

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

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*Comptroller*

**Follow-Up Audit Report on the  
Call Accounting System of the  
Department of Information  
Technology & Telecommunications**

**7F02-070**

*June 27, 2002*

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

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Call Accounting System of the  
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**SUMMARY OF FINDINGS AND CONCLUSIONS**

This follow-up audit determined whether the New York City Department of Information Technology & Telecommunications (DoITT) implemented the recommendations made in a previous audit, *Audit Report on the Department of Information Technology & Telecommunications' Call Accounting System* (Audit No.7A96-082, issued June 28, 1996). The City's Call Accounting System processes telephone call information concerning local and long distance calls made by City agency personnel. The earlier audit evaluated the effectiveness of the Astra-Phacs call accounting system, as well as the Request for Proposal for its successor, the Tele-management System (TMS), which was developed by Telecom Services Limited (TSL). In our current audit, we discuss the recommendations made earlier regarding TMS and the implementation of those recommendations.

In our previous audit, we made 30 recommendations to DoITT. Of the 30 recommendations, 15 were implemented, five were partially implemented, five were not implemented, and five are no longer applicable. The details of these recommendations and their implementation status follow. DoITT should:

1. "Establish a management objective by including all City agencies in the new system except for a portion of some agencies whose personnel are involved in undercover assignments and who need confidentiality in their work." **IMPLEMENTED**
2. "Establish surveys delineating Agency-managed traffic and usage pattern information." **IMPLEMENTED**
3. "Ensure that specifications for direct and allocated costs, reconciliation, reimbursement, organizational structure, automation of spreadsheet tasks, and a general ledger software are resolved with TSL." **PARTIALLY IMPLEMENTED**

4. “Develop a direct costing methodology and processing module for the new system, thereby charging agencies for their actual telecommunication usage.”  
**IMPLEMENTED**
5. “Ensure the use of vendor rates (i.e., Sprint Toll Rates) for the calculation of long distance calls.” **IMPLEMENTED**
6. “Establish reconciliation procedures between the new system and the vendors.”  
**NOT IMPLEMENTED**
7. “Develop a module to perform the reconciliation between the TSL System and City of New York vendors encompassing consistent methods for any field conversions required because of incompatible data formats.” **NOT IMPLEMENTED**
8. “Establish procedures requiring accountability in the reimbursement process.”  
**NO LONGER APPLICABLE**
9. “Develop a reimbursement module in the new system in order to enter reimbursement information.” **NO LONGER APPLICABLE**
10. “Ensure that the new system processes reimbursements for international calls.”  
**NO LONGER APPLICABLE**
11. “Create exception reports to monitor reimbursements.” **IMPLEMENTED**
12. “Establish a formal computer security standard user’s guide appropriate to the environment of the new system.” **IMPLEMENTED**
13. “Develop appropriate authorization code policies/procedures for the new system:
  - Ensure that authorization codes are kept confidential; *Implemented*
  - Ensure that authorization codes are changed periodically; *Not Implemented*
  - Ensure that long distance calls cannot be made without the use of a current authorization code; *Not Implemented*
  - Have authorization codes encrypted; *Implemented*
  - Use a central authorization code database as the basis for interacting with the call records of the call accounting system; *Implemented*
  - Develop a procedure for reconciling the authorization codes in the switches with the authorization codes in the central authorization code database.”  
*Implemented*

Overall status of Recommendation #13: **PARTIALLY IMPLEMENTED**

14. “Ensure that tariff changes are entered timely into the system so that the charges are consistent with those charged by the carriers to facilitate reconciliation and billing.” **NOT IMPLEMENTED**
15. “Update and maintain the Directory file in order to establish the reliability and integrity of the call data.” **IMPLEMENTED**
16. “Make sure that exchanges are entered into the system, especially for tenants with various exchanges.” **IMPLEMENTED**
17. “Ensure that the indicated threshold time is not by-passed.” **IMPLEMENTED**
18. “Ensure that all data and call records for all tenants are complete through data validation techniques and the review of exception reports.” **PARTIALLY IMPLEMENTED**
19. “Ensure that all call records, requiring a cost amount, contain a cost amount through data validation techniques and the review of exception reports.” **IMPLEMENTED**
20. “Ensure that specifications for logical security are resolved with TSL.” **PARTIALLY IMPLEMENTED**
21. “Establish an audit group in order to review and to appraise activities within the organization.” **NOT IMPLEMENTED**
22. “Audit the reimbursement process for the DoITT-managed and Agency-managed agencies.” **NO LONGER APPLICABLE**
23. “Ensure that the Financial Services area and other members of the development committee are aware of all TSL developments and modifications.” **NO LONGER APPLICABLE**
24. “Limit access to the TSL environment according to necessity by installing card readers (devices that read information from magnetically encoded cards), installing an alarm system, hiring a security guard, or acquiring other physical security methods.” **IMPLEMENTED**
25. “Develop written policies for a disaster recovery plan for the TSL System environment, including backup of all call records and local calls, as well as off-site storage of all City call data including the parameters specific to each site.” **PARTIALLY IMPLEMENTED**

