

OFFICE OF THE CITY AUDITOR

PERFORMANCE AUDIT OF THE CITIZEN REQUEST MANAGEMENT SYSTEM



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Memorandum



CITY OF DALLAS

August 13, 2004

Honorable Mayor and Members of the City Council
City of Dallas

We have conducted a performance audit of the Citizen Request Management System (CRMS).

We have concluded that CRMS provides department managers with timely and accurate information to monitor services provided by City personnel. However, we concluded that the overall goal of consolidating all service request calls into one system was not achieved; DWU has been charged for indirect costs associated with processing customer service requests; and staff reductions in City departments have limited the ability to respond to citizens.

We appreciate the cooperation of City staff during our examination.

Thomas M. Taylor

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c: Mary K. Suhm, Interim City Manager

**PERFORMANCE AUDIT OF THE CITIZEN REQUEST MANAGEMENT
SYSTEM**

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INTRODUCTION

Authorization

We have conducted a performance audit of the Citizen Request Management System (CRMS) implementation. This audit was conducted under the authority of Chapter IX, Section 2 of the Dallas City Charter and in accordance with the annual Audit Plan approved by the City Council.

Scope and Methodology

Our audit was performed in accordance with generally accepted government auditing standards and, accordingly, included tests of the accounting records and other audit procedures that we considered necessary in the circumstances. Our audit reviewed the period from June 27, 2001, through November 30, 2003.

The objectives of our audit were to determine whether:

- The CRMS provides department managers with timely and accurate information to monitor the services provided by department personnel.
- The City received all equipment, software, and professional services promised in the CRMS contract with Motorola.
- The support provided by Motorola is sufficient to maintain the CRMS.
- The CRMS, as currently implemented, provides optimal support for City staff to identify citizen concerns and respond to them quickly and effectively.

To achieve our objectives, we:

- Reviewed the documents related to the procurement of the CRMS, including the Request for Competitive Sealed Proposals, the Best and Final Offer from Motorola, and the final executed contract for the purchase and installation of the CRMS.
- Identified all the payments for the CRMS and verified them with the supporting payment vouchers. We examined those vouchers to determine whether the receipt of the deliverable was confirmed and that payment was properly authorized.
- Identified all change orders or revisions to the purchase contract and tested those changes for proper authorization.
- Interviewed various City staff about the installation of the CRMS and the implementation of service level agreements and service requests in the various City departments.
- Reviewed the installation of similar customer management systems in other cities.

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We were not able to fully test the use of the CRMS within the major City departments due to time constraints and thus, we could not perform the last objective. We feel that this objective should be addressed in future audits.

Overall Conclusion

As a result of our analysis and tests, we conclude that:

- The CRMS provides department managers with timely and accurate information to monitor the services provided by department personnel.
- The City received all equipment, software, and professional services promised in the CRMS contract.
- The support provided by Motorola is sufficient to maintain the CRMS.
- Consolidating all service request calls into one system was not achieved. The City did not receive adequate value for the interface between CRMS and the Dallas Water Utilities Customer Information Accounting and Billing System (CIABS).
- DWU has been charged for indirect costs associated with processing customer service requests.
- Staff cuts over the last two years have reduced the capability to respond to citizens concerns and, at the same time, the 311 service has made it more convenient for citizens to request those services.

Our concerns are discussed in the Opportunities for Improvement section of this report.

Management Response:

We concur and support the first three overall conclusions of your analysis and tests. The City gained new efficiencies in its data management through the introduction of the CRMS centralized database, which has improved the effectiveness of information gathering and dissemination. Further, Motorola has been a steadfast partner to the City throughout the implementation and continued operation of the CRMS, and supported both the letter and the spirit of the contract in the delivery of equipment, software, professional services and support to the City.

Background

The Citizen Request Management System was purchased as part of the City's strategic information plan. That plan was developed following a technology needs assessment of the City performed by IBM Global Services in 1998. IBM called for the use of several new technologies to lower cost and improve productivity. Those technologies included the Internet, a City intranet, an

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interactive voice response system, geographic information systems, and wireless communications.

