

**Performance Audit:
Police Computer Aided Dispatch Data Reliability**

April 2008

**City Auditor's Office
City of Atlanta**

File #07.04a



CITY OF ATLANTA

City Auditor's Office
Leslie Ward, City Auditor
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What We Found

While we found no significant logical inconsistencies within the data fields we tested, unexplained gaps in incident numbers call into question whether the computer aided dispatch (CAD) system records are complete. CAD system incident numbers include a consecutive number sequence that resets at the end of the day. Unexplained gaps occur in 67 of the 556 days we examined. Our detailed review of six of these days found multiple gaps of between one and more than one hundred consecutive incident numbers. While the total number of potentially missing records is a very small percentage of the 1.2 million records we analyzed, we are concerned because the contractor tasked with maintaining the system provided no reasonable explanation for why incident numbers would be skipped, the contractor prevented us from independently reviewing system documentation that could shed light on the problem, and a 2004 consultant's report also found discrepancies in calls for service data.

We identified problems with missing fields and the logic used to create response time reports that could limit their accuracy. The CAD data used to generate the June 2007 reports on response times excluded nearly 20% of 911 calls. The exclusion of these records could result in over- or understating actual response times and therefore limits the usefulness of the reports for making deployment decisions.

Finally, the department's limited system expertise and reliance on the contractor for information about the system restrict its use as a management tool. Department staff told us that they're not sure what the data reports or different fields really mean. Staff told us they rely on relatively few reports that could be used for analysis and to support management decisions. Our review of available reports show none that are focused on how resources are used, such as number of officers on duty, time committed to answering calls for service, or time out of service on particular types of calls.

Why We Did This Audit

The Atlanta Police Department has a high public profile and comprises about 30% of the general fund's budget. Vacancies and attrition have hindered the department's ability to reach its goal of 2,000 officers. Understaffing may affect its timely response to calls for service. We plan to compare available staff to the calls for service workload and this audit is the first part of that review. We are required by Government Auditing Standards to assess the reliability of data used as evidence.

What We Recommended

Our recommendations are intended to increase the usability of CAD data for the department.

- The chief information officer should direct Northrop Grumman to investigate why there are gaps in the incident numbers, determine whether records are missing, and correct report programming errors.
- The chief of police should communicate to officers and dispatchers the importance of recording officer arrival times and monitor when and why times are not recorded.
- The chief of police and the chief information officer should work together to strengthen in-house expertise on their systems.

For more information regarding this report, please contact Eric Palmer at 404.330.6455 or epalmer@atlantaga.gov.

Management Responses to Audit Recommendations

Summary of Management Responses

Recommendation: 1. The Chief Information Officer should direct Northrop Grumman to investigate why there are gaps in incident numbers, determine whether records are missing, and if so whether system or operating changes are necessary to resolve the problem.

Response: The Chief Information Officer and the department will work with Northrop Grumman. **Agree**
 In the long term, it may be more cost effective to procure a new, fully integrated CAD system that can be owned and supported by the city and meet the requirements of the APD and other city public safety agencies.

Proposed Action: Determine which program platform is causing the gaps and whether the problem has continued.

Timeframe: End of March 2008

Recommendation: 2. The Chief Information Officer should direct Northrop Grumman to correct report programming errors and ensure that report programming accurately captures all relevant records.

Response: Northrop Grumman will correct the problem. **Agree**

Proposed Action: Review reports in a regular basis to ensure the problem is corrected.

Timeframe: End of March 2008 and on-going.

Recommendation: 3. The Chief of Police should communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why officer arrival times are not recorded.

Response: **Agree**

Proposed Action: Dispatchers will check on officers if they have not arrived within 10 minutes. Officers will be briefed on the importance of advising dispatch of their arrival.

Timeframe: ASAP

Recommendation: 4. The Chief of Police and Chief Information Officer should work together to strengthen in-house expertise on their systems.

Response: **Agree**

Proposed Action: Develop an IT section within the Communications Center with direct contact and support from the subcontractor.

Timeframe: ASAP



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April 17, 2008

Honorable Mayor and Members of the City Council:

We included police staffing in our 2007 audit plan due to the Atlanta Police Department's high public profile and its large share of the general fund's budget. Vacancies and attrition have hindered the department's ability to be fully staffed, which could ultimately affect the department's ability to efficiently answer calls for service. This audit is the first part of our review comparing available staff to the calls for service workload.

This audit focused on assessing the reliability of data in the department's computer aided dispatch (CAD) database. We are required by Government Auditing Standards to assess the reliability of data used as evidence, and the department's 2004 consultant report found problems with the number of dispatched calls and missing reports. We were unable to conclude whether the data is reliable because the contractor responsible for maintaining the system did not provide system documentation or consistent answers. We found that the data contained unexplained gaps in the incident numbers, a possible indication that the records are incomplete. We also identified problems with missing fields, the logic used to create reports for the department, and the department's reliance on the contractor for system information.

Our recommendations focus on resolving the immediate issues of the gaps, and programming errors. We also recommend that the police department strengthen its in-house expertise on the system. The police and information technology departments agree with our recommendations. Their full responses to our recommendations are appended to the report.

The Audit Committee has reviewed this report and is releasing it in accordance with Article 2, Chapter 6 of the City Charter. We appreciate the courtesy and cooperation of city staff throughout the audit. The team for this project was Damien Berahzer, Brandon Haynes, and Eric Palmer.

Leslie Ward
City Auditor

Fred Williams
Audit Committee Chair

Police Computer Aided Dispatch Data Reliability

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Introduction

We conducted this performance audit of the Atlanta Police Department (APD) pursuant to Chapter 6 of the Atlanta City Charter which establishes the City of Atlanta Audit Committee and the City Auditor's Office, and outlines the City Auditor's Office primary duties.