26. “Establish a contract for disaster recovery with an appropriate company.”  
**IMPLEMENTED**
27. “Test the disaster recovery plan after its establishment.” **IMPLEMENTED**
28. “Provide secure storage of all backup tapes including current system backups and historical system backups from Astra-Phacs.” **IMPLEMENTED**
29. “Establish the retention of local call information for analytical purposes.”  
**IMPLEMENTED**
30. “Establish formal procedures for program changes.” **NOT IMPLEMENTED**

To address the issues that still exist, we now recommend that DoITT:

1. Create parameters for reconciling vendor and system data.
2. Establish procedures to reconcile TMS data and vendors’ data.
3. Develop appropriate authorization code policies/procedures for TMS; these should include changing codes periodically.
4. Ensure that calls cannot be made without an authorization code.
5. Ensure that tariff changes are entered promptly into TMS so that TMS charges are consistent with charges made by the carriers. This will facilitate reconciliation and billing.
6. Ensure that all data and call records for all users are reviewed for accuracy.
7. Follow-up with TSL and verify that all findings identified by the consultant have been addressed.
8. Conduct an independent assessment of DoITT’s TMS unit to improve the reimbursement and reconciliation procedures.
9. Ensure that Financial Services and the TMS unit are aware of all TMS updates, upgrades, and modifications to the system.
10. Ensure that all elements required by Comptroller’s Directive 18 are addressed in TSL’s and DoITT’s disaster recovery plans.
11. Establish formal procedures for program changes.

## **NEW FINDING AND RECOMMENDATION**

TMS is a call accounting system that tracks calls made within the 82 DoITT-managed agencies and six Non-DoITT-managed agencies. The system uses proprietary software that was developed and is owned by TSL. Since DoITT does not have a copy of TMS's source code, certain problems that arise require TSL to fix them. For this reason, access to the source code is vital in the event that TSL were to cease operation. Further, the June 1995 contract between DoITT and TSL states, "If requested by the City, TSL will cause a copy of the Source Code for the Licensed Software to be delivered to a mutually agreeable escrow agent." DoITT's access to the source code would ensure that all City data could be accessed if TSL is no longer in operation.

To address this new issue, we recommend that DoITT:

12. Request a copy of the source code for the Licensed Software (TMS) to ensure that DoITT can resume telecommunications operations in the event that TSL were to cease operation.

### **Agency Response**

The matters covered in this report were discussed with officials from DoITT during and at the conclusion of this audit. A preliminary draft report was sent to DoITT officials and discussed at an exit conference held on June 6, 2002. On June 7, 2002, we submitted a draft report to DoITT officials with a request for comments. We received a written response on June 21, 2002. DoITT agreed with nine of the audit's 12 recommendations. DoITT partially agreed with the two recommendations (#3 and #4) that it develop policies and procedures to ensure that authorization codes are changed periodically and to prevent calls from being made without an authorization code. DoITT did not agree with the recommendation (#6) that it review all data and call records for accuracy, citing the need for additional staffing for such reviews.

The full text of DoITT's comments is included as an addendum to this report.

## **INTRODUCTION**

### **Background**

The New York City Department of Information Technology and Telecommunications (DoITT) manages the City's Call Accounting System, which processes telephone call information concerning local and long distance calls made by City agency personnel. For the purpose of this audit, agencies in the City are considered either DoITT-managed or Non-DoITT-managed.<sup>1</sup> TMS tracks the calls made within the 82 DoITT-managed agencies and six Non-DoITT-managed agencies. The majority of DoITT-managed sites are single agency sites; however there are a few multi-agency sites occupied by several agencies that are served by a Private Branch Exchange (PBX). PBX technology allows a multi-agency site to share exchanges and produce one summary bill. The monthly bill is allocated according to the size of agencies at the site. The Non-DoITT-managed sites are sites occupied by single agencies that usually manage their own telecommunications operations and billing. DoITT receives both detailed and summary statements of telephone bills for DoITT-managed sites and receives only summary statements for Non-DoITT-managed sites (the detailed statements are sent directly to the agencies).