Arthur Andersen performed a Performance Measurement Study of the City in June 2000. That study led to two specific recommendations that established the need for the CRMS. The first recommendation was that the City should “develop web-based programs to allow departmental and citizen access to City information via the Internet.” The second one suggested that the City “link existing service request systems into one comprehensive data warehouse to reduce duplication and facilitate responses to citizen requests,” which led to a decision to explore options for a merged service request system.

The City formed a project team to examine this issue and commissioned Arthur Andersen to perform a more detailed study of such a system. The objective of the study was to “develop a conceptual model of the City’s end-to-end citizen request management process (CRMP) that is focused on providing consistent, high level quality of service across all departments, and decreasing costs to deliver services.” The study made the following recommendations:

- Consolidate systems for entering and tracking requests for city services
- Establish service level agreements for all requests for city services
- Transfer routine, information-only requests to an interactive voice response system
- Implement use of mobile data equipment
- Provide real time access to requested information
- Determine citizen/customer service strategy
- Establish end-to-end request for City services processes and reduce dependence on manual processes
- Adjust call center staffing forecasting
- Define roles and responsibilities for Call Center and department personnel involved in end-to-end process
- Incorporate performance measurements in Call Center and downstream user departments
- Evaluate data for continuous improvement
- Create a system to reward employees for superior performance

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The project team studied different options for CRMS, and they also studied possible vendors. They drafted an RFCSP and examined the resulting bids. They recommended Motorola as the best choice and the City Council approved the Motorola bid in June 2001. The project team examined a similar Motorola installation in Chicago while the final contract was being negotiated. During the procurement process, Arthur Andersen worked with City staff in major 311 service departments to map their business processes and develop their service level agreements before the contract was signed with Motorola. The Call Center staff helped the remaining City departments map their processes and develop their service level agreements.

Implementation began in July 2001 and City staff worked with Motorola staff to enter the business processes and service level agreements, as well as test them for proper operation. The system was initiated into service in January 2002, and final acceptance occurred in June 2002.

Additional comments on events which occurred after the audit was completed.

On April 19, 2004, the City Manager appointed Ms. Pamela Mickens as the City Manager's Office Customer Service Liaison. She was given oversight responsibility for the City's customer service enterprise system, 3-1-1/CRMS. Her responsibilities included the following:

- Develop city-wide action plans to improve the organizational structure of 3-1-1/CRMS to make it more responsive to the needs of its customers
- Identify strategies to improve external communication with 3-1-1/CRMS customers
- Identify problem resolution strategies
- Prepare executive reports that measure performance in City service delivery
- Assess training needs and resources available for 3-1-1/CRMS users
- Develop city-wide administrative directives to govern CRMS policies and procedures

We support this step to more fully utilize the performance data currently available in the CRMS and to create a more unified city-wide policy for improving customer service to Dallas citizens.

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We identified certain policies, practices, and procedures that should be improved. Our audit was not designed or intended to be a detailed study of every relevant system, procedure or transaction. Accordingly, the opportunities for improvement presented in this report may not be inclusive of where improvement may be needed.

1. The main objective of consolidating all service request calls into one system was not achieved.

The purpose of CRMS was to:

- create a central database for requests for service and customer service history,
- enhance call handling/call management capabilities,
- provide department management with reporting and monitoring tools, and
- enhance and improve the effectiveness and efficiency of services within the department.

The contract to develop CRMS required Motorola to provide interfaces between the CRMS and four City legacy computer systems. The interfaces with three of those systems, tax, building inspections, and courts systems, were accepted and are functioning properly. The CIABS interface was eventually developed, but was not accepted by DWU, due to excessive delays in queries to CIABS. As a result, the 311 Call Center must still use two separate systems: CRMS and CIABS. This requires separate monitoring, maintenance, training, and updating the two different service request systems. Also, the service response statistics produced by the separate systems must be maintained in separate databases.