A performance audit is an objective, systematic examination of evidence to assess independently the performance of an organization, program, activity, or function. The purpose of a performance audit is to provide information to improve public accountability and facilitate decision-making. Performance audits encompass a wide variety of objectives, including those related to assessing program effectiveness and results; economy and efficiency; internal control; compliance with legal or other requirements; and objectives related to providing prospective analyses, guidance, or summary information.¹

This is the first of three reports related to police staffing. The second report will look at how sworn staff is allocated in the Police Department and factors that affect staffing levels. The third report will compare on-duty patrol staff to calls for service. Timely response to calls for service is important to the community and can be affected by understaffing or deployment decisions. Data provided for ATLStat (the city's performance reporting program) show that the department is able to meet its average response time goal. *Government Auditing Standards* require us to assess the validity and reliability of data used as audit evidence.

Background

911 calls for service and other dispatches are captured in the department's Computer-Aided Dispatch (CAD) system. The CAD system is operated by the Police Department's Communications section and maintained by a city contractor, Northrop Grumman. The city initially contracted with TRW, later acquired by Northrop

¹ Comptroller General of the United States, *Government Auditing Standards*, Washington D.C.: U.S. government Accountability Office, 2003, p.21

Grumman, to design and install the communications system in 1994. Northrop Grumman continued to maintain the system for the city. Their current contract is for \$3.9 million for a term of 18 months from January 2007 to June 2008 with two one-year renewal options. CAD maintenance and hardware costs are about 35% of the total contract amount. The remainder is for maintenance and upgrades to other police and fire computer systems.

CAD data used to generate management reports. Data recorded in the CAD system are the basis for police reports in the Incident Crime Information System (ICIS) that is used to generate reports for management use and oversight. The Police Department's Communications Unit runs reports to look at delays in dispatching. The department's Planning and Research Unit runs reports on response times that are reported in ATLStat and to analyze workload that, according to department policies, is the basis for patrol officer assignments. In addition, the Police Department's Crime Analysis Unit uses the data for mapping crime and for the beat redesign study.

Prior report identified data problems. The Police Department released a plan in 2004 for reorganizing the department to reduce crime. The report, *Fragile Momentum: Plan of Action for Rebuilding the Atlanta Police Department to Help Secure Atlanta's Position as Capital of the New South* by Linder and Associates, Inc., noted that no unit within the city could accurately state the number of calls for service that were dispatched in 2002. The report also found problems with incident reports missing from the department's system.

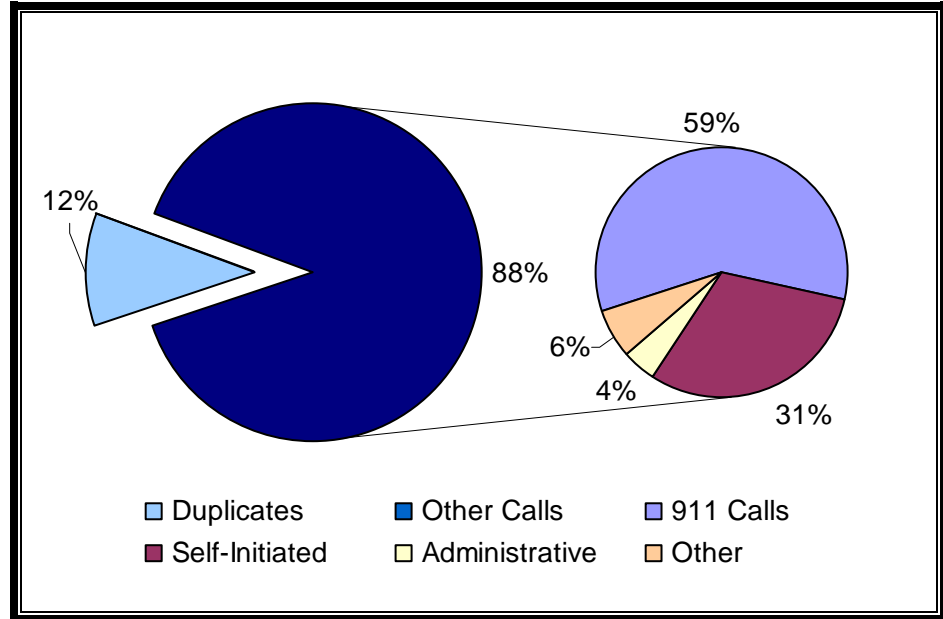
The CAD data that we reviewed contained about 1.2 million records over an approximate 18-month period between January 2006 and July 2007. About 12% of those records were calls that were duplicates, cancelled, or processed through Teleserve, which handles low priority calls that do not need an officer to be dispatched.

We analyzed 1.1 million records, including (see Exhibit 1 on next page)

- Calls that came through 911 or other phone sources, such as disturbance or assault calls, alarms, and vehicle accidents,
- Dispatch records self-initiated by officers, such as reckless driving or speeding, suspicious persons, or directed patrol,
- Administrative records, such as recording officers at other jobs and officer court appearances, and

- Call codes not defined in the department's Standard Operating Procedures.

**Exhibit 1
Types of Calls**



Source: January 10, 2006 to July 20, 2007 CAD data

Audit Objectives

This audit addresses whether the department can rely on CAD data to effectively measure response time. We designed this audit to answer the following questions:

- How are the Computer-Aided Dispatch (CAD) data used and what information does it contain?
- Are the CAD data reliable (i.e., is it logical, consistent, and accurate)?

Scope and Methodology

This audit was conducted in accordance with generally accepted government auditing standards. We conducted our audit fieldwork

from May to October 2007. Our analysis covered CAD system records from January 10, 2006, through July 20, 2007.

Our audit methods included:

- Interviewing department personnel and reviewing Standard Operating Procedures and other documents to clarify the definition of the data fields and how they relate to answering calls for service,
- Analyzing CAD data and identifying essential fields with significant blank values,
- Checking conversions made to the data for errors, and
- Reviewing query logic used to create reports for the department and recreating those reports.

