

AUDIT REPORT



CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF FINANCIAL AUDIT
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Audit Report on the Development of AutoTime by the Human Resources Administration

7A01-100

December 2, 2002

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

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EXECUTIVE SUMMARY

Background

In 1993, the Human Resources Administration (HRA) developed requirements for an automated timekeeping system that was contained in a document entitled *HRA AutoTime—A Paperless Timekeeping System*. In August 1994, HRA issued a Request for Proposals (RFP), based on this document, for the development of the Auto Time System (AutoTime). AutoTime captures and processes employee timekeeping, attendance, and leave information from HRA's 112 work sites.¹ By developing AutoTime, HRA intended to reduce the cost of timekeeping, eliminate paperwork, reduce errors in employee time records, and enable transmittal of Electronic Time Records (ETR) and data adjustments to the City's Payroll Management System (PMS).

From among the received proposals, HRA selected Davisco Inc. (Davisco) to create AutoTime. On June 25, 1995, HRA and Davisco entered into a five-year \$9.6 million contract under which Davisco was to provide for: the delivery and installation of system components; all modifications necessary to assure that the system would comply with the functional requirements in the RFP; programming according to specifications in the RFP; training for HRA employees; establishing connections between AutoTime equipment and HRA's data communication networks; and on-site warranty and maintenance services.

¹ When the RFP was issued in 1994, there were 543 HRA work sites. The number of work sites has since been reduced because some HRA responsibilities have been transferred to other agencies, such as the Administration for Children's Services.

The contract was amended on October 22, 1998, December 1, 1998, May 18, 1999, and October 10, 2000, bringing the total contract price to \$12,897,563. In addition, on August 2, 2000, HRA awarded Davisco an \$11.9 million renewal contract. The scope of work of these contracts and amendments is shown in Table I, following.

Table I
AutoTime Contract and Amendments

Contract/Date	Cost	Anticipated Completion Date	Scope of Work
Initial Contract June 1995	\$ 9,610,614	July 2000	Develop the AutoTime system, including software requirements and associated hardware.
Amendment 1 November 1998	\$344,714	July 2000	Purchase and maintain additional Informix network software.
Amendment 2 December 1998	\$482,984	July 2000	Purchase and maintain additional Informix network software.
Amendment 3 May 1999	\$1,372,726	July 2000	Purchase of additional Informix network software licenses in conjunction with Amendment 1.
Amendment 4 October 2000	\$1,086,525	July 2000	Develop and implement functional requirements. The amendment included system administration, travel cost for technical personnel, and hardware maintenance.
Renewal Contract August 2000	\$11,916,508	June 25, 2005	Implementation assistance and software modification, \$3,559,884; hardware and software maintenance, \$3,798,706; technical support, \$1,036,500; system administration \$1,354,500; database and reporting administration, \$1,083,600; and out-of-scope services, \$1,083,319.
Total	\$24,814,071		

Objectives, Scope, and Methodology

The objectives of this audit were to evaluate whether: (1) AutoTime met the initial business and system requirements, as specified in the 1994 Request for Proposal (RFP); (2) the overall AutoTime system design allowed for future enhancements and upgrades; and, (3) AutoTime, as a finished product, meets user needs. Audit fieldwork was conducted from April 2001 through December 2001.

Since the City does not have a formal Systems Development Methodology, we used the following as criteria in this audit: New York City Procurement Policy Board (PPB) Rules; New York City Comptroller’s Internal Control and Accountability Directive #18, “Guidelines for the Management, Protection and Control of Agency Information and Information Processing Systems”; and the National Institute

of Standards and Technology (NIST) Special Publication #500-233, *A Framework for the Development and Assurance of High Integrity Software*.

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.

HRA Statement Pertaining To Directive #18: “Before addressing specific findings and recommendations, however, it is important to note that the authors of the report fail to disclose the fact that the City Comptroller's Directive 18 statement, related to retaining an independent Quality Assurance (QA) consultant, was not in force at the time the initial procurement, vendor selection and system design and development phases of the AutoTime project took place. Directive 18 did not address independent QA consultants for major system development projects until 1998, several years after the AutoTime project was begun by HRA. The version of Directive 18 that was in force when HRA began the AutoTime project was released in 1981 did not address QA consultants, and was not updated for another 17 years, despite the tremendous changes that occurred with respect to information technology during that period. Therefore, it is inappropriate for the report to cite HRA for failing to comply with Directive 18 with respect to retaining a QA consultant for AutoTime, since AutoTime pre-dates this aspect of Directive 18. This fact should be disclosed throughout the report whenever Directive 18 is cited in connection with retaining a QA consultant for AutoTime procurement, design and/or development.”

Auditor Comment: HRA is correct in stating that the Quality Assurance provisions of Directive #18 did not go into effect until after the initial AutoTime contract was let. However, it had long been industry practice, prior to 1998, for projects to be overseen by quality assurance groups. In fact, KPMG, the City's external auditors, in its 1989 Management Letter recommended that the City establish a quality assurance group to oversee system development projects. Moreover, after the current Directive was issued the contract was amended or renewed five times to provide for additional software and programming, which increased the initial contract from approximately \$9.6 million to more than \$24.8 million. At the time of those subsequent amendments or renewals, HRA should have hired a quality assurance consultant to help expedite system development and minimize additional costs. A quality assurance consultant would have learned, in detail, the user and technical requirements of the system and would have used this knowledge to ensure that all requirements and design specifications were accurate and complete.

