



OFFICE OF INTERNAL AUDIT

Stan Sewell, City Auditor

December 19, 2012

Mayor and City Council
City of Chattanooga
Chattanooga, TN 37402

RE: IS 311 Call Center Operations, Audit 12-06

Dear Mayor Littlefield and City Council Members:

Attached is the Office of Internal Audit's report on Information Services 311 Call Center Operations, Audit 12-06.

We thank the management and staff of the Information Services, Public Works, Parks and Recreation and Neighborhood Services departments for their cooperation and assistance during this audit.

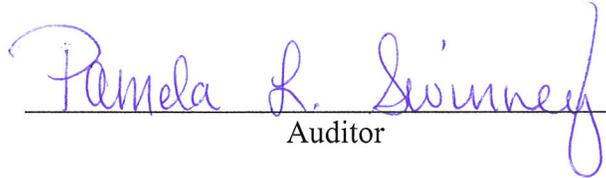
Sincerely,

Stan Sewell, CPA, CGFM
City Auditor

Attachment

cc: Dan Johnson, Chief of Staff
Audit Committee Members
Mark Keil, Chief Information Officer
Jana Lowery, Application Services Manager
Liz Henley, 311 Customer Service Supervisor
Steve Leach, Public Works Administrator
Larry Zehnder, Parks and Recreation Administrator

**INFORMATION SERVICES DEPARTMENT
311 CALL CENTER OPERATIONS
AUDIT 12-06
OCTOBER 29, 2012**



Auditor



City Auditor

**INFORMATION SERVICES DEPARTMENT
311 CALL CENTER OPERATIONS
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INTRODUCTION

In February of 2003, the City of Chattanooga launched its new 3-1-1 Call Center to implement a “One Call to City Hall” program. The Call Center simplifies citizen access to government by providing a single point of contact for all City services. There have been almost 800,000 completed service requests taken and over 2 million calls handled by the call center as of 2011.

Exhibit 1: Call Volume Statistics

Calendar Year	2007	2008	2009	2010	2011	2012
Service Request*	76,401	72,663	66,443	114,711	135,692	111,876
Incoming Calls	249,462	254,281	264,076	271,720	284,690	119,453
Abandoned Calls	58,849	55,380	51,671	66,287	89,720	19,762
Answered Calls	188,373	196,278	208,508	200,509	189,775	98,311
Abandonment Rates	23.59%	21.78%	19.57%	24.40%	31.51%	16.54%

Source: 311 Call Center’s Annual ACD Statistics Reports. 2012 data is six months only excepting *service requests reported on fiscal year basis per City’s CABR for all years.

311 Service Request data are used as a budget tool to enable directors and supervisors from each department to understand what resources are needed for the upcoming year. The 311 staff provides support for departments such as Public Works, Neighborhood Services, Storm Water Management, Parks and Recreation, and City Court.

The Customer Service Representatives (CSRs) are tasked with knowing what is happening within the Municipal Government, such as road construction, special events and changes in department policies and procedures. There are over 300 different service request types in the Citizen Service Request system and each CSR received training to know which department handles the issue a citizen is reporting.

The creation of the 3-1-1 Call Center has given all city government departments the ability to re-evaluate the way citizen complaints are expedited, the time needed to complete a given task, and what areas of the city need the most attention.

Financial Information

In fiscal year ending 2012, the Call Center's expenditures were \$535,000. Employee wages and benefits account for approximately 91% of total expenditures during each fiscal year.

Exhibit 2: Call Center Expenditures

Fiscal Year	Total Expenditures
2008	\$ 438,808
2009	\$ 466,925
2010	\$ 488,180
2011	\$ 525,016
2012	\$ 535,274

Source: City Financial Records

STATEMENT OF OBJECTIVES

This audit was conducted in accordance with the Internal Audit Division's 2012 Audit Agenda. The objectives of this audit were to determine if:

1. The 3-1-1 Call Center provides quality customer service;
2. The program provides accurate and quality information to City departments; and,
3. The program provides accurate and relevant performance data to management.