The DoITT units involved in the call accounting process are Network Services and Financial Services. The Network Services Unit manages the TMS computer operations, which includes distribution of "call detail" reports that list potential reimbursements by City employees for non-business long distance calls. The Financial Services Division is responsible for paying bills for local, long distance, fax, calling card, and cellular calls, as well as for monthly service charges, equipment repairs, equipment installations, and voice message services. It pays Sprint for Non-DoITT-managed agencies, Verizon for local calls, and AT&T for long distance and international calls. Since each agency is responsible for collecting reimbursements from its own employees for personal long distance calls they made using agency equipment, the Financial Services Division collects long distance and cellular call reimbursements from DoITT personnel only.

### **Objectives, Scope, and Methodology**

This follow-up audit determined whether the 30 recommendations made in a previous audit, *Audit Report on the Department of Information Technology & Telecommunications' Call Accounting System* (Audit No.7A96-082, issued June 28, 1996), were implemented.

Audit fieldwork began in March 2002 and ended in April 2002. To meet our objectives, we:

- reviewed the 1993 Request for Proposal for the TMS system;

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<sup>1</sup> At the DoITT-managed sites, DoITT provides all telecommunications services for the agencies, including installation of switches and maintenance. At the Non-DoITT-managed sites, the agencies themselves handle those functions.

- toured the DoITT data center and TSL New Jersey site to examine physical and logical security controls;
- interviewed officials from DoITT Financial Services Division and TSL;
- reviewed and compared TMS and vendor call detail reports for accuracy; and
- reviewed and analyzed TSL's disaster recovery plan.

We used provisions of the Comptroller's Internal Control and Accountability Directive #18, *Guidelines for the Management, Protection and Control of Agency Information and Information Processing Systems (Directive 18)*, issued June 29, 1998, as the audit criteria.

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 City Comptroller's audit responsibilities as set forth in Chapter 5, § 93, of the New York City Charter.

### **Agency Response**

The matters covered in this report were discussed with officials from DoITT during and at the conclusion of this audit. A preliminary draft report was sent to DoITT officials and discussed at an exit conference held on June 6, 2002. On June 7, 2002, we submitted a draft report to DoITT officials with a request for comments. We received a written response on June 21, 2002. DoITT agreed with nine of the audit's 12 recommendations. DoITT partially agreed with the two recommendations (#3 and #4) that it develop policies and procedures to ensure that authorization codes are changed periodically and to prevent calls from being made without an authorization code. DoITT did not agree with the recommendation (#6) that it review all data and call records for accuracy, citing the need for additional staffing for such reviews.

The full text of DoITT's comments is included as an addendum to this report.

**OFFICE OF THE COMPTROLLER  
NEW YORK CITY  
DATE FILED: June 27, 2002**

## **RESULTS OF THIS FOLLOW-UP AUDIT**

**PREVIOUS FINDING:** “The Astra-Phacs did not include all city agencies’ data.”

**Previous Recommendation #1:** “Establish a management objective by including all City agencies in the new system except for a portion of some agencies whose personnel are involved in undercover assignments and who need confidentiality in their work.”

**Previous Agency Response:** “It may not be cost effective to include all City agencies for technical and administrative reasons. Most City telephones are not at sites that may be monitored or are on sites with a small number of telephones. It may not be cost effective to install monitoring devices at these sites. However, DoITT will investigate the cost effectiveness, administrative practicality and policy issues surrounding this recommendation.”

### **Current Status: IMPLEMENTED**

DoITT provided various reports showing that the 82 DoITT-managed agencies and six Non-DoITT-managed agencies are covered by TMS. Accordingly, we consider Recommendation #1 implemented.

**Previous Recommendation #2:** “Establish surveys delineating Agency managed traffic and usage pattern information.”

**Previous Agency Response:** “Delineating agency managed traffic and usage patterns is already a function of the system.”

### **Current Status: IMPLEMENTED**

DoITT provided various reports that contain traffic and usage pattern information, e.g., Trunk Usage Statistics and hourly phone traffic reports (“Busy Hour Report”). Accordingly, we consider Recommendation #2 implemented.

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**PREVIOUS FINDING:** “Issues pertaining to financial matters need to be addressed in the TSL System”

**Previous Recommendation #3:** “Ensure that specifications for direct and allocated costs, reconciliation, reimbursement, organizational structure, automation of spreadsheet tasks, and a general ledger software are resolved with TSL.”