Results in Brief

Davisco installed the basic timekeeping and attendance functions of AutoTime at all HRA sites in 1998 and generally met the initial business and system requirements specified in the RFP. More than 15,000 employees at all of HRA's 112 work sites use swipe cards or their desktop computers to "clock in" and "clock out" on the system. All absence requests and approvals are processed through the system. AutoTime's overall modular design allows Davisco to develop future enhancements and periodic upgrades. MIS personnel have created formal procedures for program change control and software testing. Finally, users are generally satisfied with AutoTime's basic functions.

AutoTime, however, is incomplete although it has been in development since 1993, and its costs have significantly exceeded the original contract amount. HRA did not retain an independent QA consultant who could have identified the needs of the users and evaluated the proposals HRA received in response to the RFP. AutoTime could have benefited from a QA consultant at any time during the seven-year course of this contract. HRA also did not develop a design document that included system specifications. Moreover, HRA did not assign a sufficient number of business analysts to develop system design specifications that would have enabled the vendor to program, test, and implement the system expeditiously. Some AutoTime users told us that several functions do not work properly and that Davisco employees have improper access to personal information on the AutoTime database.

Moreover, the renewal contract included services that could be performed by HRA employees. Finally, as part of its August 1993 "Pre-Solicitation Review Report," HRA estimated that by implementing the AutoTime system the City would save \$15.7 million. However, based on the actual costs of developing and maintaining the system, we concluded that the City would not realize any savings from the implementation of the system. Additionally, HRA does not monitor the activities of the 12 Davisco employees who have "super user" access to all AutoTime's source code and database records. A super user has the ability to create, modify, and delete database records and programs.

Recommendations

To address these issues, HRA should:

- Assemble a project team headed by a full-time project manager who will ensure that all necessary AutoTime functions are identified and implemented. The team should include a representative from HRA's audit group to serve as a quality assurance consultant.

- Immediately survey system users to determine areas of AutoTime that require changes to meet their needs.
- Monitor the activities of the “super-users” to ensure that only authorized work is performed on the system.
- Amend Davisco’s renewal contract to include training for HRA’s technical staff so that they can take over the programming, maintenance, reporting, and database administration of AutoTime when the renewal contract ends.
- Use the experience of developing AutoTime as a guide in the development of future system projects.
- Retain an independent quality assurance consultant to help identify the needs of the users and evaluate the proposals received in response to future RFPs.

HRA Response

The matters covered in this report were discussed with officials from HRA during and at the conclusion of this audit. A preliminary draft report was sent to HRA officials and discussed at an exit conference held on August 13, 2002. On September 4, 2002, we submitted a draft report to HRA officials with a request for comments. We received a written response from HRA on September 19, 2002, which stated that “HRA will consider the findings and recommendations of this report in evaluating the overall success of the AutoTime project and in planning, developing and implementing future information systems.” HRA’s response also indicates: that it does not believe that it should be held to the requirements of Directive #18 regarding the hiring an independent quality assurance consultant, as the Quality Assurance provisions of Directive #18 did not go into effect until after the initial AutoTime contract was let; that certain of the report’s findings are incorrect or flawed; and, that the implementation of AutoTime constitutes a positive change in the way it does business.

The full text of HRA’s comments is included as an Addendum to this final report.

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INTRODUCTION

Background

The Human Resources Administration (HRA) helps individuals and families achieve self-reliance. HRA is committed to enhancing the quality of life of City residents through a range of social programs and services that fight dependency, strengthen families, promote community responsibility, and assist those in need.

In 1993, HRA developed requirements for an automated timekeeping system that were contained in a document entitled *HRA AutoTime—A Paperless Timekeeping System*. In August 1994, HRA issued a Request for Proposal (RFP) based on this document, for the development of the Auto Time System (AutoTime). AutoTime captures and processes employee timekeeping, attendance, and leave information from HRA's 112 work sites.²

By developing AutoTime, HRA intended to reduce the cost of timekeeping, eliminate paperwork, reduce errors in employee time records, and enable transmittal of Electronic Time Records (ETR) and data adjustments to the City's Payroll Management System (PMS).

From among the proposals HRA received, it selected Davisco Inc. (Davisco) to create AutoTime. On June 25, 1995, HRA and Davisco entered into a five-year \$9.6 million contract under which Davisco was to provide for:

- the delivery and installation of system components (hardware, software, manuals, and other materials);

² When the RFP was issued in 1994, there were 543 HRA work sites. The number of work sites has since been reduced because some HRA responsibilities have been transferred to other agencies, such as the Administration for Children's Services.

- all modifications necessary to assure that the system would comply with the functional requirements in the RFP;
- programming according to specifications in the RFP report;
- training for HRA employees;
- establishing connections between AutoTime equipment and HRA's data communication networks; and,
- on-site warranty and maintenance services.

The contract was amended on October 22, 1998, December 1, 1998, May 18, 1999, and October 10, 2000, bringing the total contract price to \$12,897,563. In addition, on August 2, 2000, HRA awarded Davisco an \$11.9 million renewal contract. The scope of work of these contracts and amendments is shown in Table I, below.