STATEMENT OF SCOPE

Based on the work performed during the preliminary survey and the assessment of risk, the audit covers Call Center Operations from January 1, 2011 to June 30, 2012. When appropriate, the scope was expanded to meet the audit objectives. Source documentation was obtained from Information Services department. Original records as well as copies were used as evidence and verified through physical examination.

STATEMENT OF METHODOLOGY

We interviewed personnel involved in the call center initiative from various City departments including Information Services, Public Works, Neighborhood Services, and Parks and Recreation. We interviewed personnel from various City departments about the service request process to determine whether the call center provides accurate information to the departments handling the service request.

To evaluate the efficiency of the call center, we observed customer service representatives interactions with citizens. We conducted a citizen satisfaction survey by telephone. We also listened to a sample of call recordings to test quality control.

To develop our recommendations, we reviewed industry best practice documents. We also contacted two similar sized cities' call centers located in the southeast and interviewed personnel to identify common and best practices among the City's peers. The cities selected for review were: Columbus, Georgia and Knoxville, Tennessee.

The sample size and selection were statistically generated using a desired confidence level of 90 percent, expected error rate of 5 percent, and a desired precision of 5 percent. Statistical sampling was used in order to infer the conclusions of test work performed on a sample to the population from which it was drawn and to obtain estimates of sampling error involved. When appropriate, judgmental sampling was used to improve the overall efficiency of the audit.

To achieve the audit's objectives, reliance was placed on computer-processed data contained in the Motorola CRM system and Symposium phone system. We assessed the reliability of the data contained in the two systems and conducted sufficient tests of the data. Based on these assessments and tests, we concluded the data was sufficiently reliable to be used in meeting the audit's objectives.

STATEMENT OF AUDITING STANDARDS

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT CONCLUSIONS

Based upon the test work performed and the audit findings noted below, we conclude that:

1. Overall, the call center provides quality customer service. However, opportunities exist to increase efficiency and effectiveness of its operations.
2. Call center staff provide accurate and quality information to City departments.
3. In some instances, the statistics generated from the CRM system do not reflect the true performance of a department.

While the findings discussed below may not, individually or in the aggregate, significantly impair the operations of the 311 Call Center, they do present opportunities and risks that can be more effectively controlled.

FINDINGS AND RECOMMENDATIONS

Overall, citizen satisfaction surveys indicate the majority of citizens are satisfied with the 311 Call Center.

Customer satisfaction surveys are used to discover what the call center is doing wrong, what areas need improvement and how the City is perceived by its constituents. Surveys should be ongoing, to determine if actual improvements occur after issues have been identified. Without information about customer satisfaction, City administration and the governing body cannot determine the true value and operating effectiveness of the 311 call center.

We conducted a citizen survey and compared the current results to the previous two citizen satisfaction surveys performed by The University of Tennessee in 2004 and 2005. Each survey consisted of a random sample of persons contacting the call center for service request during a historical six month period. It should be noted the surveys do not provide feedback from citizens who contacted the City for information purposes only.

Customer service courtesy ratings continued to receive high marks, with 91% rating courtesy as “excellent” or “good” in 2012 compared to 82.6% and 86.3% in 2004 and 2005, respectively. We found call agents showed great strides providing assistance to citizens without referrals to other departments with 75.9% in 2004 compared to 90.7% in 2012. Consistent with 2005, 68.4% of citizens indicated calls were answered by a CSR within two (2) minutes.

The 2012 survey indicates the call center met its goal of maintaining satisfaction ratings of “good” or “excellent” for 90 percent of 311 contacts. Since the surveys were conducted using historical data, the results may not accurately reflect the customer’s true experience. Further, by not including “information only” callers, the survey does not represent the entire population of incoming calls.

As noted, a customer satisfaction survey has not been conducted since 2005. Budget constraints have made it increasingly difficult to retain a third party to conduct phone surveys. Therefore, management should consider developing either an on-line customer satisfaction survey or an automated telephone survey to provide immediate feedback at the most economical cost.

Recommendation 1:

We recommend management conduct an annual citizen satisfaction survey. We recommend management periodically analyze the survey results and integrate the results in its performance measurement goals.

Auditee Response:

We strongly agree that Customer Satisfaction Surveys should be ongoing in order to better understand the areas that need improvement. We are looking at different ways to conduct

surveys using online and telephone contacts with current callers to do automated surveys on a regular basis.

