

AUDIT REPORT



CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF FINANCIAL AUDIT
WILLIAM C. THOMPSON, JR., COMPTROLLER

Audit Report on the Development and Implementation of the Client Tracking System by the Department of Homeless Services

7A03-147

June 10, 2004



THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET
NEW YORK, N.Y. 10007-2341

WILLIAM C. THOMPSON, JR.
COMPTROLLER

To the Citizens of the City of New York

Ladies and Gentlemen:

In accordance with the responsibilities of the Comptroller contained in Chapter 5, §93, of the New York City Charter, my office performed an audit on the development and implementation by the Department of Homeless Services of the Client Tracking System, which manages information on individuals living in homeless shelters.

The results of the audit, which are presented in this report, have been discussed with Department of Homeless Services officials, and their comments have been considered in preparing this report.

Audits such as this provide a means of ensuring that City agencies are developing computer systems and applications in an efficient, timely, and cost-effective manner.

I trust that this report contains information that is of interest to you. If you have any questions concerning this report, please contact my Audit Bureau at 212-669-3747 or e-mail us at audit@Comptroller.nyc.gov.

Very truly yours,

A handwritten signature in cursive script that reads 'William C. Thompson, Jr.'.

William C. Thompson, Jr.
WCT/gr

Report: 7A03-147
Filed: June 10, 2004

***The City of New York
Office of the Comptroller
Bureau of Financial Audit
EDP Audit Division***

**Audit Report on the
Development and Implementation of the
Client Tracking System by the
Department of Homeless Services**

7A03-147

AUDIT REPORT IN BRIEF

We performed an audit on the development and implementation of the Client Tracking System (CTS) by the Department of Homeless Services (Department). The purpose of CTS was to replace three subsystems of the Department's "Prime" computer environment—the HOMES, HOMEBILLS, and SCIMS subsystems. HOMES was used to manage family shelters; HOMEBILLS system was used for provider billing management; and SCIMS provided for single-adult shelter management. According to the Department, CTS was to be developed in two phases. The first phase, which has been completed and is the focus of this audit, resulted in the development of two new subsystems—the CTS (Families) and CTS (Billing) systems. These systems replaced the HOMES and HOMEBILLS systems, respectively.

Audit Findings and Conclusions

The first phase of CTS satisfied the Department's initial business and system requirements; the system design allows for future enhancements and upgrades; and the system was procured in accordance to the provisions of §3-09 of the PPB rules. In addition, system users reported that CTS meets their needs. However, the Department did not comply with the provisions in the *Intergovernmental Procurement Transactions—Interim Process* memorandum when procuring consulting services from the companies that developed CTS in conjunction with the Department's in-house staff. This memorandum outlined an interim process for making such purchases, which was agreed to by the Mayor's Office of Contracts, the Law Department, and the Comptroller's Office. Further, the Department did not develop CTS according to a formal system development methodology, and it did not engage an independent quality-assurance consultant as recommended by Directive 18. Finally, CTS operations have not been included in the Department's disaster recovery plan.

Audit Recommendations

To address these issues, we recommend that the Department:

- Comply with the now-established *Intergovernmental Procurement Transaction* process when procuring goods or services costing in excess of the small purchase limits using vendors on State contracts. In addition, the Department should not split purchases as a means of ignoring this process.
- Employ a formal system-development methodology and engage an independent quality-assurance consultant when undertaking the development of new computer systems or making major changes to existing systems, using either in-house resources or external system-development and integration services.
- Update its disaster recovery plan to include CTS operations.
- Ensure that the user concerns identified in this report are addressed. In addition, the Department should periodically conduct user surveys to identify user concerns.
- Review the status of all CTS users and terminate access, as appropriate.

INTRODUCTION

Background

The Department of Homeless Services (Department) in partnership with public and private agencies, provides temporary and emergency shelter for homeless families and single adults, and assists them in obtaining permanent housing. In addition, the Department provides job training, substance abuse and mental health services, and housing search support.

The Department's Office of Information Technology (OIT) provides information and technology services to the agency's administrative sites and to more than 200 shelters. OIT's data center supports the Department's local area network and its program-related applications—the Client Tracking System (CTS) and the Shelter Care Information Management System.