**Previous Agency Response:** DoITT did not respond directly to Recommendation #3. Instead, they said to “see responses to recommendations #4, #6, and #9.” The DoITT response to Recommendation #4 states that “the allocation of exact telecommunications costs to agencies is a basic function of the system and was clearly depicted in the earliest design parameters for the system.”

**Current Status: PARTIALLY IMPLEMENTED**

TSL has established specifications for direct and allocated costs, the organizational structure, and the automation of spreadsheet tasks. However, TSL has not developed parameters for reconciling system and vendor data. Accordingly, we consider Recommendation #3 partially implemented.

**Previous Recommendation #4:** “Develop a direct costing methodology and processing module for the new system, thereby charging agencies for their actual telecommunication usage.”

**Previous Agency Response:** “The allocation of exact telecommunications costs to agencies is a basic function of the system and was clearly depicted in the earliest design parameters for the system and in all documentation related to the Telecommunication Management System (TMS) since then. These parameters were presented to the Office of the Comptroller during the early stage of their audit. ”

**Current Status: IMPLEMENTED**

There is a direct costing methodology in TMS that allows telecommunication costs to be allocated to the agencies. Accordingly, we consider Recommendation #4 implemented.

**Previous Recommendation #5:** “Ensure the use of vendor rates (i.e., Sprint Toll Rates) for the calculation of long distance calls.”

**Previous Agency Response:** “Currently being performed. No dispute.”

**Current Status: IMPLEMENTED**

The vendor rates are now used in TMS to calculate the cost of long distance calls. Accordingly, we consider Recommendation #5 implemented.

**Previous Recommendation #6:** “Establish reconciliation procedures between the new system and the vendors (NYNEX and Sprint).”

**Previous Agency Response:** “The issue of incompatible data formats is an industry issue, not a TMS issue. Formats are continually changing, even within the same vendor, so that

any investment to conform to one vendor, will be wasted as the formats change. There is no industry standards 'body' to specify and ensure compliance with any such standard. Further, with the unfolding of the marketplace, the city will have access to, and take advantage of, a very large number of vendors in each area of telecommunications. Additionally, we will have multiple vendors providing the same service, sometimes within the same site—due to cost and continuity factors. It is unrealistic to expect reprogramming of applications for each vendor bill modification.”

**Current Status : NOT IMPLEMENTED**

DoITT still has not developed reconciliation procedures to ensure that call information on TMS matches vendor billing. Accordingly, we consider Recommendation #6 not implemented.

**Previous Recommendation #7**: “Develop a module to perform the reconciliation between the TSL System and City vendors encompassing consistent methods for any field conversions required because of incompatible data formats.”

**Previous Agency Response**: DoITT did not respond directly to Recommendation #7. Instead, they said to “see response to recommendation #6.” That response states that “the issue of incompatible data formats is an industry issue, not a TMS issue.”

**Current Status : NOT IMPLEMENTED**

DoITT has not installed a module in TMS that performs call and rate reconciliations between TMS and City vendors. Accordingly, we consider Recommendation #7 not implemented.

**Previous Recommendation #8**: “Establish procedures requiring accountability in the reimbursement process.”

**Previous Agency Response**: “DoITT currently has procedures in place requiring agencies to reimburse for personal calls. Most agencies adhere to these procedures and consistently return reimbursement for personal calls. DoITT currently tracks agencies’ responses and contact agencies, which have not submitted reimbursements. However, it is not possible to track or assure each City employee is reimbursing appropriately. This responsibility lies within each individual.”

**Current Status : NO LONGER APPLICABLE**

DoITT provided a City Policy dated November 14, 2000, that makes City agencies responsible for collections of employee reimbursements for long distance calls and the record keeping and maintenance of all relevant information. Accordingly, we consider Recommendation #8 no longer applicable.

**Previous Recommendation #9:** “Develop a reimbursement module in the new system in order to enter reimbursement information.”

**Previous Agency Response:** “No telecommunications management system known to us provides such a module. However, the system is capable of entering the information with some customization of user defined fields, so that duplicate reimbursement databases will not be necessary. DoITT shall investigate the cost effectiveness of the development of such a module.”

**Current Status: NO LONGER APPLICABLE**

As stated in the previous recommendation, DoITT is no longer responsible for agency reimbursement. Accordingly, we consider Recommendation #9 no longer applicable.