Opportunities exist to increase productivity and performance of the 311 Call Center.

The “*US Contact Center Decision-Makers’ Guide (2012 -5th edition)*” is the major annual report studying the performance, operations, technology and human resource aspects of U.S. call center operations. The report provides benchmarking across all industries, including Public Sector. Traditionally, the success of call centers has been measured by observation of key metrics, such as, average call length, average speed to answer, percentage of calls answered within a certain time, abandonment rate, cost per call, etc.

As part of our audit, we compared the metrics available for Chattanooga’s Call Center with the benchmarks provided in this report. Additionally, we obtained metrics from call centers serving the Knoxville, TN and Columbus, GA areas. As shown in Exhibit 3, Chattanooga’s average call duration is similar to Knoxville and well below industry standards. However, call abandonment rates and speed to answer need improvement.

Exhibit 3: Benchmark Comparisons

Type of Metric	Public Sector	Chattanooga	Knoxville	Columbus
Average Call Duration	6 m 42s	1m 12s	1m 2s	*
Abandonment Rate	8.90%	24.40%	11.60%	25.10%
Average speed to Answer	23 sec	*	*	*
Answer within 30 seconds	*	39.80%	*	*
Answer within 40 seconds	*	*	68%	*
Answer within 60 seconds	*	47.58%	*	*
Cost per Answered Call	*	\$2.53	\$1.74	\$2.33

*Data not available

Based on our review, call center management should consider focusing on the following areas to improve its operations.

Performance Measurement System: Currently, the City’s Call Center objective is to deliver quality customer service to citizens. To determine if its objective is met, management developed three goals for the call center, which include (1) answering 85 percent of calls within two minutes or less and 95 percent of emails within 24 business hours, (2) meeting or exceeding target service levels of 135 calls per day, per customer service representative, and (3) maintaining satisfaction ratings of “good” or “excellent” for 90 percent of 311 contacts.

While the current measures used by management could provide context to the Department’s efficiency and effectiveness, we found the measures are not currently tracked or reported by management. We noted the current reporting format (ACD Statistics Report) does not report number of emails received and answered, average duration to answer, number of daily calls taken by each call agent, and number of calls answered within two (2) minutes. In addition,

the ACD report eliminates calls dropped prior to 30 seconds when calculating the call abandonment rate. This practice doesn't appear to reflect industry standards.

Management should consider focusing on a variety of measurements to determine if the call center is meeting its objectives. The key metrics along with satisfaction surveys would provide management with the necessary tools to evaluate the overall performance of the call center.

Recommendation 2:

We recommend management evaluate the current call center's performance goals and ensure stated goals are measured and reported.

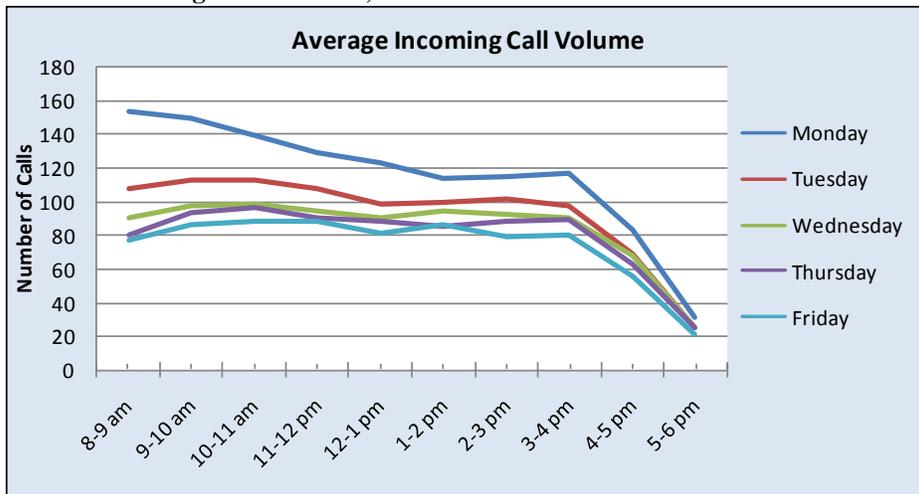
Auditee Response:

By including additional metrics to the ACD Reports we will be better able to determine the productivity of the department. We are adding email statistics that will provide a more accurate report of our total customer contacts. Our long term goal is to fully adopt the national standards set for Government Contact Centers. It is our goal to include the cost per call in upcoming annual reports.