Contractor restricted our access to information. We are unable to conclude whether the CAD data are reliable because Northrop Grumman, the city contractor responsible for maintaining CAD, has not provided system documentation (field definitions and a table layout) for our review. A representative told us that this information is proprietary since the application was purchased from another vendor. In addition, Northrop Grumman provided conflicting answers to our questions about how the system works and stopped responding to our requests for clarification. We were unable to identify someone within the city who was knowledgeable enough about the system to provide complete answers. We met with the Interim Chief Information Officer and an attorney from the Department of Law to attempt to resolve the situation. Government auditing standards require this disclosure of external limitations on our ability to conduct the audit.

Findings and Analysis

Technical and Operational Problems Limit Usefulness of CAD Data for Management and Oversight

While we found no significant logical inconsistencies within the data fields we tested, unexplained gaps in incident numbers call into question whether the CAD system records are complete. CAD system incident numbers include a consecutive number sequence that resets at the end of the day. Unexplained gaps occur in 67 of the 556 days we examined. Our detailed review of six of these days found multiple gaps of between one and more than one hundred consecutive incident numbers. While the total number of potentially missing records is a very small percentage of the 1.2 million records we analyzed, we are concerned because the contractor tasked with maintaining the system provided no reasonable explanation for why incident numbers would be skipped, the contractor prevented us from independently reviewing system documentation that could shed light on the problem, and a 2004 consultant's report also found discrepancies in calls for service data.

We identified problems with missing fields and the logic used to create response time reports that could limit their accuracy. The CAD data used to generate the June 2007 reports on response times excluded nearly 20% of 911 calls. The exclusion of these records could result in over- or understating actual response times and therefore limits the usefulness of the reports for making deployment decisions.

Finally, the department's limited system expertise and reliance on the contractor for information about the system restrict its use as a management tool. Department staff told us that they're not sure what the data reports or different fields really mean. Staff told us they rely on relatively few reports that could be used for analysis and to support management decisions. Our review of available reports show none that are focused on how resources are used, such as number of officers on duty, time committed to answering calls for service, or time out of service on particular types of calls.

We recommend the Department of Information Technology direct the contractor to investigate why there are gaps in the incident numbers, determine whether records are missing, identify whether changes are necessary to resolve the problem, and ensure that report programming accurately captures all relevant records. We recommend that the chief of police communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why they are not recorded. Finally, we recommend the Police Department work with the Department of Information Technology to establish in-house expertise on the Police Department's systems in order to make better use of the department's wealth of data.

Data within Records Appear to Be Logically Consistent

We found no significant logical inconsistencies within records. We tested the data fields we considered most relevant to analyzing calls for service, including beat, call taker's ID, dispatcher's ID, the time of the call, the time the call was dispatched, the time the officer arrived, the time the officer cleared, source of the call and disposition. Except for unrecorded arrival times, which we discuss in more detail below, relationships among the data fields were consistent with our observations during ride-alongs with officers and of call-taking and dispatch operations.

Some Incident Records May Be Missing from Data System

We found multiple unexplained gaps in the incident numbers with no logical pattern. These gaps may indicate that incidents are missing from the CAD system and require further investigation.

According to the department's policies, there should not be gaps in the incident numbers. Section 4.2.1 of the APD Standard Operation Procedures (SOP) 6010 Communications states:

"A continuous number series is issued by the Communications Section and used for all calls for service or officer initiated activity.

1. Every Call for service will be assigned a unique number by the Communications Section
2. The number system is designed to ensure that no numbers are omitted and none duplicated"

The department assigns incident numbers using a date and sequential numbers. Based on this numbering system, we would expect gaps in sequential numbers at the change of the day when the date portion resets and between Police Department and airport calls because the airport is assigned a different set of sequential numbers. However, we found numerous other gaps in the numbering. The CAD administrator, Northrop Grumman indicated that gaps could occur when the system becomes unavailable, and later provided a list of dates and times when the CAD system was offline. However, we found 67 days with gaps outside of the dates during which Northrop Grumman reported system interruptions. We identified 37 days with more than one record missing. A sample of six of those days (see Exhibit 2) revealed that gaps occurred multiple times on each day and in some instances indicated a significant number of missing records. We could not identify a systematic pattern that would help explain why the gaps occurred.

Exhibit 2
Sample of Gaps for 6 Days

Date Gaps Occurred	Number of Gaps	Minimum Records missing in a Gap	Maximum Records missing in a gap
6/23/2006	17	1	8
7/16/2006	16	1	55
11/6/2006	48	1	100
2/11/2007	20	1	100
4/12/2007	3	23	78
5/14/2007	7	1	107

Source: Analysis of January 10, 2006 to July 20, 2007 CAD data

We asked Northrop Grumman to provide us system documentation that would help us better understand the CAD database, such as a data table layout, field definitions, and table relationships. These documents are helpful in understanding how the information is structured, what information should be captured in the table fields, and how the tables interact with one another. These are necessary in understanding what should be in the database and how it should work before diagnosing problems. Northrop Grumman should have these documents in order to properly administer the database. Company representatives, however, declined to provide us with this system documentation, stating that the information is proprietary.

These gaps may reflect a loss of records and could affect legal proceedings. The city's chief information officer should direct

Northrop Grumman to investigate why there are gaps in incident numbers, determine whether records are missing, and if so, determine whether system or operating changes are necessary to resolve the problem.