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Objectives

The objectives of this audit were to evaluate whether: (1) AutoTime met the initial business and system requirements, as specified in the 1994 Request for Proposals (RFP); (2) the overall AutoTime system design allowed for future enhancements and upgrades; and, (3) AutoTime, as a finished product, meets user needs.

Scope and Methodology

Audit fieldwork was conducted from April 2001 through December 2001. During this audit, we: (1) interviewed HRA Management Information Systems (MIS) staff and other HRA officials; (2) performed walkthroughs of the AutoTime system; and, (3) reviewed and analyzed AutoTime system specifications, procedures, and other documentation provided in response to our requests.

Since the City does not have a formal Systems Development Methodology³, we used the following as criteria in this audit:

- New York City Procurement Policy Board (PPB) Rules,
- New York City Comptroller's Internal Control and Accountability Directive #18, "Guidelines for the Management, Protection and Control of Agency Information and Information Processing Systems," and
- National Institute of Standards and Technology (NIST) Special Publication #500-233, *A Framework for the Development and Assurance of High Integrity Software*.

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HRA Response

The matters covered in this report were discussed with officials from HRA during and at the conclusion of this audit. A preliminary draft report was sent to HRA officials and discussed at an exit conference held on August 13, 2002. On September 4, 2002, we submitted a draft report to HRA officials with a request for comments. We received a written response from HRA on September 19, 2002, which stated that "HRA will consider the findings and recommendations of this report in evaluating the overall success of the AutoTime project and in planning, developing and implementing future information systems." HRA's response also indicates: that it does not believe that it should be held to the requirements of Directive #18 regarding hiring an independent quality assurance consultant, as the Quality Assurance provisions of Directive #18 did not go into effect until after the initial AutoTime contract was let; that certain of the report's

³ The Comptroller's Office will be writing a letter to the Commissioner of the Department of Information Technology and Telecommunications recommending that the Department develop a formal Systems Development Methodology for City agencies.

findings are incorrect or flawed; and, that the implementation of AutoTime constitutes a positive change in the way it does business.

The full text of HRA's comments is included as an Addendum to this final report.

**OFFICE OF THE COMPTROLLER
NEW YORK CITY
DATE FILED: December 2, 2002**

FINDINGS AND RECOMMENDATIONS

The development of a major computer system such as AutoTime is an expensive, time-consuming, and resource-intensive undertaking. By their nature, system development projects are technically and organizationally problematic and prone to a number of risks that can result in runaway costs, extended development periods, and failure to meet initial needs and objectives. AutoTime suffered from such problems because HRA did not hire a quality assurance (QA) consultant to help identify the needs of the users and evaluate the proposals HRA received in response to the RFP. AutoTime could have benefited from a QA consultant at any time during the seven-year course of this contract.

Davisco installed the basic timekeeping and attendance functions of AutoTime at all HRA sites in 1998 and generally met the initial business and system requirements specified in the RFP. More than 15,000 employees at all 112 HRA work sites use swipe cards or their desktop computers to “clock in” and “clock out” on the system. All absence requests and approvals are processed through the system.

The system’s overall modular design allows Davisco to develop future enhancements and periodic upgrades. MIS personnel have created formal procedures for program change control and software testing. Finally, users are generally satisfied with AutoTime’s basic functions. AutoTime, however, is incomplete although it has been in development since 1993, and its costs have significantly exceeded the original contract amount.

In addition to not hiring an independent QA consultant, HRA did not develop a design document that included system specifications, and it did not assign a sufficient number of business analysts to develop system design specifications that would have enabled the vendor to program, test, and implement the system expeditiously. Some AutoTime users told us that several functions do not work properly and that Davisco employees have improper access to HRA employees’ personal information contained on the AutoTime database. Moreover, the renewal contract included services that could be performed by HRA employees. Finally, as part of its August 1993 “Pre-Solicitation Review Report,” HRA estimated that by implementing the AutoTime system the City would save \$15.7 million. However, based on the actual costs of developing and maintaining the system, we concluded that the City would not realize any savings from the implementation of the system.

Delayed System Development

HRA did not retain the services of a QA consultant when planning for the development of AutoTime. Comptroller’s Directive #18 states that agencies should, “for very large and/or highly critical projects, engage an independent quality assurance consultant to assist the agency.” In this case, a QA consultant would have: helped HRA choose between vendors; identified the needs of users; converted user needs into the system’s design specifications; and ensured that the system was properly tested. The absence of a QA consultant contributed to the delay in developing AutoTime, increased AutoTime costs, and resulted in certain manual timekeeping functions not being automated.

HRA Response: “The Comptroller’s Directive 18 statement related to QA consultants for major systems development did not go into effect until 1998, several years after the AutoTime project began, a key fact that should be disclosed. Moreover, it is not clear from the report what specific actions a QA consultant would have taken that would have prevented the alleged problems with AutoTime procurement, design, development and/or implementation.”

Auditor Comment: HRA is correct in stating that the Quality Assurance provisions of Directive #18 did not go into effect until after the initial AutoTime contract was let. However, it had long been industry practice, prior to 1998, for projects to be overseen by quality assurance groups. In fact, KPMG, the City's external auditors, in its 1989 Management Letter recommended that the City establish a quality assurance group to oversee system development projects. Moreover, after the current Directive was issued the contract was amended or renewed five times to provide for additional software and programming, which increased the initial contract from approximately \$9.6 million to more than \$24.8 million. At the time of those subsequent amendments or renewals, HRA should have hired a quality assurance consultant to help expedite system development and minimize additional costs. A quality assurance consultant would have learned, in detail, the user and technical requirements of the system and would have used this knowledge to ensure that all requirements and design specifications were accurate and complete.