Staff Levels and Scheduling: As mentioned in a previous finding, only 68.4% of citizens indicated calls were answered within two (2) minutes. Further, the City's call abandonment rate peaked at 31.5% during 2011. To determine why abandonment rates are higher than industry standards, we examined the call center's incoming call volume compared to staff levels and scheduling practices.

We reviewed the detailed call volume data from the ACD Statistic report for January 1 through June 30, 2012. Average incoming call volume was determined for each day of the week, per hour of operation. As depicted in Exhibit 4, Monday and Tuesday generate the highest call volume with peak times occurring during the morning hours.

Exhibit 4: Average Call Volume, 2012



Using this average incoming call volume, we calculated¹ the number of agents needed (per work hour, per day) to answer 85% of incoming calls within 120 and 30 seconds, respectively. Per our analysis, the call center needs a minimum of two (2) call agents and a maximum of eight (8) call agents, at various times, to meet the current goal.

Exhibit 5: Call Agent Needs

Goal: 85% within 120 seconds	Number of Agents	
Day of Week	Minimum	Maximum
Monday	3	8
Tuesday	2	6
Wednesday	2	6
Thursday	2	6
Friday	2	5
Goal: 85% within 30 seconds	Number of Agents	
Day of Week	Minimum	Maximum
Monday	3	9
Tuesday	3	7
Wednesday	3	7
Thursday	3	6
Friday	2	6

We found Monday mornings generated the highest call volume and would require eight (8) CSRs between the hours of 8 am and 10 am to meet the target goal. With one additional CSR during the peak hours, 85% of incoming calls could be answered within 30 seconds.

The call center has seven (7) full-time CSRs and one (1) lead CSR. Currently, staff schedules are static with four (4) CSRs available at 8 am, six (6) at 9 am, and seven (7) at 10 am (on average). It appears the call center’s staffing levels are adequate to meet current stated goals. To reduce the high abandonment rates, management should monitor and analyze daily call volume by hour and schedule CSRs based on call center needs.

Recommendation 3:

We recommend management periodically review the incoming call volumes and implement staff schedules reflective of call volume needs rather than a standard schedule.

Auditee Response:

To maintain our current goals and decrease our abandonment rate, we are reviewing alternative staff schedules. To meet national standards will require an increase in staff. We are bringing on a Temporary employee to mitigate the city’s Sewer Billing initiative for which the 311 Call Center is the primary contact. Approximately 80,000 citizens will be receiving monthly Sewer Bills beginning January, 2013.

¹ The call center calculator from www.ansapoint.com was utilized to estimate how many agents the call center needs for each hour during the work day.

Customer Service Representative Training: Customer Service Representatives act as the liaison between City departments and City residents. They are tasked with knowing and understanding department processes, policies and procedures. On-going training and occasional site visits to other departments is essential to understanding the City’s day-to-day operations.

We observed the call center’s operations and reviewed a sample of service requests generated during 2011. In some cases, we noted required questions and information were not conveyed to citizens during the phone call. Also, we found pre-set questions were not always completed in the service request system by the CSRs.

Based on the benchmarking data, Public Sector call centers typically provide two hours per week of on-going training. The types of ongoing training and number of hours per week are depicted in the following table:

Exhibit 4: Call Agent Training

Type of ongoing training time	
Soft-skills/behavioral	28%
Internal systems and processes	52%
Product Training	20%
Types of training, hours per week	
Coaching	1.5
Classroom	0.7
Total hours, per week	2.2

Source: “US Contact Center Decision-Makers’ Guide (5th Edition – 2012)”

Currently, management does not provide a comprehensive on-going training program for CSRs. Customer service representatives receive initial training on departmental internal systems and processes but no further on-site visits are conducted. In addition, the Call Center’s policies and procedures manual has not been updated since its inception in 2003.