Response Time Reports Exclude Valid Calls

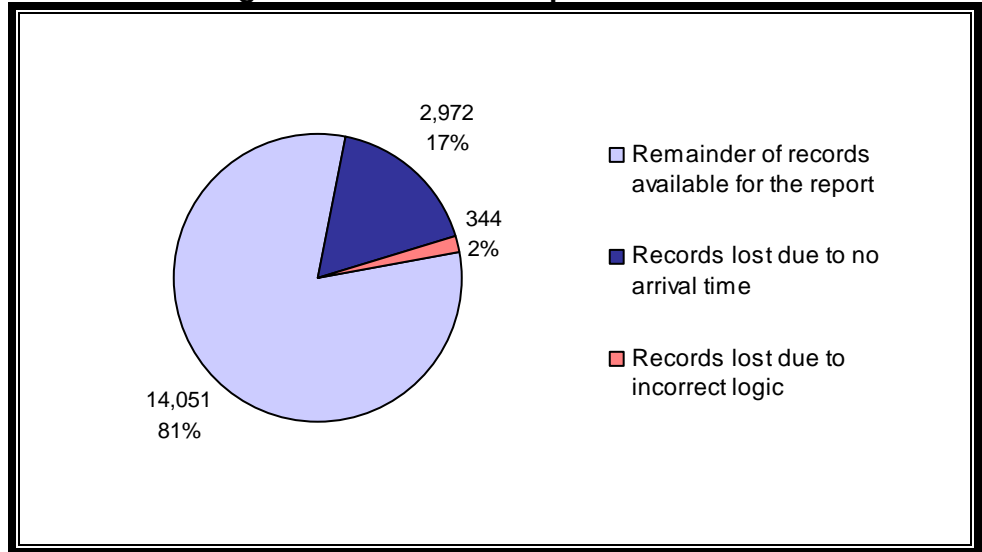
Some Police Department reports used for oversight and managerial decisions do not include all valid incidents. Valid incidents are excluded from response time calculations when officer arrival times are not captured in the CAD database. Also, programming logic that fails to account for the changeover from one day to the next – incidents that span midnight – excludes more valid calls from calculations. Altogether, about 20% of valid incidents were excluded from the response time reports we reviewed for June 2007. About one percent of valid incidents were excluded from the dispatch delay report.

Missing arrival times dropped 17% of calls from response time calculations. The department's Response Time and Dispatch Delay reports we reviewed for June 2007 did not include all valid calls. Key time markers – arrival times and dispatch times – for the types of calls that are supposed to be included in these reports were left blank. It appears that police officers are always not providing arrival times to dispatchers and dispatchers are not always recording dispatched times for 911 calls. Nearly 3,000 calls (17%) were excluded from the June 2007 911 response times reports because no arrival times were recorded. (See Exhibit 3 on the next page). About 200 calls (1%) were also excluded from the June 2007 911 Dispatch Delay report due to missing dispatch times. Overall, about 26% of otherwise valid calls from January 10, 2006, to July 20, 2007, were missing arrival times and about 9% were missing dispatch times.

Faulty programming dropped another 2% of calls. We examined the logic used to create response time and dispatch delay reports and found that the programming excludes calls for service that span midnight. For example, a 911 call received at 11:55 p.m. where an officer arrives at 12:03 a.m. the following day is excluded from the response time report. The program calculates response times as the difference between arrival times and when the system received the call. Since the time fields do not indicate the date, this approach yields a negative number when a call spans midnight. In the June 2007 response time report, this programming excluded 344

(2%) valid calls. This is a simple programming error that can easily be corrected.

Exhibit 3
Changes in June 2007 Response Records



Source: Review of report logic and June 2007 CAD data

Math errors in the report overstate response times. The Average Response Time report calculates average response times by priority for each beat and each zone (see Appendix 1 for the June 2007 report). The report uses the average beat *response* times to calculate the average zone response time without adjusting for differences in the number of calls answered. This incorrect method resulted in overstating priority 2 and 3 average response times in June 2007 by 1 minute, and priority 3 calls in zone 5 by 8 minutes. Because average response times are reported in whole minutes, slight time differences can compound over thousands of calls. The report also groups some beats in zones where they do not belong.

Data omissions and faulty logic can overstate or understate response times. Police Department management runs the risk of failing to act or making management decisions based on inaccurate data. The chief of police should communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why they are not recorded. The city's chief information officer should direct Northrop Grumman to correct report programming errors and ensure that report programming accurately captures all relevant records.

City Staff Knows Little About CAD System, Relies on Contractor

The city has little in-house expertise on its CAD system. Police Department management relies on reports produced by the contractor, and in some cases does not understand how the reports are created or whether the results answer their questions. Furthermore, the reports produced appear limited in their usefulness. None, for example, focus on how resources are used. And reports on average response time and average dispatch delay can oversimplify information, potentially masking problems or making problems seem more widespread than they really are. Developing more in-house system expertise could help the department better use the information it collects to support decision-making. We provide some examples of different types of response time reporting that could be useful to the department.

Users unsure what reports really mean. Since the CAD administrators did not provide us with system documentation, we talked to users within the department in an attempt to better understand the system. However, users did not have a complete understanding of the CAD system, nor the reports created with the data from the system. The head of the Crime Analysis Unit was able to clarify some of the field definitions in the database, but did not know them all. The head of the Planning and Accreditation Unit, who uses CAD data to help with staff reallocations, was not sure how to identify duplicate calls, which could overstate staffing needs, within the database. Furthermore, he said he didn't know how the reports were created. Also, staff in the Communications Unit told us that they were uncertain whether the reports they requested from the contractor were measuring the correct things. The Police Department should work with the Department of Information Technology to develop expertise within the city on the use of the CAD data. In-house expertise will not only reduce the dependence on the contractor, but also increase understanding of the data within the system and what type of reports could be obtained.

Reports could capture valuable information on response time and use of resources. The Police Department collects a wealth of data in its CAD system, but the reports management staff told us they rely on, and the list of available reports, seem limited. None of the reports are focused on how resources are used, such as the number of officers on duty at different times of day, time committed to

answering calls for service, or time out of service on particular types of calls. This information could be useful to the department for allocating staff or evaluating alternative strategies for call-handling. The main reports the department uses as performance and allocation indicators measure averages. Average calculations, while useful, may not always present the best picture for interpreting performance measures and supporting officer allocation decisions.