The Department began the planning and development of CTS in August 2000. The purpose of CTS was to replace three subsystems of the Department's "Prime" computer environment—the HOMES, HOMEBILLS, and SCIMS subsystems. HOMES was used to manage family shelters; HOMEBILLS system was used for provider billing management; and SCIMS provided for single-adult shelter management. The Department believed that the Prime environment could no longer meet its data-processing needs. The Department used two

consulting companies (Aquidneck Management Association and Dynax Solutions, Inc.) to develop CTS in conjunction with in-house staff.

According to the Department, CTS was to be developed in two phases. The first phase, which has been completed and is the focus of this audit, resulted in the development of two new subsystems—the CTS (Families) and CTS (Billing) systems. These systems replaced the HOMES and HOMEBILLS systems, respectively.

On March 19, 2001, the Office of Management and Budget (OMB) authorized \$4.5 million for the development of CTS and the Department's Re-housing Management system, as well as network upgrades to accommodate these systems. We could not determine, and the Department could not provide us, the amount authorized specifically for CTS. As of Fiscal Year 2003, approximately \$4.7 million had been spent by the Department on various IT services, including costs for consulting services and hardware for the development and implementation of these two systems. The second and final phase of CTS development (CTS Adults) is scheduled for completion in 2006 at an estimated cost of \$1.5 million.

Objectives

The audit's objectives were to evaluate whether the subsystems, developed under the first phase of the CTS project:

- Met the Department's initial business and system requirements;
- Allow for future enhancements and upgrades;
- Were procured in accordance with Policy Procurement Board (PPB) rules and other applicable City purchasing guidelines;
- Were developed following a formal system development methodology;
- Have been integrated into the Department's disaster recovery plan; and
- Met user needs.

Scope and Methodology

Audit fieldwork was conducted from December 2003 through February 2004. To achieve our audit objectives, we interviewed Department staff and:

- Performed a walk-through of the system;

- Reviewed and analyzed CTS development documentation, including training manuals and system test results;
- Reviewed and analyzed the reports generated by CTS (Families) and CTS (Billing);
- Analyzed City Financial Management System data regarding payments made to vendors for development of CTS;
- Reviewed and analyzed correspondence between the Department's contracting office and the Comptroller's Office of Contract Administration; and
- Tested the accuracy of a CTS user list by comparing it to the list of Department employees on the City Payroll Management System.

We conducted a user satisfaction survey in which we randomly selected and sent questionnaires to 160 of the 765 CTS users on the CTS user list (50 active users responded). The general purpose of this survey was to determine whether users are satisfied with the system, whether they have been appropriately trained, and what changes they would like made to the system. The results of the survey, while not projectable to the entire population of users, provide a reasonable basis to assess user satisfaction.

As criteria for this audit, we used Comptroller's Internal Control and Accountability Directive 18, *Guidelines for the Management, Protection and Control of Agency Information and Information Processing Systems*, the Federal Information Processing Standards, and the National Institute of Standards and Technology *Generally Accepted Principles and Practices for Securing Information Technology Systems*. Since the City has no formal system development methodology, we used the National Institute of Standards and Technology Special Publication #500-233, *A Framework for the Development and Assurance of High Integrity Software*, to ascertain whether a system development methodology had been followed. In addition, we evaluated the Department's procurement process against the provisions of §3-09 of the PPB rules, which deals with intergovernmental purchases and the City *Intergovernmental Procurement Transactions—Interim Process*¹ (which became permanent policy in November 2002).

This audit was conducted in accordance with generally accepted government auditing standards (GAGAS) and included tests of the records and other auditing procedures considered necessary. This audit was performed in accordance with the Comptroller's audit responsibilities as set forth in Chapter 5, § 93, of the New York City Charter.

¹ In addition to the requirements of §3-09, on September 5, 2002, the Mayor's Office of Contracts, the Law Department, and the Comptroller's Office agreed on an interim process for agencies to follow when procuring services in excess of the small purchase limits using State contracts.

Discussion of Audit Results

The matters covered in this report were discussed with Department officials during and at the conclusion of this audit. A preliminary draft report was sent to Department officials and discussed at an exit conference held on May 6, 2004. On May 17, 2004, we submitted a draft report to Department officials with a request for comments. We received a written response from the Department on June 4, 2004, which stated that it “agrees with the five audit recommendations and has already taken steps to implement them.”