Recommendation 4:

We recommend management implement on-going staff training schedules to provide CSRs with the necessary tools to perform their duties.

Auditee Response:

We agree that on-going training and site visits to other departments will be beneficial to the team. We are investigating online certifications for the CSR’s and in house training on a monthly basis to re-enforce the procedures in the Call Center. Our training over the past 10 years has been ongoing and updates have been given on a one to one basis when necessary. Weekly training sessions would be a challenge in our current environment, however; this will be a goal in our long term planning.

Recommendation 5:

We recommend management periodically review and update the call centers’ policies and procedures manual.

Auditee Response:

Currently updates are provided to staff members on an as needed basis, however; our next step will be to transfer all of the documentation into a “Wiki” format on the Intranet. This will be a dynamic and searchable knowledge base for the CSR’s.

Internal Quality Assurance Program: As stated previously, we found call agents did not always provide contacts with the information required per the service request (i.e. brush collection – pile size restrictions) or follow call center protocols (i.e. providing caller with service request number, tracking type of call).

Call agents represent our City and must be courteous, knowledgeable and helpful to all citizens. To determine if CSRs are performing as expected, quality assurance programs along with periodic performance evaluations and a variety of reward and recognition programs are needed.

Typically, a quality assurance program includes establishing standard practices or protocols for customer service representatives (policies and procedures), listening to or observing an agent’s phone conversation, and evaluating the interaction for the desired outcome. The evaluations provide immediate feedback for supervisors to develop training and reward programs as well as identify process improvement opportunities.

Recommendation 6:

We recommend management develop and implement a quality assurance program along with periodic CSR performance reviews. Further, we recommend management institute a reward program for outstanding performance.

Auditee Response:

We now have the Call Recording system that will allow us to monitor calls for Quality Assurance and grade each representative based on a certain number of calls per month. The recording system allows us to set goals and standards for all calls handled in the 311 Call Center. We are going to start with two (2) calls graded each month and the results will be discussed with each CSR. This will be part of their annual review and will be part of ongoing professional development.

City departments and the 311 call center need improved communication and interaction to fully support the 311 initiative.

Based on the citizen satisfaction survey, 78% of callers reported being satisfied with the City departments' handling of their service request. However, 16% of callers reported being somewhat or very dissatisfied. Reasons for their dissatisfaction included timeliness of response, lack of communication with the service department, and issues not resolved.

During our various meetings with City departments, we learned most program users receive minimal training related to the service request system. In addition, program users, department managers and call center staff have no open forum to discuss 311 related issues and/or needs. 311 Call Center management expressed problems receiving new policies and procedures from departments.

Overall, the lack of interaction and communication amongst departments decreases management's ability to identify and correct problem areas. Further, citizens may not receive appropriate information which directly affects callback volume and repeat service requests. Reliance on the service request process could deteriorate if information provided to citizens is inconsistent or unreliable.

Recommendation 7:

We recommend management of the 311 call center work with department heads to establish 311 liaisons from each department. We recommend establishing a forum for liaisons to meet periodically and discuss 311-related issues, policy and procedural needs and changes.

Auditee Response:

We feel that it would be an advantage to all departments to have a liaison from each department to meet with 311 Management and discuss not only problems and issues, but to talk about upcoming events, results of past initiatives and to have ongoing training for everyone who has contact with internal and external customers.

City departments utilizing the CRM system need standard policies and procedures and appropriate training.

We interviewed personnel with Citywide Services, Land Development, Stormwater, Water Quality, Parks and Recreation and Neighborhood Services departments. With the exception of Neighborhood Services, none of the departments have developed comprehensive written policies and procedures related to the CRM and/or department work order systems. Some staff indicated a lack of knowledge regarding the CRM system and would benefit from additional training.

We found no consistent approach to when and why service requests were considered complete and therefore, closed in the CRM system. We noted three different possible reasons a service request could be closed:

- Closed once initial contact by investigator and a separate work order opened in the department's work order system (i.e. Land Development's Citizen Gateway)
- Closed once the service request has been routed (i.e. brush collection)
- Closed once the service request is completed (i.e. overgrowth)

Ideally, when a citizen contacts 311 for service request updates they would expect a closed service request to be resolved. At a minimum, if the issue has not been resolved, the service request should have the reasons indicated in a field accessible to the call agents.