Averages can mask problems or make them seem more widespread than they are. The department's monthly response time report shows average response times for each beat within the zones (see Appendix A for an example report from June 2007). While the report could be useful for zone commanders making adjustments at the beat level, it may not support higher management decisions. Averages provide one data point to describe a distribution and allow quick comparisons. A few very long or very short response times – called outliers – can raise or lower the average such that it isn't a very good representation of most calls. Reports that show the percentage of response times occurring within a given time frame can be useful when comparing across zones and for supporting allocation decisions. We provide examples of these types of reports in Exhibits 4 and 5.

Exhibit 4 on the next page shows the percentage of priority 2 calls in June 2007 for each zone answered within specific time periods. Police Department standard operating procedures say that priority 2 calls require an immediate response and the first available unit from the affected zone should be dispatched. While the overall average response time for priority 2 calls was 13 minutes in June 2007, nearly 60% were responded to in 10 minutes or less. In zones 1, 4 and 6, 20% or more of the priority 2 calls were answered in 5 minutes or less. Response times were longer in Zone 2 than in the other zones; only 9% were answered in 5 minutes or less and 10% of the responses were 30 minutes or more.

Similarly, Exhibit 5 shows the number of priority 3 calls across the zones and the distribution of these responses meeting different time thresholds. Standard operating procedures say that priority 3 calls should be answered within 20 minutes. This report shows that while the overall average response time for priority 3 calls in June 2007 was 28 minutes, more than half of the calls were answered within 20 minutes and about 63% were answered within 25 minutes. The department's report shows an incorrect average response time

for priority 3 calls in zone 5 of 38 minutes. Correctly calculated based on the number of calls, the average response time was 30 minutes. This value is still higher than in the other zones, although the percentage of calls answered within 20 minutes was higher than in zone 2, which had an average response time of 29 minutes.

Exhibit 4
Response Time for Priority 2 Calls by Zone

Minutes	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	All Zones
	515 calls	187 calls	389 calls	496 calls	390 calls	273 calls	2,250 calls
5 or less	20.4%	9.1%	16.2%	22.6%	17.9%	20.1%	18.5%
10 or less	59.6%	43.9%	55.8%	62.9%	58.2%	62.3%	58.2%
15 or less	81.6%	65.8%	74.3%	82.5%	74.1%	78.8%	77.3%
20 or less	89.3%	76.5%	83.8%	89.5%	83.8%	87.9%	86.0%
25 or less	92.0%	84.0%	89.5%	93.1%	89.0%	92.7%	90.4%
30 or less	94.6%	89.8%	92.3%	96.2%	94.1%	96.0%	94.0%
Over 30	5.4%	10.2%	7.7%	3.8%	5.9%	4.0%	6.0%
Reported Average	12	17	14	11	13	11	13

Source: Analysis of June 2007 CAD data and APD report, Average Caller's Response Time by Priority – Zone – Beat, June 1-June 30, 2007

Exhibit 5
Response Time for Priority 3 Calls by Zone

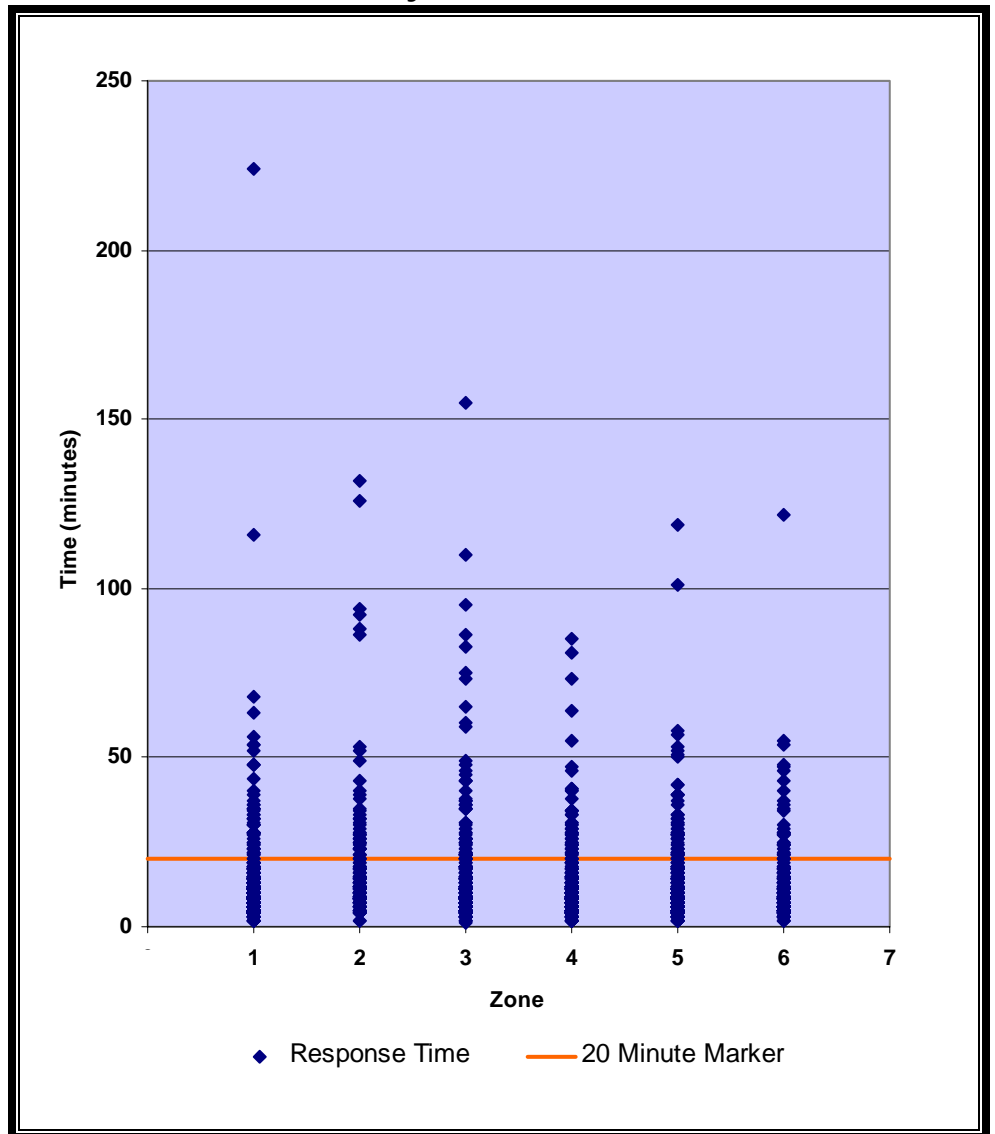
Minutes	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	All Zones
	2,429 calls	1,494 calls	1,936 calls	2,306 calls	2,335 calls	1,635 calls	12,135 calls
5 or less	6.2%	4.2%	5.0%	5.0%	4.4%	5.4%	5.0%
10 or less	27.0%	19.3%	22.0%	23.4%	20.5%	24.9%	23.0%
15 or less	45.1%	36.3%	37.8%	41.2%	36.9%	45.4%	40.5%
20 or less	57.9%	47.5%	51.3%	55.7%	50.3%	58.4%	53.7%
25 or less	67.4%	57.8%	60.8%	65.5%	59.4%	68.6%	63.4%
30 or less	74.0%	64.7%	68.8%	73.1%	67.2%	75.9%	70.8%
35 or less	79.0%	71.0%	75.5%	77.6%	72.5%	81.4%	76.2%
40 or less	83.6%	76.9%	80.1%	81.5%	77.5%	85.0%	80.8%
45 or less	86.5%	81.0%	83.8%	84.4%	80.7%	88.3%	84.1%
50 or less	89.1%	83.6%	86.5%	87.1%	84.7%	91.5%	87.0%
60 or less	93.1%	89.2%	90.8%	91.2%	88.4%	94.5%	91.1%
Over 60	6.9%	10.8%	9.2%	8.8%	11.6%	5.5%	8.9%
Reported Average	24	29	28	25	38	24	28