**Previous Recommendation #10:** “Ensure that the new system processes reimbursements for international calls.”

**Previous Agency Response:** “International calls are long distance and are processed in the same manner.”

**Current Status: NO LONGER APPLICABLE**

As stated earlier, DoITT is no longer responsible for tracking reimbursements of City agencies. Accordingly, we consider Recommendation #10 no longer applicable.

**Previous Recommendation #11:** “Create exception reports to monitor reimbursements.”

**Previous Agency Response:** DoITT did not respond directly to Recommendation #11. Instead they said to “see response to recommendation #8.” That response states that “DoITT currently tracks agencies’ responses and contact agencies, which have not submitted reimbursements. However, it is not possible to track or assure each City employee is reimbursing appropriately. This responsibility lies within each individual.”

**Current Status: IMPLEMENTED**

The new system creates exception reports for calls over \$25, calls over 40 minutes, and calls under one minute. Accordingly, we consider Recommendation #11 implemented.

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**PREVIOUS FINDING:** “Logical security for the TSL system is not addressed.”

**Previous Recommendation #12:** “Establish a formal computer security standard user’s guide appropriate to the environment of the new system.”

**Previous Agency Response:** “There will not be a security user’s guide—but rather, a user’s guide which includes sections on security.”

**Current Status: IMPLEMENTED**

A user guide was created that adequately addresses all system security issues. Accordingly, we consider Recommendation #12 implemented.

**Previous Recommendation #13:** “Develop appropriate authorization code policies/procedures for the new system:

- Ensure that authorization codes are kept confidential; ***Implemented***
- Ensure that authorization codes are changed periodically; ***Not Implemented***
- Ensure that long distance calls cannot be made without the use of a current authorization code; ***Not Implemented***
- Have authorization codes encrypted; ***Implemented***
- Use a central authorization code database as the basis for interacting with the call records of the call accounting system; ***Implemented***
- Develop a procedure for reconciling the authorization codes in the switches with the authorization codes in the central authorization code database.” ***Implemented***

**Previous Agency Response:** “We concur and are developing a procedure for the replacement of codes on a site basis. . . . Long distance calls cannot be made from any DoITT managed system without authorization codes, with certain exceptions such as older PBX systems in which only telephones, which have been deliberately assigned a higher Network Class of Service (NCOS) may make such calls . . . . We are going beyond the existing, many layered security system and investigating encryption algorithms. We will investigate and if practicable and cost effective, we will put into place. . . . The system currently incorporates this recommendation [central authorization code database]. . . . DoITT will investigate automatic or manual authorization code reconciliation with the telephone switches. These procedures will be implemented if they are found to be appropriate when used in conjunction with periodic site replacements. The only reconciliation that can occur is that of the authorization codes equal existence [sic] in both databases since the switch does not contain name data. Also, it may not be possible to download this data from certain switches.”

**Current Status: PARTIALLY IMPLEMENTED**

We found that authorization codes are encrypted and kept confidential, procedures for reconciling authorization codes have been developed, and a central authorization code database is maintained. However, DoITT still does not periodically change authorization codes, and long distance calls can still be made without authorization codes. Therefore, we consider Recommendation #13 partially implemented.

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**PREVIOUS FINDING:** “Management did not address some of the weaknesses identified in Astra-Phacs.”

**Previous Recommendation #14:** “Ensure that tariff changes are entered timely into the system so that the charges are consistent with those charged by the carriers to facilitate reconciliation and billing.”

**Previous Agency Response:** “DoITT believes it has always entered tariff changes into the system in a timely manner and will continue to do so.”

**Current Status: NOT IMPLEMENTED**

The TMS database does not contain the most current tariff rates for the City’s long distance vendor, AT&T. Accordingly, we consider Recommendation #14 not implemented.

**Previous Recommendation #15:** “Update and maintain the Directory file in order to establish the reliability and integrity of the call data.”

**Previous Agency Response:** “The directory is maintained and updated.”

**Current Status: IMPLEMENTED**

Every six months, DoITT updates the system directory based on information received from City agencies. Accordingly, we consider Recommendation #15 implemented.

**Previous Recommendation #16:** “Make sure that exchanges are entered into the system, especially for tenants with various exchanges.”

**Previous Agency Response:** “All information necessary to identify every extension is resident in the system.”

**Current Status: IMPLEMENTED**

We confirmed that all exchanges are recorded in the system. Accordingly, we consider Recommendation #16 implemented.

