allows us to require dispatch training for those hired after May 2001. The first group of call receivers to whom this new rule applies will be eligible for the training January 2003, after they have completed 18 months of service with the KCSO.

The KCSO anticipates that six call receivers will be trained as dispatchers by the end of October 2002. These positions will not fulfill the stats channel needs, however, since the KCSO expects to have typical attrition this year.

## APPENDIX 7 (Continued)

**Recommendation 2-4-2: The Sheriff's Office should continue to pursue the implementation of mobile data communications and dispatching as an option for reducing dispatcher workload and improving the efficiency and effectiveness of dispatch communications.**

**KCSO Response:**

The KCSO concurs with the recommendation.

**Schedule for implementation:**

The KCSO has included mobile communications in the business plan and our technology plans for several years, pending technological advancement and funding. We recognize that mobile communications will enhance our responsiveness, ease dispatcher workload, and provide better service to citizens. The KCSO is exploring ways to modify existing hardware and to "piggyback" on existing systems, thereby reducing the cost of the infrastructure. The KCSO also will present a package to the King County Council requesting funding for these technological improvements.

The KCSO is proceeding with a Request for Proposal process for a new Computer Aided Dispatch (CAD) system. The new CAD system will meet specific requirements for interfacing with and supporting mobile data communications.

**Recommendation 2-5: The Comm Center should monitor dispatcher workload for each of the dispatch radios, including the number of incidents handled (DCFS and on-views), radio talk time levels, and phone call volumes.**

**KCSO Response:**

The KCSO concurs with this recommendation.

It should be noted that enumerating dispatched calls for service (DCFS) and on-views will not represent the total work that is done by the dispatchers for each incident. For example, one call for service to a traffic accident could result in several name and license plate searches, calls for tow trucks, and more. The KCSO does recognize that there are few ways to capture this key-stroke and other work for each incident.

**Schedule for implementation:**

The KCSO will begin monitoring radio talk-time levels for seven days of each quarter. The cost for this work will be \$170 per quarter until the Radio Communications Services (RCS) section of the King County Emergency Management Division installs new software in the fourth quarter of 2003. This new software will retrieve the information without the work and cost of a technical support person. The current system is incapable of retrieving historical data, so comparisons will be unavailable for some time.

The KCSO is conducting research to determine whether software or programming could upgrade the existing phone system to capture call volume for dispatchers. Currently, the phone system is

## APPENDIX 7 (Continued)

unable to measure either incoming or outgoing calls; both must be measured in order to represent actual work. The cost of the upgrade is unknown.

The phone system will be updated when the Communication Center moves to the RCECC in 2003. The KCSO is also researching whether or not the new phone equipment will be able count incoming and outgoing calls.

**Recommendation 2-6-1: The Sheriff's Office should ensure that potential staffing and fiscal impacts are adequately evaluated when changes are made to Comm Center responsibilities.**

**KCSO Response:**

KCSO concurs with this recommendation.

**Schedule for implementation:**

The current KCSO administration has inherited several unfunded mandates within King County government operations that are today, inconsistent with KCSO contracting, management, service priority, and county cost recovery policies.

The Animal Control dispatching agreement, as an example, was mandated without any staffing or workload analysis. The KCSO lost the equivalent of four positions to that assignment. However, the Sheriff now believes there is an opportunity to properly budget and account for past arrangements and bring them into alignment with KCSO and county fiscal policy.

Each occasion that mandates changes in FTE allocations offers challenges in accurately forecasting and computing workload and resultant staff cuts or additions. Implementation of some of the other recommendations made in this report will offer a better statistical basis for making these decisions in the future.

**Recommendation 2-6-2: The Comm Center and the KCSO Budget and Accounting division should jointly develop a staffing relief factor appropriate for the Comm Center. This relief factor should be used when evaluating changes in staffing needs and when making related staffing allocations.**

**KCSO Response:**

The KCSO concurs with this recommendation.

**Schedule for implementation:**

The KCSO will begin using the relief factor of 6.3, as was recommended by the Audit Team. We will begin work on developing a relief factor that accounts for training; however, our experience in determining the relief factor for deputies indicates that the process could take at least one year.

## APPENDIX 7 (Continued)

### **Recommendation 2 –7: The Sheriff’s Office should:**

- Clarify the terms of its agreements with Metro and Animal control regarding coverage of the costs of providing dispatching services.
- Make the necessary adjustment to the Sheriff’s budget and Comm Center staffing; and,
- Ensure the agreements are updated annually to reflect changes in staffing costs and operations.

#### **KCSO Response:**

The KCSO concurs with this recommendation.

#### **Schedule for implementation:**

The KCSO intends to address these issue in the upcoming budget process.

### **Recommendation 2-8: The Comm Center should closely monitor its turnover rate and implement frequent, regular hiring rounds.**

#### **KCSO Response:**

The KCSO concurs with this recommendation.

#### **Schedule for implementation:**

The KCSO began implementing this recommendation in 2000, when we, in cooperation with OHRM, deemed the Communications Specialist position “open-continuous.” Open continuous allows the KCSO to accept applications throughout the year and to test candidates more regularly. During that year, the KCSO also attempted to hire call receivers and dispatchers from other agencies. Although that campaign was unsuccessful, we may try another recruitment in the future.

The KCSO also made several internal process changes that have increased our efficiency and communication in accomplishing the hiring process.

Finally, the KCSO and OHRM have redesigned our interview questions and the assessments of the answers, in an attempt to better screen for viable candidates. We are currently testing the feasibility of purchasing a modular software program that will allow us to better evaluate job candidates. This software provides a simulation of the work done in the Communications Center, and is similar to the software used to test candidates for deputy positions. Our goal is that improved candidate testing will help us hire better candidates, thereby increasing retention.