Source: Analysis of June 2007 CAD data and APD report, Average Caller's Response Time by Priority – Zone – Beat, June 1-June 30, 2007

Notes: Blue text indicates the percentage of calls that occurred within the established performance measure. The department's report incorrectly calculated the average response time for zone 5 and overall. Based on the number of calls, the zone 5 average response time should be 30 minutes and the overall average response time should be 27 minutes.

Outliers can indicate an area to be researched. Extreme values, or outliers, can be identified using a call distribution chart. This information can pinpoint calls that occur above a specific time and compare occurrences across zones. Exhibit 6 shows a distribution of call time for priority 2 calls across all zones for the month of June 2007. From this chart, Zone 4 is the only zone with all calls for service being answered within 100 minutes. Zone 1 had one priority call with a response time greater than 200 minutes.

**Exhibit 6
Priority 2 Call Distribution**



Source: Analysis of June 2007 CAD Data

Recommendations

Our recommendations are intended to increase the usability of the CAD data for the department.

1. The chief information officer should direct Northrop Grumman to investigate why there are gaps in incident numbers, determine whether records are missing, and if so, whether system or operating changes are necessary to resolve the problem.
2. The chief information officer should direct Northrop Grumman to correct report programming errors and ensure that report programming accurately captures all relevant records.
3. The chief of police should communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why officer arrival times are not recorded.
4. The chief of police and chief information officer should work together to strengthen in-house expertise on their systems.

Appendices

**APPENDIX A
Departmental Response Time Report**



***Average Caller's Response
Time By Priority - Zone - Beat***

(average time between E911 Call Time and Arrival Time)

Friday, June 01, 2007 - Saturday, June 30, 2007

Year	Month	Priority	Zone	Beat	Number of Records	Average Group Name	Avg. Caller Resp. Time (minutes)
2007	June	0	04	405	1	Beat Avg.	7
2007	June	0	04	408	1	Beat Avg.	7
						Zone Avg.	7
						Priority Avg.	7
2007	June	1	03	301	1	Beat Avg.	12
2007	June	1	03	302	1	Beat Avg.	21
2007	June	1	03	309	1	Beat Avg.	3
2007	June	1	03	310	1	Beat Avg.	17
						Zone Avg.	13
2007	June	1	04	401	1	Beat Avg.	3
2007	June	1	04	407	2	Beat Avg.	6
						Zone Avg.	4
2007	June	1	05	507	1	Beat Avg.	11
						Zone Avg.	11
2007	June	1	06	602	1	Beat Avg.	7
2007	June	1	06	603	1	Beat Avg.	8
						Zone Avg.	8
						Priority Avg.	10
2007	June	2	01	101	25	Beat Avg.	11
2007	June	2	01	102	52	Beat Avg.	10
2007	June	2	01	103	44	Beat Avg.	15
2007	June	2	01	104	43	Beat Avg.	13
2007	June	2	01	105	42	Beat Avg.	16