**Previous Recommendation #17:** “Ensure that the indicated threshold time is not bypassed.”

**Previous Agency Response:** “DoITT currently ensures this.”

**Current Status: IMPLEMENTED**

DoITT provided TMS call detail reports that indicate all calls under and over the established thresholds. Accordingly, we consider Recommendation #17 implemented.

**Previous Recommendation #18:** “Ensure that all data and call records for all tenants are complete through data validation techniques and the review of exception reports.”

**Previous Agency Response:** “The system ensures data and call records for all telephones are complete and exception reports are produced.”

**Current Status: PARTIALLY IMPLEMENTED**

DoITT provided call detail reports that identified all tenant information; however, DoITT does not reconcile call detail reports to the vendor detail reports. Accordingly, we consider Recommendation #18 partially implemented.

**Previous Recommendation #19:** “Ensure that all call records, requiring a cost amount, contain a cost amount through data validation techniques and the review of exception reports.”

**Previous Agency Response:** “DoITT complies.”

**Current Status: IMPLEMENTED**

All call records recorded on the system now contain cost amounts, as recommended. Accordingly, we consider Recommendation #19 implemented.

**Previous Recommendation#20:** “Ensure that specifications for logical security are resolved with TSL.”

**Previous Agency Response:** “There are multiple levels of logical security in the system.”

**Current Status: PARTIALLY IMPLEMENTED**

DoITT provided TSL information that described the responsibilities of TSL's security administrators and users. Additionally, TSL recently hired an outside consultant to review network security. The consultant identified weaknesses in password protection, authentication, anti-virus protection, and network penetration. TSL is currently addressing these issues. Accordingly, we consider Recommendation #20 partially implemented.

**Previous Recommendation #21:** "Establish an audit group in order to review and to appraise activities within the organization."

**Previous Agency Response:** "This is a management and administrative issue which we would be pleased to address subject to appropriate staffing and funding."

**Current Status: NOT IMPLEMENTED**

DoITT still has not established an audit group to evaluate its operations. Accordingly, we consider Recommendation #21 not implemented.

**Previous Recommendation #22:** "Audit the reimbursement process for the DoITT-managed and Agency-managed agencies."

**Previous Agency Response:** DoITT did not respond directly to Recommendation #22. Instead they said to "see response to recommendation #8." That response states that "it is not possible to track or assure each employee is reimbursing appropriately."

**Current Status: NO LONGER APPLICABLE**

As mentioned earlier, DoITT is no longer responsible for collecting reimbursements for other agencies. Accordingly, we consider Recommendation #22 no longer applicable.

**Previous Recommendation #23:** "Ensure that the Financial Services area and other members of the development committee are aware of all TSL developments and modifications."

**Previous Agency Response:** "The modifications and developments of the TSL system are derived from user input and are routinely transferred to the appropriate groups, including the Financial Services area, for review and testing."

**Current Status: NO LONGER APPLICABLE**

Since the system has been developed and implemented Recommendation #23 is no longer applicable.

**Previous Recommendation #24:** “Limit access to the TSL environment according to necessity by installing card readers (devices that read information from magnetically encoded cards), installing an alarm system, hiring a security guard, or acquiring other physical security methods.”

**Previous Agency Response:** “At the time of this finding, TSL was in the midst of moving to their new location. As of the date of this response, TSL is fully secured.”

**Current Status: IMPLEMENTED**

TSL has installed card readers, security cameras, and an alarm system at the facility. Therefore, we consider Recommendation #24 implemented.

**Previous Recommendation #25:** “Develop written policies for a disaster recovery plan for the TSL System environment, including backup of all call records and local calls, as well as off-site storage of all City call data including the parameters specific to each site.”

**Previous Agency Response:** “This will be part of the requirements within the soon to be released disaster recovery contract.”

**Current Status: PARTIALLY IMPLEMENTED**

TSL has a disaster recovery plan for the system. The plan contains an alternate processing site and an off-site data storage facility for backup tapes. However, the plan does not contain an up-to-date inventory of hardware and software. In addition, DoITT should incorporate TMS in its own disaster recovery plan. This would ensure that proper recovery procedures are in place if, for any reason, DoITT severs its relationship with TSL or if TSL is no longer operational. Therefore, we consider Recommendation #25 partially implemented.

**Previous Recommendation #26:** “Establish a contract for disaster recovery with an appropriate company.”

**Previous Agency Response:** “The TSL system is currently being added to specifications soon to be solicited for disaster recovery services.”