The full text of the Department’s comments is included as an addendum to this report.

FINDINGS

The first phase of CTS satisfied the Department’s initial business and system requirements; the system design allows for future enhancements and upgrades; and the system was procured in accordance with the provisions of §3-09 of the PPB rules. In addition, system users reported that CTS meets their needs. However, the Department did not comply with the provisions in the *Intergovernmental Procurement Transactions—Interim Process* memorandum when procuring consulting services from the companies that developed CTS in conjunction with the Department’s in-house staff. Further, the Department did not develop CTS according to a formal system development methodology, and it did not engage an independent quality-assurance consultant as recommended by Directive 18. Finally, CTS operations have not been included in the Department’s disaster recovery plan.

Noncompliance with Purchasing Guidelines

The Department complied with the provisions of §3-09 of the PPB rules governing intergovernmental purchases, which requires performance of market research and the approval of the Agency Chief Contracting Officer. However, it did not comply with the September 5, 2002, interim process for making such purchases, which was agreed to by the Mayor’s Office of Contracts, the Law Department, and the Comptroller’s Office. The interim process generally requires that agencies:

- Prepare a description of how the contract was solicited and awarded.
- Prepare a determination that the price of the contract is lower than the prevailing market price and include an explanation of how this determination was made.
- Draft a supplemental contract that contains, where applicable, dollar amount, term, timeframes, deliverables, a scope of work, acceptance-testing procedures, and insurance and indemnification provisions. Agencies must also obtain Law

Department approval of the contract between the agency and the vendor for new awards.

- Complete the certification form and forward it to the Mayor’s Office of Contracts for signature.
- Forward the materials, along with an advice of award, to the Comptroller’s Office for processing.

It appears that the Department inappropriately split the \$760,000 awarded to Dynax Solutions into 23 “small purchase” transactions to avoid following the agreed-to process—small purchase transactions are not covered by the interim process.²

Lack of Formal System-Development Life-Cycle Methodology

Although the Department did not encounter significant problems during the development of CTS (Families and Billing), it did not follow a formal system-development methodology. Rather, according to the project manager, the Department followed an organized but informal method when developing CTS. Our review revealed that the Department’s method was insufficient since it lacked: progress records of the stages completed; approvals of stage completion by Department officials; formal budgets and time constraints; and a quality-assurance function.

Directive 18, states that:

“The risks inherent in agency systems development projects can be significantly alleviated by conducting them in accordance with a formal system development methodology. Such methodologies help insure that system development efforts are conducted in a structured, logical, organized, and efficient manner and help insure that systems meet their objectives, and are developed within budget and time constraints.”

In addition, Directive 18 recommends that “for very large and/or critical projects, [agencies] engage an independent quality assurance consultant to assist the agency [to] monitor and review the work of the development and integration team.” Although the Department considers CTS critical, it did not engage such an independent quality-assurance consultant.

² As of September 2002, §3-08 of the PPB rules defines small purchases as “those procurements in value of not more than \$25,000 for goods, not more than \$50,000 for services, and not more than \$100,000 for construction, construction-related services, and information technology.

Disaster Recovery Plan

Although the Department claims that it was able to recover its server-based and Prime-based systems after September 11, 2001, and the blackout of August 14, 2003, without data loss, it has not updated its disaster recovery plan to reflect the fact that its current network environment includes CTS. Directive 18, § 10.0, states, “A formal plan for the recovery of agency operations and the continuation of business after a disruption due to a major loss of computer processing capability is an important part of the information protection plan.” In addition, Directive 18 states that “periodic reviews and updates are necessary to insure that the business recovery plan remains current. A comprehensive test should be conducted annually.” Since CTS is a mission-critical system, it is imperative that the Department updates its disaster recovery plan to include CTS operations.

User Satisfaction Survey Results

Forty-four (88 percent) of the 50 CTS users who responded to our survey reported that they were satisfied with the system. In fact, 37 users (74 percent) felt that CTS was “very user-friendly.” However, 24 (48 percent) of the 50 users reported that they would like to see some changes made to CTS, and 22 (44 percent) of the 50 active users reported that more system training is needed. Some of the changes that users would like made include improvements to CTS screens and a reduction in the number of steps required to process transactions on the system.