Table II
Status of 1994 RFP Requirements
November 2001

Requirements from the 1994 RFP	Status
Capture time and attendance for 15,000 employees.	Designed and Implemented
Employees without desktop computers can sign on using swiping cards.	Designed and Implemented
Employees with desktop computers must be able to enter data via terminals.	Designed and Implemented
A Location System Personnel Officer function	Designed and Implemented
Capture and record time and attendance information (98 percent availability).	Designed and Implemented
Capacity to handle data entry at peak periods without waiting.	Designed and Implemented
Process the rules and exceptions of straight time	Designed and Implemented
Process the rules and exception of managerial time	Designed and Implemented
Process the rules and exceptions of flextime	Designed and Implemented
Process Per Diem Employees	Designed and Implemented
Process Part Time Employees	Designed and Implemented
Process Sabbath Observance	Designed and Implemented
Process Undocumented Lateness	Designed and Implemented
Process Documented Lateness.	Designed and Implemented
Process Sick Leave-Family illness	Designed and Implemented
Process Absence Without Pay (AWOP)	Designed and Implemented
Process Leave Without Pay (LWOP)	Designed and Implemented
Process Jury Duty Leave Time	Designed and Implemented
Process Partial Day Leaves	Designed and Implemented
Process Planned and Unplanned Annual Leave Time	Designed and Implemented
Process Sick Leave (Documented)	Designed and Implemented
Process Sick Leave (Undocumented)	Designed and Implemented
Process Lateness Due to Transportation Delay.	Designed and Being Tested
Process Leave Balances-Logic to Include Anticipated or Estimated Accruals	Designed and Being Tested
An Office of Personnel Services (OPS) function—Approves personal and medical leaves without pay, terminal leave, etc.	Designed, Tested Not implemented
Process the rules and exceptions of Compressed Time	Not Designed
Process Non-PMS Employees	Not Designed
Process Summer Hours	Not Designed
Process Field Time Reporting	Not Designed
Process Employees On Standby Medical Service	Not Designed
Process Mass Approval of Late Arrival or Early Dismissal	Not Designed
Convert Compensatory Leave and Annual Leave to Sick Time	Not Designed
Process Workers' Compensation	Not Designed
Process Overtime (Paid or Compensatory)	Not Designed
Process Holiday Compensation.	Not Designed
Last Day Worked/ Last Day Pay Calculation	Not Designed
Allow AD Hoc Reports and inquiries by users.	Not Designed
Process handicapped employees' workdays.	HRA has decided it will not be needed.

Contributing to the delay in implementing a complete automated system was the fact that HRA did not develop a design document that included system requirements. The RFP contained a high-level description of system requirements (functional specifications) that adequately set out a plan for those functions that were to be automated. Typically, after a vendor is chosen, a

design document is developed to specify detailed system requirements. NIST Publication #500-223 states the software requirement process should:

“Describe each software requirement giving enough information to design each component . . . analyze each system requirement allocated to software for understandability, correctness, testability, consistency, and completeness.”

To assist in the preparation of a design document, Davisco hired a consulting firm, Deloitte & Touche, to convert the RFP functions into system requirements that were to include the business rules for all functions, the interfaces with other systems, and the data structure and data content for those functions. When Deloitte & Touche left the project in 1996, the design document was not sufficiently detailed to facilitate the required programming to meet user needs.

After Deloitte & Touche left the project, Davisco assigned one of its employees, a programmer/analyst, to work with HRA’s business analyst in the continued development of the design specifications. Obviously, this approach was not adequate, since the design specifications are still being developed more than six years after the contract was awarded.

As previously stated, AutoTime is incomplete. Table II, above, shows that many of the functional requirements contained in the RFP were not developed. AutoTime has also cost more than originally planned. In fact, as part of the contract amendments and renewal, HRA awarded Davisco an additional \$6.8 million to complete the project, including \$2.2 million to purchase network software and \$3.5 million for programming needed to implement and test the outstanding items (shown in Table II).

In a letter dated November 16, 2001, HRA management stated in regard to AutoTime that “as of this date some of the items are complete and running in production, some are ‘on the drawing board’ and others have been prioritized for future development.” The letter listed 19 items—six items being prepared for implementation and 13 items being defined. The letter concludes, “it is possible HRA will determine that some items listed will not provide sufficient benefit and we will not require that they be implemented.” It is disturbing that more than 18 months after AutoTime’s scheduled completion, HRA still has not determined whether all functions contained in the RFP will be implemented.

HRA Response: “HRA notes that at least one item in the RFP, ‘Process Handicapped Employees Workdays’ has been, definitely taken off the list of items to be programmed. HRA is assessing all outstanding items as to the cost, time and benefit derived from implementing these items, vs. the frequency of the item’s occurrence and the difficulty of programming. The report should also acknowledge that those items identified as ‘not designed’ (with the exceptions of ‘Process Overtime (paid or compensatory)’ and ‘Process Holiday Compensation’, as noted above) represent relatively rare and less common occurrences that are not critical to the vast majority of day-to-day timekeeping functions.

“We also note that in a long-term project, items that perhaps seemed critical to one section of the Agency in the beginning must be reassessed later to determine if that critical need remains.”