**Current Status: IMPLEMENTED**

TSL has contracts with outside vendors for an alternate processing site and a data storage location. Accordingly, we consider Recommendation #26 implemented.

**Previous Recommendation #27:** “Test the disaster recovery plan after its establishment.”

**Previous Agency Response:** “DoITT concurs.”

**Current Status: IMPLEMENTED**

TSL’s disaster recovery plan was tested on November 27, 2001. Accordingly, we consider Recommendation #27 implemented.

**Previous Recommendation #28:** “Provide secure storage of all backup tapes including current system backups and historical system backups from Astra-Phacs.”

**Previous Agency Response:** “No dispute. We are investigating alternatives.”

**Current Status: IMPLEMENTED**

DoITT maintains all system backups on CD-ROMs and tapes in locked storage cabinets. Accordingly, we consider Recommendation #28 implemented.

**Previous Recommendation #29:** “Establish the retention of local call information for analytical purposes.”

**Previous Agency Response:** “All local call information is stored on CD-ROM (shelf life—30 years) as well as on tape at TSL (contract term—five years). ”

**Current Status: IMPLEMENTED**

DoITT retains all call information on CD-ROMs and tapes. Accordingly, we consider Recommendation #29 implemented.

**Previous Recommendation #30:** “Establish formal procedures for program changes.”

**Previous Agency Response:** “Change management procedures have been in place since the start of the TMS [TSL] project, however, they will be reviewed internally for completeness.”

**Current Status: NOT IMPLEMENTED**

DoITT still has not established formal procedures for program changes. Accordingly, we consider Recommendation #30 not implemented.

## RECOMMENDATIONS

DoITT should:

1. Create parameters for reconciling vendor and system data.

**Agency Response:** “DoITT agrees with this recommendation, however there may be significant funding and resource requirements that need to be assessed.”

2. Establish procedures to reconcile TMS data and the vendors’ data.

**Agency Response:** “DoITT agrees with this recommendation, however there may be significant funding and resource requirements that need to be assessed.”

3. Develop appropriate authorization code policies/procedures for TMS; these should include changing codes periodically.

**Agency Response:** “DoITT agrees in part to this recommendation. We do have an Authorization Code policy in place, however due to limited staffing DoITT is not currently able to manage such an ongoing project. DoITT also notes that we have a Fraud Detection System within the TMS that alerts us when codes are being abused and these codes are changed immediately.”

4. Ensure that calls can not be made without an authorization code.

**Agency Response:** “DoITT agrees in part with this recommendation. While there are some lines that can make Long Distance Calls without the use of an Authorization Code, these lines are given a higher class of service and are always a special request from an Agency’s Commissioner Level.”

5. Ensure that tariff changes are entered promptly into TMS so that TMS charges are consistent with charges made by the carriers. This will facilitate reconciliation and billing.

**Agency Response:** “DoITT agrees with this recommendation, and currently has the TMS and Financial Services Unit implementing a procedure that will address this recommendation.”

6. Ensure that all data and call records for all users are reviewed for accuracy.

**Agency Response:** “DoITT is not able to implement this recommendation. Due to limited staffing and the massive amount of data, each Agency is responsible for validating data/user call record information.”

**Auditor Comment:** Although each agency is responsible for validating data/user call record information, we feel that DoITT should, at a minimum, conduct spot checks to ensure that proper reviews are being performed.

7. Follow-up with TSL and verify that all findings identified by the external consultant have been addressed.

**Agency Response:** “DoITT agrees with this recommendation and has currently requested from TSL/PRG [TSL is a subsidiary of TSL/Profit Recovery Group] a copy of the findings. DoITT will then review it and ensure that TSL/PRG has complied.”

8. Conduct an independent assessment of DoITT’s TMS unit to improve the reimbursement and reconciliation procedures.

**Agency Response:** “DoITT agrees with this recommendation. DoITT will identify a process for verifying the reconciliation and reimbursement of DoITT’s call usage.”

9. Ensure that Financial Services and the TMS unit are aware of all TMS updates, upgrades, and modifications to the system.

**Agency Response:** “DoITT agrees with this recommendation and currently has the TMS and Financial Services Unit implementing a procedure that will address this issue.”

10. Ensure that all elements required by Comptroller’s Directive 18 are addressed in TSL’s and DoITT’s disaster recovery plans.

**Agency Response:** “DoITT will again review Directive 18 for compliance.”

11. Establish formal procedures for program changes.

**Agency Response:** “DoITT agrees with this recommendation and currently has the TMS Unit implementing a procedure that will address this issue.”