Motorola proposed an alternative to the contracted CIABS interface. Motorola would perform additional programming work to improve the response time. The cost of the additional work was estimated at \$300,000, but there was no guarantee that the additional work would improve the response time. City management made the determination to not perform the additional work. Instead, management indicated that the City of Dallas would focus on developing a successor to CIABS that will provide better options for interfacing with CRMS.

The effect of CIABS not being integrated into the CRMS is discussed below.

- A. Two out of five service calls coming into the call center are CIABS related phone calls (water issues) not handled by the CRMS.

For a one year period, 2002-2003, customer service calls amounted to 1,394,909. These calls are from citizens for non-emergency services and

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were received through two systems. One system is the 311 non-emergency telephone line. Additionally, customers requesting information on water accounts or services dial telephone number 214-651-1441. The table below notes the percentage of calls received from each respective system.

Telephone Number	# of Calls	% of Total
Customer Service Calls to 311	850,412 *	61
Customer Service Calls to Water	544,497 *	39
Totals	1,394,909 *	100

* For one year period for Fiscal Year Ending 9/30/03

The objective of the 311 center is to try to resolve call-in issues with the customer. When this can not be done, the call taker initiates a service request to the appropriate department for follow-up action. Listed below are the numbers of customer service calls that became service requests (cases) for each respective system in 2002-2003.

System	# of Cases	% of Total
Customer Service Requests Using CRMS	353,670 *	81
Customer Service Requests Using the CIABS Water System	81,014 *	19
Totals	434,684 *	100

* For one year period for Fiscal Year Ending 9/30/03

- B. Since the CIABS-CRMS interface does not meet the business need, the City of Dallas did not receive adequate value.

The City of Dallas paid Motorola \$383,347 for the CIABS interface. Interviews with the project manager, DWU implementation staff, and the CIS project manager, revealed that the CIABS interface met all of the technical requirements in the contract, but the response time failed to meet the business requirements. Seven seconds or less was the estimate developed by the DWU team on what the maximum allowable time for retrieving customer account data from the CIABS system. None of the 18

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tests performed achieved that goal. Based upon those tests, the DWU team recommended that DWU retain the existing interface to the CIABS system rather than the interface developed by Motorola.

In the contract with Motorola, the acceptance test plan indicated that the CIABS' on-line account lookup should demonstrate that the CIABS interface software has a "real time" interface of water account data related to service issues with a customer. However, the acceptance test plan documents that were approved by the City of Dallas, does not mention "real time" as a measurement of response time with the interface.

The TechEncyclopedia defines real time as "An immediate response....it also refers to fast transaction processing systems as well as any electronic operation fast enough to deliver the original signal without any delay."

Since the contract between Motorola and the City of Dallas did not include a formal definition of the term "real time" or specific performance requirements, the performance of legacy interfaces, such as CIABS, could not be objectively measured to verify contract compliance. This allowed Motorola to claim payment for the completed interface although that interface did not satisfy its business purpose.

The lack of an adequate assessment of business needs prior to the development and awarding of information systems contracts is continuing to negatively affect systems. Examples where this condition has existed in previous system deployments include the Human Resource Information System and the Voice over IP System.

We Recommend the City Manager require that:

- A. All future contracts for goods and/or services must have clear and concise measures of performance stated so that the risk of payment for non-performance is shifted to the vendor. These measures need to accurately reflect business needs.
- B. Communication and Information Services (CIS) review the possibility of developing a useful interface with CIABS. If this development cannot be reasonably accomplished, then the future replacement system for CIABS should address integration with CRMS.

Management's Response:

The City's original intent in the contract with Motorola was to develop an interface between the CRMS and CIABS such that the Call Center could use CRMS and retrieve general account information from CIABS, as well as create and manage

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work orders through CRMS. The interface was to keep both systems updated in an automated fashion with appropriate information so that it would only have to be entered once. It was not ever our intent to terminate use of CIABS with this interface, and we fully planned for CIABS to continue to manage customer billing and maintain history of customer account billing and other activity on the account. Both the CRMS and CIABS would have continued to be maintained and utilized in our customer response management processes, even if the interface had successfully met the business needs of the call center operations.