2007	June	2	01	106	58	Beat Avg.	9
2007	June	2	01	107	48	Beat Avg.	12
2007	June	2	01	108	41	Beat Avg.	11
2007	June	2	01	109	34	Beat Avg.	11
2007	June	2	01	110	44	Beat Avg.	15
2007	June	2	01	111	64	Beat Avg.	9
						Zone Avg.	12
2007	June	2	02	201	14	Beat Avg.	20
2007	June	2	02	202	11	Beat Avg.	15
2007	June	2	02	203	32	Beat Avg.	20
2007	June	2	02	204	20	Beat Avg.	16
2007	June	2	02	205	11	Beat Avg.	25
2007	June	2	02	206	21	Beat Avg.	15
2007	June	2	02	207	22	Beat Avg.	10
2007	June	2	02	208	17	Beat Avg.	12
2007	June	2	02	209	20	Beat Avg.	15
2007	June	2	02	210	14	Beat Avg.	24
						Zone Avg.	17
2007	June	2	03	301	40	Beat Avg.	18
2007	June	2	03	302	43	Beat Avg.	15
2007	June	2	03	303	62	Beat Avg.	11
2007	June	2	03	304	20	Beat Avg.	11
2007	June	2	03	305	32	Beat Avg.	12
2007	June	2	03	306	41	Beat Avg.	13
2007	June	2	03	307	41	Beat Avg.	11
2007	June	2	03	308	32	Beat Avg.	11
2007	June	2	03	309	32	Beat Avg.	19
2007	June	2	03	310	27	Beat Avg.	21
						Zone Avg.	14
2007	June	2	04	401	44	Beat Avg.	9
2007	June	2	04	402	34	Beat Avg.	9
2007	June	2	04	403	50	Beat Avg.	8
2007	June	2	04	404	19	Beat Avg.	8
2007	June	2	04	405	35	Beat Avg.	11
2007	June	2	04	406	29	Beat Avg.	11
2007	June	2	04	407	23	Beat Avg.	12
2007	June	2	04	408	59	Beat Avg.	11

2007	June	2	04	409	21	Beat Avg.	14
2007	June	2	04	410	16	Beat Avg.	14
2007	June	2	04	411	24	Beat Avg.	12
2007	June	2	04	412	69	Beat Avg.	12
2007	June	2	04	413	53	Beat Avg.	13
						Zone Avg.	11
2007	June	2	05	501	39	Beat Avg.	18
2007	June	2	05	502	33	Beat Avg.	13
2007	June	2	05	503	26	Beat Avg.	10
2007	June	2	05	504	11	Beat Avg.	19
2007	June	2	05	505	37	Beat Avg.	10
2007	June	2	05	506	41	Beat Avg.	13
2007	June	2	05	507	29	Beat Avg.	9
2007	June	2	05	508	46	Beat Avg.	13
2007	June	2	05	509	28	Beat Avg.	14
2007	June	2	05	510	66	Beat Avg.	11
2007	June	2	05	511	22	Beat Avg.	11
						Zone Avg.	13
2007	June	2	06	601	7	Beat Avg.	11
2007	June	2	06	602	37	Beat Avg.	13
2007	June	2	06	603	18	Beat Avg.	11
2007	June	2	06	604	29	Beat Avg.	11
2007	June	2	06	605	8	Beat Avg.	7
2007	June	2	06	606	20	Beat Avg.	8
2007	June	2	06	607	39	Beat Avg.	9
2007	June	2	06	608	21	Beat Avg.	7
2007	June	2	06	609	39	Beat Avg.	14
2007	June	2	06	610	13	Beat Avg.	9
2007	June	2	06	611	33	Beat Avg.	17
						Zone Avg.	11
						Priority Avg.	13
2007	June	3	01	101	169	Beat Avg.	22
2007	June	3	01	102	249	Beat Avg.	20
2007	June	3	01	103	180	Beat Avg.	25
2007	June	3	01	104	210	Beat Avg.	25
2007	June	3	01	105	259	Beat Avg.	23
2007	June	3	01	106	219	Beat Avg.	25

2007	June	3	01	107	205	Beat Avg.	25
2007	June	3	01	108	267	Beat Avg.	26
2007	June	3	01	109	135	Beat Avg.	29
2007	June	3	01	110	195	Beat Avg.	28
2007	June	3	01	111	247	Beat Avg.	20
						Zone Avg.	24
2007	June	3	02	201	58	Beat Avg.	32
2007	June	3	02	202	96	Beat Avg.	31
2007	June	3	02	203	173	Beat Avg.	30
2007	June	3	02	204	243	Beat Avg.	33
2007	June	3	02	205	130	Beat Avg.	27
2007	June	3	02	206	210	Beat Avg.	29
2007	June	3	02	207	130	Beat Avg.	32
2007	June	3	02	208	122	Beat Avg.	26
2007	June	3	02	209	166	Beat Avg.	28
2007	June	3	02	210	108	Beat Avg.	31
2007	June	3	02	501	1	Beat Avg.	22
						Zone Avg.	29
2007	June	3	03	301	183	Beat Avg.	24
2007	June	3	03	302	218	Beat Avg.	27
2007	June	3	03	303	270	Beat Avg.	26
2007	June	3	03	304	159	Beat Avg.	26
2007	June	3	03	305	175	Beat Avg.	30
2007	June	3	03	306	185	Beat Avg.	28
2007	June	3	03	307	208	Beat Avg.	26
2007	June	3	03	308	114	Beat Avg.	31
2007	June	3	03	309	222	Beat Avg.	28
2007	June	3	03	310	127	Beat Avg.	34
						Zone Avg.	28
2007	June	3	04	401	183	Beat Avg.	25
2007	June	3	04	402	149	Beat Avg.	26
2007	June	3	04	403	221	Beat Avg.	25
2007	June	3	04	404	98	Beat Avg.	22
2007	June	3	04	405	171	Beat Avg.	21
2007	June	3	04	406	125	Beat Avg.	24
2007	June	3	04	407	136	Beat Avg.	24
2007	June	3	04	408	241	Beat Avg.	25