Auditor Comment: We are concerned that after spending more than nine years developing an automated timekeeping system, HRA has decided to retain some of its manual timekeeping functions. An automated timekeeping system costing more than \$24.8 million should, at the very least, include all the system requirements that were supposed to cost only \$9.6 million. The RFP stated that AutoTime was to be installed at 543 HRA work sites. However, because the agency was downsized and restructured AutoTime only had to be installed at 112 work sites. Given such a reduction in the work scope we would expect the system to actually cost less than originally planned. Moreover, the majority of the savings from this project, as presented in its Pre-Solicitation Review Report, were to be achieved through a reduction in staff positions that has not occurred. We question whether HRA will ever achieve such savings, given that certain functions will continue to be processed manually.

User Satisfaction

Because AutoTime is not a finished product, we felt it would be inappropriate to conduct an extensive review to determine user satisfaction. However, we randomly selected 38 AutoTime users in HRA’s timekeeping, MIS, and administrative groups for a survey. The survey was given to three different groups between May 22, 2001, and July 2, 2001. Most of those surveyed were reasonably satisfied with the system. However, we received 12 comments from the groups stating that some of the functions they need are either not automated or, if automated, do not work correctly. Some of the comments are:

- AutoTime does not calculate the last day of pay for employees who have resigned or retired. This adjustment must be made manually.
- The overtime function does not work correctly. As a result, the system generates employee overpayments and underpayments that have to be identified and manually adjusted.
- The leave balance function does not work correctly. The AutoTime program miscalculates hours, causing leave balances to be overstated or understated. Miscalculations must be identified and manually adjusted.
- AutoTime makes incorrect holiday adjustments, resulting in overpayments or underpayments that must be identified and manually adjusted.

Our review found that the renewal contract adequately addresses these issues, in addition to other enhancements, but we believe that these problems should have been corrected in the initial contract.

HRA Response: HRA took issue with using a “limited number of staff to demonstrate ‘concerns’ with AutoTime.” HRA stated that some of the comments made by employees are “simply not true” or “incorrect.” Moreover, HRA pointed out that some of the functions that its employees were concerned about had not been designed at the time the survey was conducted.

Auditor Comment: We do not understand why HRA is attempting to dispute the results of a survey that was merely intended to provide the agency with feedback from users. In any case, as previously stated, the renewal contract adequately addresses these issues.

Other Issues

HRA Does Not Monitor The Activities of “Super-Users”

HRA does not monitor the activities of the 12 Davisco employees who have “super- user” access to all AutoTime’s source code and database records. A super-user has the ability to create, modify, and delete database records and programs. Directive #18 states that agencies should log and monitor the use of all network resources. It is especially important that super users be monitored since they are not HRA employees and therefore could make unauthorized changes to system programs and records.

The Renewal Contract Includes Services That Could Be Performed by HRA Staff

As previously stated, the renewal contract included \$3.56 million for implementation assistance and software modification; \$3.8 million for hardware and hardware and software maintenance; \$1.04 million for technical support, \$1.35 million for system administration; \$1.08 million for database and reporting administration; and \$1.083 million for out-of-scope services. Comptroller’s Directive #18 states that a successful system development project requires that all agencies “employ skills transfer techniques to insure that agency technical staff can adequately support the completed system.” With the exception of the \$3.56 million for implementation assistance and software modification, HRA employees should have been trained to perform the remaining tasks, thus preventing the need for HRA to contract for these services. This action could have saved the City more than \$8 million.

HRA Response: “This finding and the conclusion drawn from it are wholly illogical and thoroughly flawed. The assumption is made that money would have been saved simply by training HRA staff to perform the maintenance, technical support and administrative functions that have been contracted out. Leaving aside any discussion of the feasibility of this approach, the authors of the report fail to recognize that there would still be a cost to performing the maintenance, technical support and administrative functions, even if done by HRA staff as opposed to an external contractor. Asserting that ‘more than 8 million’ in savings would magically materialize if HRA staff had been trained to perform these functions belies a lack of serious consideration of this issue by the authors.”

Auditor Comment: Our conclusion that the City could have saved \$8 million was predicated on HRA personnel being trained by Davisco while the system was being developed. If this had occurred, HRA would have needed to contract with Davisco only in 2000 for implementation assistance and software modification, which amounted to \$3.56 million. Moreover, Davisco installed the basic timekeeping and attendance functions of AutoTime in 1998. Thus, even if HRA personnel were not trained during system development, there was sufficient time for HRA to ensure that its personnel were trained in the two years between the system implementation and the procurement of the renewal contract.

AutoTime Did Not Produce the Envisioned Savings

As part of its August 1993 “Pre-Solicitation Review Report,” HRA estimated that implementing the Auto Time system would save HRA \$15.7 million (\$24.8 million to be saved, less an estimated \$9.1 million in contract costs)⁴ for the period Fiscal Year 1994 through Fiscal Year 1998. The bulk of the savings were to be achieved through a reduction in staff positions. Despite repeated requests, HRA did not provide documentation showing the extent to which the estimated savings were actually achieved.