### **Recommendation 2-9: The Comm Center should continue using the vapor positions under the following guidelines:**

- Use the vapor positions in conjunction with frequent hiring rounds.

## APPENDIX 7 (Continued)

- Use a conservative estimate of the Comm Center's attrition rate, and monitor changes regularly to determine how many vapor positions can be used without creating a year-end deficit.

### **KCSO Response:**

The KCSO concurs with the theory supporting this recommendation, but does not concur with this recommendation based on its practicality.

While conceptually these ideas should work, county budget and accounting practices make it impossible to forecast breakeven attrition hiring by using vapors. Filling vapors essentially requires that the KCSO pay for the associated start up costs (e.g., training) with money we do not have. The intended benefit is for vapors to be funded by salary savings from vacancies that are ultimately filled in a shorter amount of time from a continuous hiring process.

However, the KCSO also must carry nearly \$1 million (FY2002 budget) in negative contra (under-expenditure) accounts. The under-expenditure mandates can only be "funded" through vacancy salary savings.

Filling all vapors would eliminate our ability to realize salary savings needed to fund the negative contra accounts. The net effect of the auditor's recommendation to fill all vapor positions would cause a corresponding reduction in patrol deputies and a year-end deficit for the Sheriff.

### **Schedule for implementation:**

The KCSO will continue to use the hiring solutions described in response to recommendation 6-8, within the limits of our budget.

### **Recommendation 2-10: The Comm Center should:**

- Update the minimum staffing levels using a method that provides staffing recommendations designed to meet call answering standards (based on queuing analysis) and consider purchasing a software program that will simplify this process.
- Collect data on the duration of outbound calls made by primary call receivers and use it when updating the staffing model.
- Revise the minimum staffing level model to separately specify how many primary and secondary call receivers are recommended throughout the day.
- Consider revisiting the staffing levels to reflect quarterly changes in call characteristics.
- Continue to track workload data on call volumes, duration and work time and use this data to periodically check staffing level adequacy (annually should be adequate).

### **KCSO Response:**

The KCSO concurs with the recommendation.

### **Schedule for implementation:**

This recommendation calls for the implementation of a staffing and allocation model that is

## APPENDIX 7 (Continued)

significantly more sophisticated than the one currently in use. Additional software, training, and staffing, as well as associated funding, will be required.

The KCSO will consider purchasing software that will help establish staffing recommendations, but implementation will depend on the cost. This cost will need to be compared with the cost of using existing staff from other units within the department. The KCSO will also consider making the changes in staffing levels to reflect quarterly changes. Our experience has shown, however, that implementing new staffing models takes at least one year.

Until we are able to purchase and use sophisticated software systems, the KCSO will focus on mitigating actions that are less resource-intensive. For example, the KCSO began collecting data regarding primary call receivers' outbound calls on April 8, 2002. The data collected on that date show the number and duration of calls from March 2002. We will continue this effort.

Further, the KCSO hopes to continue work with the Audit Team to identify how best to use the data to check staffing level adequacy. We intend to use a heuristic approach, based on past performance data, to modify staffing. For example, deteriorating performance with eight people assigned to a time slot would indicate that the KCSO should consider increasing the staffing to nine individuals.

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## APPENDIX 8

### AUDITOR'S COMMENTS TO THE SHERIFF'S OFFICE'S RESPONSE

Following the receipt of the Sheriff's Office's response to our final draft report, the audit staff discussed and clarified some aspects of the response with Sheriff's Office management.

**Recommendation 2-6-2 (Page 39).** The Sheriff's Office's response indicates they will begin using the 6.3 staffing factor and develop one that includes training time. Audit staff clarified with Sheriff's Office management that the 6.3 staffing factor *already includes* new employee training. Per Appendix 5 of the report, the staffing factor without new employee training is 5.5. We also clarified that the KCSO understands that the relief factors in our report are estimates and that the Sheriff's Office will develop their own factors based on comprehensive data.

**Recommendation 2-9 (Page 45).** In response to audit staff questions regarding implementation of the vapor position recommendation, the Sheriff's Office clarified that they intend to first restore the Comm Center to full staffing and will then reassess the need to use the vapor positions in light of fiscal constraints and Comm Center performance. Audit staff agrees that this is a reasonable approach, one that is consistent with the recommendation to use the vapor positions to the extent possible without creating a year end budget deficit. The audit team would like to add that backfill overtime expenditures should also be considered when evaluating use of the vapor positions, because at some point, depending on the vacancy level, it will be more cost effective to hire into the vapor positions than to pay overtime.

**Recommendation 2-10 (Page 49).** Recognizing that staff training, data collection, and potentially new software are needed to implement this recommendation, the audit team believes the Sheriff's Office's approach is reasonable. As discussed in the report, adjusting staffing levels according to performance data is an important part of ongoing performance monitoring. However, the audit team would like to emphasize that staffing levels derived from queuing analysis are the best gauge of the personnel needed to meet a call answering standard. Adjusting staffing levels without an analytical basis will initially be less accurate and will require more time to achieve the desired balance between staffing and performance. Because current staffing levels are at times significantly out of line with call volumes, the Sheriff's Office will want to undertake this project soon if it wants to quickly improve performance. To help facilitate this project, the audit team will give the Sheriff's Office the data and analysis completed for this audit, and will provide technical advice on using queuing analysis to update staffing levels.

**APPENDIX 8 (Continued)**

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