In addition, since the CRM system feeds into the performance measurements of each department, closed status and set durations directly affect the perceived performance of the departments. Therefore, standard definitions are crucial to obtain meaningful reporting.

Recommendation 8:

We recommend management develop comprehensive policies and procedures for its work order system. The policies should include guidelines for service request status options and what notes, if any, should be included when updating service requests. Adequate training should be provided to all program users, with on-going training as deemed necessary by management.

Auditee Response: (Public Works)

The Public Works Department is developing Division specific Standard Operating Procedures (SOP) pertaining to how this department responds to 311 Service Requests. The Water Quality section of the City Engineer's office has such an SOP. Other divisions/sections within public works that rely on 311 requests will pattern their individual SOPs using this example.

As one of the largest users of the 311 system, we are in constant communication with Ms. Liz Henley, informing her and her team of changes to collections or other operational issues. Additionally, we recently increased public work's support from the Call Center with the addition of inquires relating to upcoming sanitary sewer billing changes. As such, we are not opposed to naming a liaison to work more closely with the Call Center to improve services.

Auditee Response: (Parks and Recreation)

Our Department maintains the following Policies and Procedures that encompass the work order system. Said documents are comprehensively revised and issued to affected employees, in physical form, and maintained on the Department file server.

- 1. Addendum- Parks and Recreation Reservation Policy (Issued December 14, 2012)*
- 2. Work Order Policy and Information Sheet (Issued August 21, 2012)*
- 3. 311 Customer Service Response Policy (Issued December 14, 2012)*

Our Department is developing a presentation-based training program for affected employees, which will foreseeably take place a minimum of two times, per year, and upon any document revision.

Enhancements to the 311 website could increase citizen usage thereby decreasing incoming call volumes.

We reviewed Chattanooga's 311 website to verify information was accurate and consistent. We found the website, although limited, provides the same information the citizen receives when contacting the call center by telephone.

We further compared the City's website to other cities' 311 websites. The following suggestions could improve the functionality of the 311 webpage.

- Update and include links to the most requested service request types, i.e. new/replacement/repair garbage containers, potholes
- Include FAQ listing
- Include a citizen satisfaction survey
- Provide service request status queries

311's mission is "to simplify citizen access to government by providing a single point of contact for all City services." The call center facilitates this mission by providing multiple channels of access, such as telephone, email, and internet. Request for services and information from each of these channels should be consistent and user-friendly. The 311 webpage should be the starting place for citizens to find information, request services and obtain answers to commonly asked questions.

Recommendation 9:

We recommend the IS department consider enhancements to 311's webpage, including but not limited to, additional service request types, status of service request queries, and online satisfaction surveys.

Auditee Response:

At this time the top 11 requests are on the 311 website, but that can be increased in order to give the public more choices. We agree that having FAQ's on the 311 page would help answer questions that citizens would be able to get answered online instead of having to call 311. Citizen Satisfaction Survey online would be advantageous in that the people who use the internet would be more likely to fill it out while they are on the site resulting in more participation. There are several survey options we are looking into for more citizen input.

The security and records retention of 311 data is not ensured.

Based on discussions with IS department personnel, current security and retention of the 311 data systems lack several key controls:

- A terminated user policy has not been established.
- Users are not required to change passwords.
- Administrative rights seem excessive (25 individuals and 3 generic id's).
- Backups were not made of telephone recordings and securely stored off-site

Internal Control and Compliance Manual for Tennessee Municipalities(5.27.2) requires controls in place “to ensure that only authorized individuals have access to electronic data and municipal computers (this would include passwords, access limitations, procedures to revoke authorization when employment is terminated, etc).”

Recommendation 10:

We recommend the IS Department implement policies related to user rights and responsibilities for the 311 data systems. Further, we recommend the IS Department implement procedures to backup and secure data generated from the 311 systems, as well as establish retention periods based on departmental requirements.

Auditee Response:

All required backup and security procedures are implemented. We will confirm the status of offsite storage. Information Services will review and make appropriate updates regarding user access and develop a policy going forward.