Our analysis revealed that the implementation of AutoTime may have resulted in no savings at all to HRA, since AutoTime’s adjusted contract costs (excluding maintenance) totaled \$17.5 million, rather than HRA’s estimated \$9.1 million. Thus, the estimated savings would have been only \$7.3 million. When the \$7.3 million in maintenance costs is taken into account, it appears that no savings were realized through the implementation of the Auto Time system. Moreover, AutoTime will not generate savings as long as savings from staff reductions remain the same as the costs of maintenance. That is, the estimated savings of \$1.46 million per year (\$7.3 million dollars for five years) for staff reductions equal the \$1.46 million in annual contracted maintenance costs.

Although we recognize that HRA may have had other valid reasons for wanting to implement an automated timekeeping system, the AutoTime system was approved predicated on saving a substantial amount of public funds. We question whether this project would have been approved had it been known that no savings would actually be achieved.

HRA Response: “HRA believes that implementation of AutoTime constitutes a positive change in the way it does business, by improving dramatically the level of supervisory oversight and internal controls on all aspects of the timekeeping process. AutoTime provides a number of benefits which result in improved service and produces important savings that, while perhaps less easily measured, are critical to Agency operations. These benefits include the consistent and timely processing of time and leave, automated record-keeping with no paper files subject to loss or mis-filing; the ability to locate records easily and quickly for use at arbitration, in court, for audits and other outside entities; the ability of OSR to produce ad hoc reports capturing almost any type of time

⁴ Of the \$24.8 million in expected benefits, \$23 million was staff-related.

and leave information that could be needed; the convenience of having time records at each location and the ability to see at a glance if a staff member has requested a leave, overtime, and/or completed his/her timesheet. AutoTime has also allowed the Agency to enforce Leave Without Pay (LWOP) compliance much more consistently, and has been used to provide important documentation for reimbursement requests, most recently with respect to securing appropriate Federal reimbursement for September 11th - World Trade Center disaster recovery and assistance activities. These internal control benefits and imputed savings cannot be discounted in contemplating a system such as AutoTime.”

Auditor Comment: Although HRA believes that the implementation of AutoTime has resulted in some benefit to the agency, its response does not address the audit’s finding that AutoTime has not produced the envisioned savings. As previously stated, the major part of the savings, as presented in the Pre-Solicitation Review Report, was to be achieved through a reduction in staff positions that has not occurred.

Recommendations

HRA should:

1. Assemble a project team headed by a full-time project manager who will ensure that all necessary AutoTime functions are identified and implemented. The team should include a representative from HRA’s audit group to serve as a quality assurance consultant.

HRA Response: “HRA will consider this recommendation for future information system development projects with respect to establishing a project team with a full-time manager, but given the advanced stage of the AutoTime project and the handful of timekeeping processes that remain to be incorporated into AutoTime, at present we do not see the need to develop an entirely new project management structure for AutoTime.

“With respect to including a representative from HRA’s internal audit bureau, we do not believe this would be appropriate because it would preclude this unit from ever conducting its own independent audit of any future system for which it was part of the project team.”

Auditor Comment: Given HRA’s concern about auditor independence, the auditor assigned to the project should report to the head of HRA’s internal audit group. Under this arrangement, the auditor would provide advice to, and not be part of, the management team in charge of the project. Accordingly, the internal audit group could perform audits of the system and remain in compliance with the new GAGAS independence standards that take effect on January 1, 2003.

2. Immediately survey system users to determine areas of AutoTime that require changes to meet their needs.

HRA Response: “We will consider conducting a survey of Agency timekeepers who use the system on a constant basis, and take any issues they have into consideration for future analysis and action.”

3. Monitor the activities of the “super-users” to ensure that only authorized work is performed on the system.

HRA Response: “The underlying finding related to this recommendation is inaccurate. HRA monitors the activities of ‘super-users’ and . . . works with Davisco to limit the number of employees with access to the Autotime database. Further, any ‘superuser’ access by Davisco is limited to the Autotime servers and does not allow Davisco ‘superuser’ access to other network resources as implied in the audit.”

Auditor Comment: Although HRA states that it monitors the activities of Davisco’s “super-users,” it did not provide documentation to support this contention either during the audit or in response to the audit. In addition, contrary to HRA’s response, the audit does not imply that Davisco “super-users” have access to other network resources. Rather, the problem is that Davisco employees have access to all HRA employees’ personal data on the AutoTime database and that HRA does not monitor Davisco’s activities.

4. Amend Davisco’s renewal contract to include training for HRA’s technical staff so that they can take over the programming, maintenance, reporting, and database administration of AutoTime when the renewal contract ends.

HRA Response: “The AutoTime contract provides for the contractor being responsible for those functions. These functions were contracted out because HRA did not at the time of the original contract nor at the present time have sufficient technical staff to perform these functions ‘in-house.’ Further, even if staff resources were available it would not be practical for HRA to perform a number of the maintenance functions specified by the audit such as system software and application software maintenance since HRA does not own the system or application source code. Similarly, hardware maintenance is a function that organizations typically contract out because of the required expertise in equipment repair and issue of parts availability.”

Auditor Comment: As part of their response to Recommendation #6, HRA officials state that “MIS has full-time staff assigned to writing specifications based on the needs of users, testing system changes and monitoring performance.” If this is so, Davisco employees who currently perform testing and prepare documentation can be replaced by HRA staff who write specifications and perform system testing.

5. Use the experience of developing AutoTime as a guide in the development of future system projects.

HRA Response: “We agree with this recommendation and will endeavor to use this experience as a guide in developing future systems.”