Other Issues

Access Controls

The Department does not adequately control access to CTS. Directive 18 states that “active password management includes deactivation of inactive user accounts and accounts for employees whose services have been terminated.” We found, however, that only 244 of the 765 names on the Department’s list of CTS users were actually City employees—listed on the City Payroll Management System database. In addition, the user list contained 17 sets of duplicate user names; three of the duplicate names also had duplicate user-IDs.

CTS (Adults)

Although not a subject of this audit, we noted that the Department is also not following a formal system-development life cycle methodology as it develops CTS (Adults). The neglect of this basic project-management approach should be corrected as it exposes the development to significant risk.

RECOMMENDATIONS

The Department should:

1. Comply with the now-established *Intergovernmental Procurement Transaction* process when procuring goods or services costing in excess of the small purchase limits using vendors on State contracts. In addition, the Department should not split purchases as a means of ignoring this process.

Department Response: “The ACCO’s office has already implemented this recommendation with the help of the Mayor’s Office of Contracts and the Comptroller’s Office. The purchasing process has been examined and re-engineered to limit the number of duplicate purchases and increase the use of requirement contracts and purchases from the DCAS warehouse. Any incidents resulting in split orders are now closely monitored by the purchasing staff as well as the respective program areas. Lastly, the ACCO’s office, working closely with DHS program areas and DCAS, is putting into place large requirement type-contracts, which would virtually eliminate split orders.”

2. Employ a formal system-development methodology and engage an independent quality-assurance consultant when undertaking the development of new computer systems or making major changes to existing systems, using either in-house resources or external system-development and integration services.

Department Response: “The Department of Homeless Services/Office of Information Technology is employing a formal system-development methodology and has engaged an independent quality assurance consultant for the final development phase of the Client Tracking System.”

3. Update its disaster recovery plan to include CTS operations.

Department Response: “The Department of Homeless Services has requested that DoITT provide[s] In-Source technical writing consulting staff to assist DHS’ Office of Information Technology with updating its Disaster Recovery Plan.”

4. Ensure that the user concerns identified in this report are addressed. In addition, the Department should periodically conduct user surveys to identify user concerns.

Department Response: “The DHS Office of Information Technology will ensure that user concerns identified in the report will be addressed and that periodic user surveys will be conducted and the concerns will be addressed.”

5. Review the status of all CTS users and terminate access, as appropriate.

Department Response:

“Procedures have been refined to ensure that the CTS user list is kept current. The weekly electronic report that indicates those DHS employees that are no longer with the agency, that is electronically sent by the DHS Human Resources Department to the DHS Office of Information Technology, will also be sent to the DHS Family Division staff who are responsible for the issuance and revocation of Client Tracking System IDs.

“The 521 CTS IDs that were presented to DHS OIT during this audit as unaccounted for have been reconciled. DHS OIT, working with DHS’ Office of Human Resources, found that due to differences in name use, spelling, and other changes, all but 34 were accounted for. Of the 34, 7 were consultants authorized to access CTS; the remaining 27 were found to be terminated. Those 27 terminated IDs were removed from the CTS ID list by DHS’ Family Division staff responsible for CTS IDs. Reconciliation documentation is available for review.”



NYC Department of Homeless Services

Linda Gibbs
Director

Steve Pock
Executive Director
Office of Procurement

June 1, 2004

Greg Brooks, Deputy Comptroller
Policy, Audits, Accountancy and Contracts
The City of New York
Office of the Comptroller
1 Centre Street, Executive Offices
New York, N.Y. 10007

Dear Mr. Brooks:

Enclosed are the Department of Homeless Services (DHS) responses to the five audit recommendations made in the draft audit report on the "*Development and Implementation of the Client Tracking System*" (7A03-147).

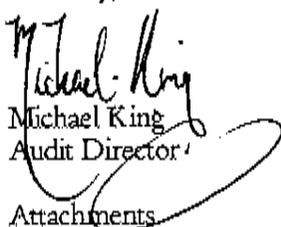
DHS agrees with the five audit recommendations and has already taken steps to implement them. In October 2003, in response to a previous Comptroller's audit DHS implemented recommendation one which calls for adherence to the Intergovernmental Procurement Transaction process.