We have recognized issues arising from the use of non-measurable terms, such as "real-time," in proposals and contracts and have taken voluntary steps to include more specific requirements in proposals since the CRMS contract. Specific examples that include this provision are the land management proposal of March 2003 and the proposal for computer-aided dispatching. The land management RFP required respondents to include expected response times, thus allowing the selection committee the latitude of matching the business objective against each respondents' answers for acceptability. Further, the subsequent contract with the vendor for the land management system included quantifiable response times. Additional steps are being recommended to include guidelines for terms dealing with response time within appropriate Administrative Directives.

Dallas Water Utilities (DWU) and Communication & Information Services (CIS) have worked closely to address issues of interfacing the CIABS with other systems for several years. In the summer of 2000, following an internal, year-and-a-half Y2K compliance effort by CIS and funded by DWU and which saved an estimated \$1.5M in consultant costs, DWU management recognized CIABS lacked business functionality and could not easily interface with current mainframe systems, much less the new server-based systems, such as CRMS.

In the summer of 2002, DWU and CIS began to jointly explore the feasibility of re-writing CIABS. CIS estimated a \$5M cost for external consulting and programming services to reformat the database and make interfacing easier in early 2003, but DWU elected to consider more options through a consultant's services.

CIS has continued to seek cost-effective methods to interface CIABS to other systems. In December 2002, Novell was invited to demonstrate an interface product between disparate systems. However, following a meeting in January 2003 with CIS to review the requisite specifications, Novell did not respond with a solution.

DWU has presented several briefings on this issue, the earliest to the Privatization committee in June 2003. In March 2004, the Finance & Audit

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committee was briefed on planning for the procurement of a new utility management and billing solution.

The Public Safety committee was also advised at its meeting on April 19, 2004. The City will seek maximum integration with the CRMS and an enhanced Interactive Voice Response (IVR) system, for which proposals are presently under consideration and will accept bill payments by telephone.

It is anticipated that a Request for Competitive, Sealed Proposals (RFCSP) for consultant services for a water utility management solution will be issued in 2005 and implemented in 2007. The \$18M estimated cost for the solution is budgeted in FY 03-04 funds and the upcoming FY 04-05 proposed budget.

2. Processing customer service requests has cost DWU an additional \$359,539 in the last two years.

The original goal for the CRMS was to merge all of the customer service request centers into one consolidated call center. This would achieve economies of scale and capture all service requests into one database. Part of the consolidation included transferring the DWU Customer Service Unit into the 311/911 Call Center. This was done on October 1, 2001. The two cost centers in that unit were transferred to the budgetary control of Dallas Fire and Rescue (DFR).

Since the software interface between CRMS and CIABS was unacceptable for customer service use, the former DWU Customer Service Unit retained the existing CIABS interface.

DFR charges DWU the direct cost of the Customer Service Unit plus an indirect cost rate based on DFR administrative costs. The following indirect costs were charged to DWU by DFR for the two cost centers which were formerly assigned to DWU:

Fiscal Year Ending	9/30/02	9/30/03	Totals
Water Dispatch	\$70,335	\$97,092	\$167,427
Water Customer Service	\$75,060	\$117,052	\$192,112
Totals	\$145,395	\$214,144	\$359,539

The increased cost was assessed to DWU without any apparent increase in call-handling capability being received. The expected benefits for DWU relied upon the interface of the CIABS software with CRMS to provide timely tracking of billing inquiries and requests for DWU services from citizens. This did not occur and the Customer Service staff must still use two different software systems to answer billing or service questions in the Call Center.

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Since DWU is continuing to service calls as it did prior to the implementation of the CRMS, the increased cost does not appear justified.

We Recommend that the City Manager either:

- Remove the indirect cost rate on DFR charges to DWU, or
- Return the former DWU cost centers to DWU until an effective interface between CRMS and CIABS is provided.

Management's Response:

Dallas strategically began the process of consolidating the service department call centers in 1994. The consolidation began in 1997 with the merger of the Action Center and 911. The second phase occurred in October 2001 with the consolidation of Water Customer Service into the 911/311 Communication Center.