6. Retain an independent quality assurance consultant to help identify the needs of the users and evaluate the proposals received in response to future RFPs.

HRA Response: “MIS has full-time staff assigned to writing specifications based on the needs of users, testing system changes and monitoring performance. We see no need for an expensive outside entity who would have to learn our current systems environment, understand HRA’s business operations and familiarize themselves with HRA’s users’ needs. This would take many months and involving consultants in RFPs could raise issues of conflict of interest and confidentiality.”

Auditor Comment: As previously stated, an independent QA professional would have helped identify the needs of the users and evaluate the proposals HRA received through the RFP. The cost of the QA professional would have clearly been justified if it could have prevented HRA from incurring the vast cost overruns and delays associated with the development of this system. Furthermore, as we previously discussed, HRA was afforded a number of opportunities to hire a QA consultant, since it amended the AutoTime contract four times between October 1998 and October 2000. It is unclear what conflict of interest and confidentiality issues HRA is talking about. If HRA means that the QA consultant or individuals and companies related to the consultant could not respond to the RFP, we agree. In any case, the current Directive 18 recommends that agencies engage an independent quality assurance consultant to "insure the success" of system development projects.



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VERNA EGGLESTON
Administrator/Commissioner

FRANCES ABBADESSA
Executive Deputy Commissioner

September 19, 2002

Roger D. Liwer
Assistant Comptroller for Audits
The City of New York
Office of the Comptroller
1 Centre Street, Room 530
New York, New York 10007-2341

Re: Draft Report
On The Development of AutoTime By
The Human Resources Administration
Audit # 7A01-100

Dear Mr. Liwer:

We thank you for the opportunity to respond to your draft report on the Human Resource Administration's development of the AutoTime system. We have reviewed the draft report carefully and have responded to the specific findings and recommendations it includes.

Before addressing specific findings and recommendations, however, it is important to note that the authors of the report fail to disclose the fact that the City Comptroller's Directive 18 statement, related to retaining an independent Quality Assurance (QA) consultant, was not in force at the time the initial procurement, vendor selection and system design and development phases of the AutoTime project took place. Directive 18 did not address independent QA consultants for major system development projects until 1998, several years after the AutoTime project was begun by HRA. The version of Directive 18 that was in force when HRA began the AutoTime project was released in 1981 did not address QA consultants, and was not updated for another 17 years, despite the tremendous changes that occurred with respect to information technology during that period. Therefore, it is inappropriate for the report to cite HRA for failing to comply with Directive 18 with respect to retaining a QA consultant for AutoTime, since AutoTime pre-dates this aspect of Directive 18. This fact should be disclosed throughout the report whenever Directive 18 is cited in connection with retaining a QA consultant for AutoTime procurement, design and/or development.

The following are specific comments regarding the findings and recommendations in the draft report.

Auditor's Results in brief (p.ES-3):

"Davisco employees have improper access to personal information on the AutoTime database"

HRA's Response:

Davisco is contracted to maintain and operate Autotime. Therefore its employees require access to the database. However, HRA will, again review which Davisco employees have access to the database to be sure that only those with a valid need to access the database may do so. Furthermore, since HRA has contracted with Davisco to serve as the AutoTime database administrator, and all Davisco employees are bound pursuant to the terms of the contract to keep all information they may gain from the system confidential, we do not believe that Davisco's access should be construed as "improper".

Auditor's Introduction: (p. 3):

"On August 27, 2002 we submitted a draft report to HRA officials with a request for comments."

HRA's Response:

HRA did not receive the report until on or about September 3rd or 4th. The report itself is dated Sept. 4th.

Auditors' Finding p. 4:

"The absence of a QA consultant contributed to the delay in developing AutoTime, increased AutoTime costs, and resulted in certain manual timekeeping functions not being automated."

HRA's Response:

As noted above, the Comptroller's Directive 18 statement related to QA consultants for major systems development did not go into effect until 1998 several years after the AutoTime project began, a key fact that should be disclosed. Moreover, it is not clear from the report what specific actions a QA consultant would have taken that would have prevented the alleged problems with AutoTime procurement, design, development and/or implementation.

Auditors' Finding p. 5. Table II:

In the table found on page 5 of the draft document, there are items whose status is listed as "not designed".

HRA's Response:

HRA notes that as of the date of the Report (September 4, 2002) two of the items listed as "not designed", specifically "Process Overtime (paid or compensatory) and "Process Holiday Compensation" have both been fully specified and sent to Davisco. Overtime has been programmed and is being tested at Davisco as of September 4, 2002.

Auditors' Finding p.6:

"It is disturbing that more than 18 months after AutoTime's scheduled completion, HRA still has not determined whether all functions contained in the RFP will be implemented".

HRA's Response:

HRA notes that at least one item in the RFP, "Process Handicapped Employees Workdays" has been definitively taken off the list of items to be programmed. HRA is assessing all outstanding items as to the cost, time and benefit derived from implementing these items, vs. the frequency of the item's occurrence and the difficulty of programming. The report should also acknowledge that those items identified as "not designed" (with the exceptions of "Process Overtime (paid or compensatory)" and "Process Holiday Compensation", as noted above) represent relatively rare and less common occurrences that are not critical to the vast majority of day-to-day timekeeping functions.