The agency believes that the Comptroller's recommendations two and five regarding the Client Tracking System (CTS) are viable and will improve the operation of CTS and thus has already implemented those recommendations. Recommendation three, which calls for the identification of CTS user concerns, will be implemented by October 2004.

DHS has requested DOITT's assistance in implementing recommendation three, which calls for updating the disaster recovery plan, and implementation is slated for January 2005.

The agency is pleased to have independent confirmation that the first phase of the Client Tracking System (CTS) is functioning as intended and meets the needs of the user.

Sincerely,


Michael King
Audit Director

Attachments

C: Linda Gibbs
Maryanne Schretzman
Thailia Edwards
Steve Pock

Pat Nestor
Suellen Schulman
Vincent Liquori

Angeles Pai
James Anderson
Robert Bernstein



Audit Implementation Plan Category A
NEW YORK CITY DEPARTMENT OF HOMELESS SERVICES Page 1 of 5

Response Date: June 1, 2004

AUDIT TITLE: **Audit Report on the Development and Implementation of the Client Tracking System by the Department of Homeless Services**
AUDIT NUMBER: **7A03-147**

AUDITING AGENCY: NYC Comptroller's Office

DRAFT REPORT DATE: May 17, 2004

Audit Recommendation

Recommendation # 1: DHS should comply with the now-established *Intergovernmental Procurement Transaction* process when procuring goods or services costing in excess of the small purchase limits using vendors on State contracts. In addition, the Department should not split purchases as a means of ignoring this process.

Category of Response:

A - Implemented

Response To Recommendation

The ACCO's office has already implemented this recommendation with the help of the Mayor's Office of Contracts and the Comptroller's Office. The purchasing process has been examined and re-engineered to limit the number of duplicate purchases and increase the use of requirement contracts and purchases from the DCAS warehouse. Any incidents resulting in split orders are now closely monitored by the purchasing staff as well as the respective program areas. Lastly, the ACCO's office, working closely with DHS program areas and DCAS, is putting into place large requirement type-contracts, which would virtually eliminate split orders.

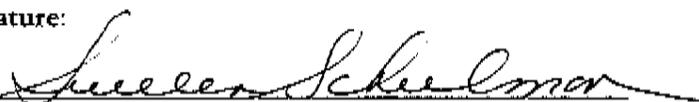
Implementation Date

October 3, 2003

RESPONSIBILITY CENTER

DHS- ACCO

Signature:



Print Name: Suellen Schulman

Print Title: ACCO

June 1, 2004

Date

Audit Implementation Plan Category A

NEW YORK CITY DEPARTMENT OF HOMELESS SERVICES

Page 2 of 5

Response Date: June 1, 2004

AUDIT TITLE: Audit Report on the Development and Implementation of the Client Tracking System by the
Department of Homeless Services

AUDIT NUMBER: 7A03-147

AUDITING AGENCY: NYC Comptroller's Office

DRAFT REPORT DATE: May 17, 2004

Audit Recommendation

Recommendation # 2: Employ a formal system-development methodology and engage an independent quality assurance consultant when undertaking the development of new computer systems or making major changes to existing systems, using either in-house resources or external system-development and integration services.

Category of Response:

A - Implemented

Response To Recommendation

The Department of Homeless Services/Office of Information Technology is employing a formal system-development methodology and has engaged an independent quality assurance consultant for the final development phase of the Client Tracking System.

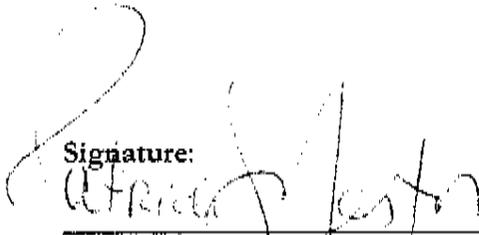
Implementation Date

March 01, 2004

RESPONSIBILITY CENTER

DHS Office of Information Technology

Signature:



Print Name: Patrick J. Nestor

Print Title: Chief Information Officer

June 1, 2004

Date

Audit Implementation Plan Category C

NEW YORK CITY DEPARTMENT OF HOMELESS SERVICES

Page 3 of 5

Response Date: June 1, 2004

AUDIT TITLE: **Audit Report on the Development and Implementation of the Client Tracking System by the
Department of Homeless Services**

AUDIT NUMBER: 7A03-147

AUDITING AGENCY: NYC Comptroller's Office

DRAFT REPORT DATE: May 17, 2004

Audit Recommendation

Recommendation # 3: Update its disaster recovery plan to include CTS operations.