## **NEW FINDING AND RECOMMENDATION**

### **Source Code Access**

As previously stated, TMS is a call accounting system that tracks calls made within the 82 DoITT-managed agencies and six Non-DoITT-managed agencies. The system uses proprietary software that was developed and is owned by TSL. Since DoITT does not have a copy of TMS's source code, certain problems that arise require TSL to fix them. For this reason, access to the source code is vital in the event that TSL were to cease operation. Further, the June 1995 contract between DoITT and TSL states, "If requested by the City, TSL will cause a copy of the Source Code for the Licensed Software to be delivered to a mutually agreeable escrow agent." DoITT's access to the source code would ensure that all City data could be accessed if TSL is no longer in operation.

### **Recommendation**

We recommend that DoITT:

12. Request a copy of the source code for the Licensed Software (TMS) to ensure that DoITT can resume telecommunications operations in the event that TSL were to cease operation.

**Agency Response:** "DoITT agrees with this recommendation and has requested a copy of the source code from TSL/PRG."



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**GINO P. MENCHINI**  
*Commissioner  
Chief Information Officer*

June 21, 2002

Mr. Roger D. Liwer  
Assistant Comptroller For Audits  
Comptrollers Office  
1 Centre Street Room 1100  
New York, N.Y. 10007-2341

Re: Draft Audit Response to the Follow-Up Audit Report on the Call Accounting System of  
the Department of Information Technology & Telecommunications  
7F02-070

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Dear Mr. Liwer:

We appreciate the opportunity to review your draft audit report on the Call Accounting System of the Department of Information Technology and Telecommunications. We find the report consistent with our expectations and offer the following comments addressing each recommendation:

1. Create parameters for reconciling vendor and system data.

DoITT agrees with this recommendation, however there may be significant funding and resource requirements that need to be assessed.

2. Establish procedures to reconcile TMS data and vendors' data.

DoITT agrees with this recommendation, however there may be significant funding and resource requirements that need to be assessed.

3. Develop appropriate authorization code policy / procedures for the TMS; these should include changing codes periodically.

DoITT agrees in part to this recommendation. We do have an Authorization Code policy in place, however due to limited staffing DoITT is not currently able to manage such an ongoing project. DoITT also notes that we have a Fraud Detection System within the TMS that alerts us when codes are being abused and these codes are changed immediately.

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4. Ensure that calls cannot be made without an authorization code.

DoITT agrees in part with this recommendation. While there are some lines that can make Long Distance Calls without the use of an Authorization Code, these lines are given a higher class of service and are always a special request from an Agency's Commissioner Level.

5. Ensure that tariff changes are entered promptly into TMS so that TMS charges are consistent with charges made by the carriers. This will facilitate reconciliation and billing.

DoITT agrees with this recommendation, and currently has the TMS and Financial Services Unit implementing a procedure that will address this recommendation.

6. Ensure that all data and call records for all users are reviewed for accuracy.

DoITT is not able to implement this recommendation. Due to limited staffing and the massive amount of data, each Agency is responsible for validating data/user call record information.

7. Follow-up with TSL and verify that all findings identified by the external consultant have been addressed.

DoITT agrees with this recommendation and has currently requested from TSL/PRG a copy of the findings. DoITT will then review it and ensure that TSL/PRG has complied.

8. Conduct an independent assessment of DoITT's TMS unit to improve the reimbursement and reconciliation procedures.

DoITT agrees to this recommendation. DoITT will identify a process for verifying the reconciliation and reimbursement of DoITT's call usage.

9. Ensure that Financial Services and the TMS unit are aware of all updates, upgrades, and modifications to the system.

DoITT agrees with this recommendation and currently has the TMS and Financial Services Unit implementing a procedure that will address this issue.

10. Ensure that all elements required by Comptroller's Directive 18 are addressed in TSL's and DoITT's disaster recovery plans.

DoITT will again review Directive 18 for compliance.

11. Establish formal procedures for program changes.

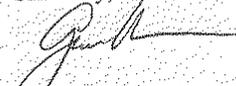
DoITT agrees with this recommendation and currently has the TMS Unit implementing a procedure that will address this issue.

12. Request a copy of the source code for the Licensed Software (TMS) to ensure that DoITT can resume telecommunications operation in the event that TSL were to cease operation.

DoITT agrees with this recommendation and has requested a copy of the source code from TSL/PRG.

We would also like to take this opportunity to thank the audit team who we found to be extremely efficient and well informed.

Sincerely,



Gino P. Menchini