The audit finds that the processing of customer service requests has cost DWU an additional \$359,539 in the last two years without having realized an expected benefit of increased cost handling capabilities. However, the consolidation of the service department call center – including the Water Customer Service – was neither affected nor contingent upon the implementation of CRMS. The stated goals of the consolidation were to create a one-stop shopping for non-emergency services for customers, to realize economy of scale efficiencies in call center staffing, and to facilitate additional resources for peak 911 call periods.

Additionally, the indirect cost of \$179,770 annually for the last two (2) years and based on Dallas Fire & Rescue administrative costs is an overstated cost. Due to the consolidation, the City of Dallas has realized areas of savings. We have gained 1.37 FTE's or \$42,470 per year due to the economy of scale staffing efficiency. If rental office space in DWU were to be required for Water Customer Service, the cost would be \$39,841 per year, an expense which is presently not incurred. Further, with the consolidation, telephone equipment/switches are being shared, and a minimum expense of \$11,484 per year would be required upon the move of this Call Center to a different switch. Finally, the City's stated goals for consolidation would not have been fully realized for our customers.

3. Staff reductions have limited the ability of City departments to respond to citizen service requests.

The CRMS has made it more convenient for citizens to call and request a City service. However, since the CRMS has been implemented, staff layoffs have impaired the ability of City personnel to effectively provide services to the citizens.

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The Arthur Andersen study advised the City to “Determine your citizen/customer service strategy.” Council Resolution 012031, which authorized the purchase and installation of the CRMS, stated that: “The purpose of the Citizen Request Management (CRM) system will be to enhance call handling/call management capabilities ... and enhance and improve the effectiveness and efficiency of services within the department.” Subsequent staff cuts appear to have impaired the departments’ ability to perform these services.

A. Fewer staff available for follow-up communication with the citizens

Citizens report problems to the 311 Call Center with an expectation that their concerns will be addressed. If they do not see any apparent action or receive any further contact from a City staff member, they often conclude that no action is being taken. The citizens may make the same service request to the Mayor, the City Manager, their City Council representatives, or call 311 again. This increases the amount of time spent by City staff on the problem reported in the initial call.

With the implementation of CRMS, City departments established service level agreements for citizen services. These service level agreements contain:

- Specific deadlines for City departments to respond to service requests
- Escalation requirements if service requests become overdue.
- Requirements to contact the citizen and advise of the status of their request.

The 311 Call Center staff has identified numerous repeat calls for the same problems. Most calls were resolved by the departments. However, departmental staff did not always contact the citizens and advise them about the status of their request. The reason that departments did not make contact with citizens was that the departments are not adequately staffed to provide this level of service.

The City Manager’s Office and most large departments previously had dedicated service coordinator positions to contact and resolve citizens’ problems. However, we understand that these positions were eliminated in recent staff reductions.

B. Service level agreements are not being adequately updated

The citizen’s expectations are created by the information that is provided by the 311 Call Center staff. The information purveyed is derived from service level agreements. Changes in department procedures usually require a change to the service request scripts in CRMS. Only a limited number of these updates are being made to the service level agreements. If the changes are not made, the information purveyed does not match the action being performed by the departments. The DFR Call Center configuration managers

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report that many departmental configuration managers are assigned other responsibilities because of staff shortages within the departments.

We Recommend the City Manager require that:

- A. Either the service level agreements be revised to provide effective communication to the citizens to effect closure of service requests or provide adequate staff to meet the service level requirements.
- B. The departments and the 311 center maintain up-to-date scripts.

Management's Response:

This finding lies beyond the features and implementation of the CRMS and addresses a broader deficiency in the City's existing customer response management process. In his response to the March 2004 City Council Retreat Priority Key Focus Areas in April 2004, the City Manager included performance measures to provide customers with estimated response times to their requests for service. Further, he designated a Customer Service liaison, Ms. Pamela Mickens, in his office to develop standard management reporting practices and direct the continued development of the CRMS.

These action items were briefed to the Public Safety committee at its meeting on April 19, 2004, and will be completed by September 2004.