Category of Response:

C – Implementation is pending

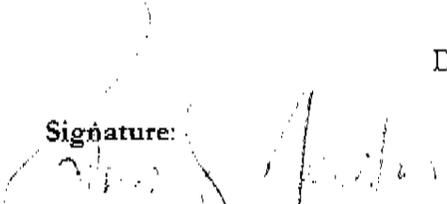
Response To Recommendation

The Department of Homeless Services has requested that DoITT provides In-Source technical writing consulting staff to assist DHS' Office of Information Technology with updating its Disaster Recovery Plan.

Implementation Date

January 2005

RESPONSIBILITY CENTER
DHS Office of Information Technology

Signature: 

Print Name: Patrick J. Nestor
Print Title: Chief Information Officer

June 1, 2004

Date

Audit Implementation Plan Category C

NEW YORK CITY DEPARTMENT OF HOMELESS SERVICES

Page 4 of 5

Response Date: June 1, 2004

AUDIT TITLE: **Audit Report on the Development and Implementation of the Client Tracking System by the
Department of Homeless Services**

AUDIT NUMBER: 7A03-147

AUDITING AGENCY: NYC Comptroller's Office

DRAFT REPORT DATE: May 17, 2004

Audit Recommendation

Recommendation # 4: Ensure that the user concerns identified in this report are addressed. In addition, the Department should periodically conduct user surveys to identify user concerns.

Category of Response:

C – Implementation is pending

Response To Recommendation

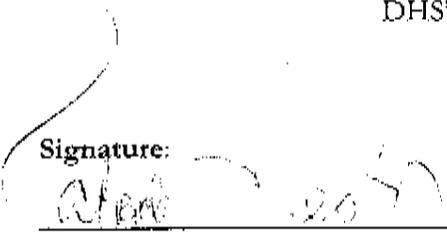
The DHS Office of Information Technology will ensure that user concerns identified in the report will be addressed and that periodic user surveys will be conducted and the concerns will be addressed.

Implementation Date
October 2004

RESPONSIBILITY CENTER

DHS' Office of Information Technology

Signature:



Print Name: Patrick J. Nestor
Print Title: Chief Information Officer

June 1, 2004
Date

NEW YORK CITY DEPARTMENT OF HOMELESS SERVICES

Response Date: June 1, 2004

AUDIT TITLE: **Audit Report on the Development and Implementation of the Client Tracking System by the Department of Homeless Services**

AUDIT NUMBER: 7A03-147

AUDITING AGENCY: NYC Comptroller's Office

DRAFT REPORT DATE: May 17, 2004

Audit Recommendation

Recommendation # 5: Review the status of all CTS users and terminate access, as appropriate.

Category of Response:

A - Implemented

Response To Recommendation

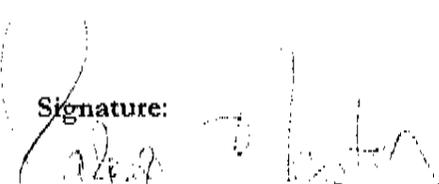
1. Procedures have been refined to ensure that the CTS user list is kept current. The weekly electronic report that indicates those DHS employees that are no longer with the agency, that is electronically sent by the DHS Human Resources Department to the DHS Office of Information Technology, will also be sent to the DHS Family Division staff who are responsible for the issuance and revocation of Client Tracking System IDs.
2. The 521 CTS IDs that were presented to DHS OIT during this audit as unaccounted for have been reconciled. DHS OIT, working with the DHS' Office of Human Resources, found that due to differences in name use, spelling, and other changes, all but 34 were accounted for. Of the 34, 7 were consultants authorized to access CTS; the remaining 27 were found to be terminated. Those 27 terminated IDs were removed from the CTS ID list by DHS' Family Division staff responsible for CTS IDs. Reconciliation documentation is available for review.

Implementation Date
May 2004

RESPONSIBILITY CENTER

DHS Office of Information Technology

Signature:



Print Name: Patrick J. Nestor
Print Title: Chief Information Officer

June 1, 2004
Date