2007	June	3	04	409	136	Beat Avg.	26
2007	June	3	04	410	149	Beat Avg.	28
2007	June	3	04	411	173	Beat Avg.	26
2007	June	3	04	412	197	Beat Avg.	24
2007	June	3	04	413	231	Beat Avg.	30
						Zone Avg.	25
2007	June	3	05	107	1	Beat Avg.	115
2007	June	3	05	501	238	Beat Avg.	33
2007	June	3	05	502	204	Beat Avg.	34
2007	June	3	05	503	191	Beat Avg.	30
2007	June	3	05	504	86	Beat Avg.	37
2007	June	3	05	505	192	Beat Avg.	28
2007	June	3	05	506	246	Beat Avg.	31
2007	June	3	05	507	189	Beat Avg.	27
2007	June	3	05	508	263	Beat Avg.	31
2007	June	3	05	509	168	Beat Avg.	27
2007	June	3	05	510	338	Beat Avg.	27
2007	June	3	05	511	139	Beat Avg.	32
						Zone Avg.	38
2007	June	3	06	601	87	Beat Avg.	22
2007	June	3	06	602	189	Beat Avg.	26
2007	June	3	06	603	151	Beat Avg.	22
2007	June	3	06	604	179	Beat Avg.	22
2007	June	3	06	605	79	Beat Avg.	23
2007	June	3	06	606	76	Beat Avg.	28
2007	June	3	06	607	197	Beat Avg.	20
2007	June	3	06	608	132	Beat Avg.	25
2007	June	3	06	609	210	Beat Avg.	23
2007	June	3	06	610	102	Beat Avg.	22
2007	June	3	06	611	167	Beat Avg.	27
						Zone Avg.	24
						Priority Avg.	28
						Month Avg.	20
						Year Avg.	20
Total # of Recs				13844			
						Report Avg.	20

Appendix B
Atlanta Police Department's Review and Response to Audit Recommendations

Report # 07.04.a	Report Title: Police Staffing - Police Computer Aided Dispatch Data Reliability	Date: 02/27/08
Recommendation Responses		
Rec. # 1	The chief information officer should direct Northrop Grumman to investigate why there are gaps in incident numbers, determine whether records are missing, and if so, whether system or operating changes are necessary to resolve the problem.	Agree
<p style="margin-left: 40px;">Proposed Action: Determine which program platform is causing the gaps for incident numbers. Re-accomplish a series of 5 snap shots to determine if the problem has continued. If so, Northrop Grumman corrects the problem at no cost to the City of Atlanta.</p> <p style="margin-left: 40px;">Implementation Timeframe: 3/17/08 to 3/20/08 for extraction of information and correct by 3/31/08</p> <p style="margin-left: 40px;">Comments: Both E-911 Director and Information Services Major review each section and determine the effect of the snap shot on each section.</p> <p style="margin-left: 40px;">Responsible Person: CIO of DIT and E-911 Director</p>		
Rec. # 2	The chief information officer should direct Northrop Grumman to correct report programming errors and ensure that report programming accurately captures all relevant records.	Agree
<p style="margin-left: 40px;">Proposed Action: Northrop Grumman corrects the problem.</p> <p style="margin-left: 40px;">Implementation Timeframe: 3/21/08 to 3/31/08</p> <p style="margin-left: 40px;">Comments: Random extraction of reports should be accomplished weekly and monthly to ensure the situation has been corrected. Program should be modified to ensure all information for reports are captured.</p> <p style="margin-left: 40px;">Responsible Person: CIO of DIT and E-911 Director</p>		
Rec. # 3	The chief of police should communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why officer arrival times are not recorded.	Agree
<p style="margin-left: 40px;">Proposed Action: Modify the functions within the CAD to ensure dispatchers check on Officers if they have not arrived within 10 minutes. Officers should be briefed on the important of advising dispatch when they arrive on scene.</p> <p style="margin-left: 40px;">Implementation Timeframe: ASAP</p> <p style="margin-left: 40px;">Comments:</p> <p style="margin-left: 40px;">Responsible Person: APD Deputy Chiefs and E-911 Director</p>		
Rec. # 4	The chief of police and chief information officer should work together to strengthen in-house expertise on their systems.	Agree
<p style="margin-left: 40px;">Proposed Action: Develop an Information Technology section with in the E-911 Communications Center. Have direct contact with, and support through PSSI. Discontinue the need to communicate with PSSI through Northrop Grumman.</p> <p style="margin-left: 40px;">Implementation Timeframe: ASAP</p> <p style="margin-left: 40px;">Comments:</p> <p style="margin-left: 40px;">Responsible Person: E-911 Director and CIO of DIT</p>		

Appendix C
Information Technology's Review and Response to Audit Recommendations

Report # 07.04.a	Report Title: Police Staffing - Police Computer Aided Dispatch Data Reliability	Date: 02/27/08
Recommendation Responses		
Rec. # 1	The chief information officer should direct Northrop Grumman to investigate why there are gaps in incident numbers, determine whether records are missing, and if so, whether system or operating changes are necessary to resolve the problem.	Agree
<p><u>Proposed Action:</u> I already requested this information from the vendor and will assess whether system changes are necessary.</p> <p><u>Implementation Timeframe:</u></p> <p><u>Comments:</u> In the long term, it may be more cost effective to procure a new, fully integrated CAD system that can be owned and supported by the city and meet the requirements of the APD and other city public safety agencies.</p> <p><u>Responsible Person:</u> Mark Campbell</p>		
Rec. # 2	The chief information officer should direct Northrop Grumman to correct report programming errors and ensure that report programming accurately captures all relevant records.	Agree
<p><u>Proposed Action:</u> The vendor will be contacted and this issue addressed.</p> <p><u>Implementation Timeframe:</u> March 31, 2008</p> <p><u>Comments:</u></p> <p><u>Responsible Person:</u> Mark Campbell</p>		
Rec. # 3	The chief of police should communicate to officers and dispatchers the importance of recording officer arrival times on 911 calls for service and monitor when and why officer arrival times are not recorded.	
<p><u>Proposed Action:</u></p> <p><u>Implementation Timeframe:</u></p> <p><u>Comments:</u></p> <p><u>Responsible Person:</u></p>		
Rec. # 4	The chief of police and chief information officer should work together to strengthen in-house expertise on their systems.	Agree
<p><u>Proposed Action:</u></p> <p><u>Implementation Timeframe:</u></p> <p><u>Comments:</u></p> <p><u>Responsible Person:</u></p>		