We also note that in a long-term project, items that perhaps seemed critical to one section of the Agency in the beginning must be reassessed later to determine if that critical need remains. Finally, we feel that it is inappropriate for a supposedly objective audit report to comment that a particular issue is "disturbing", and believe that a straightforward and impartial reporting of alleged findings would serve the authors better in future reports.

Auditors' Finding p. 7:

"AutoTime does not calculate the last day of pay for employees who have resigned or retired."

HRA's Response:

It should be noted that while this is an important function, HRA felt it was more critical to implement basic pay, leave usage, time collection functions, etc. prior to the "last day paid" function. Unrelated to AutoTime, OSR has developed a simple program, for use by timekeepers, to make the calculation of last day paid easier.

Auditors' Finding p.7:

"The overtime function does not work correctly....the system generates employee overpayments and underpayments that have to be identified and manually adjusted".

HRA's Response:

The audit uses comments from a limited number of staff to demonstrate "concerns" with AutoTime. While the above statement may have been made to the auditor, it is simply not true. Neither in June, 2001 nor at the present time does AutoTime generate any overtime payments. In fact, the Auditor's Table II says that overtime processing is "not designed." It therefore is completely illogical to assume that a process which has not yet been fully designed within AutoTime, let alone implemented, could result in producing incorrect (over or under) payments. As of date of the draft report, AutoTime collects information about overtime, and allows it to be recommended by the supervisor, authorized by higher level management and viewed by a Timekeeper; however, actual overtime payments are presently calculated and entered into AutoTime by a timekeeper, not automatically by AutoTime.

Auditor's Finding p.7:

The audit quotes a responder as saying, "The leave balance function does not work correctly. The AutoTime program miscalculates hours, causing leave balances to be overstated or understated. Miscalculations must be identified and manually adjusted."

HRA's Response:

This is an incorrect statement. Prior to the implementation of "leave balance search" logic (about April, 2002 - after the interviews took place), deduction of leave was performed by timekeepers who may have made errors. Thus, it would appear that whoever answered the Auditor's survey was misinformed, since miscalculations of leave hours were performed by a timekeeping staff member. Prior to implementing the leave balance search program, it was fully tested to assure that leave was appropriately deducted when a leave request was entered in AutoTime. Since its implementation into the production system, automatic deduction of sick and annual leave and compensatory time has been performed correctly (accrual of sick and annual leave is performed by PMS and then downloaded to AutoTime).

Moreover, with respect to this and other findings based on the auditor's survey, for future audits we suggest that any findings from staff surveys be discussed with the relevant program managers prior to the completion of audit fieldwork, so that any discrepancies, misunderstandings and inaccuracies can be addressed prior to release of a draft report.

Auditors' Finding p.7:

"AutoTime makes incorrect holiday adjustments, resulting in overpayments or underpayments that must be identified and manually adjusted."

HRA's Response:

Again, HRA is unaware whether the person making this comment was misinformed, or the question was badly phrased, or the person reviewing the survey responses misinterpreted the answer. However, referring again to Table II, the Comptroller notes that Holiday processing is "not designed." Having not been designed (as of November 2001) and therefore not implemented, HRA fails to understand how this program could be resulting in over or under payments.

Auditors' Finding p. 7:

"HRA does not monitor the activities of the 12 Davisco employees who have 'super-user' access to all AutoTime source code and database records."

HRA's Response:

This finding is inaccurate. HRA monitors the activities of "super users" and as stated above also works with Davisco to limit the number of employees with access to the Autotime database. Further, any "superuser" access by Davisco is limited to the Autotime servers and does not allow Davisco "superuser" access to other network resources as implied in the audit.

Auditors' Finding p. 8:

"With the exception of the \$3.56 million for implementation assistance and software modification, HRA employees should have been trained to perform the remaining tasks, thus preventing the need for HRA to contract for these services. This action could have saved the City more than \$8 million."

HRA's Response:

This finding and the conclusion drawn from it are wholly illogical and thoroughly flawed. The assumption is made that money would have been saved simply by training HRA staff to perform the maintenance, technical support and administrative functions that have been contracted out. Leaving aside any discussion of the feasibility of this approach, the authors of the report fail to recognize that there would still be a cost to performing the maintenance, technical support and administrative functions, even if done by HRA staff as opposed to an external contractor. Asserting that "more than \$8 million" in savings would magically materialize if HRA staff had been trained to perform these functions belies a lack of serious consideration of this issue by the authors.

Auditors' Finding p.8:

"AutoTime did not produce the envisioned savings: We question whether this project would have been approved had it been known that no savings would actually be achieved."

HRA's Response:

HRA believes that implementation of AutoTime constitutes a positive change in the way it does business, by improving dramatically the level of supervisory oversight and internal controls on all aspects of the timekeeping process. AutoTime provides a number of benefits which result in improved service and produces important savings that, while perhaps less easily measured, are critical to Agency operations. These benefits include the consistent and timely processing of time and leave, automated record-keeping with no paper files subject to loss or mis-filing; the ability to locate records easily and quickly for use at arbitration, in court, for audits and other outside entities; the ability of OSR to produce ad hoc reports capturing almost any type of time and leave information that could be needed; the convenience of having time records at each location and the ability to see at a glance if a staff member has requested a leave, overtime, and/or completed his/her timesheet. Autotime has also allowed the Agency to enforce Leave Without Pay (LWOP) compliance much more consistently, and has been used to provide important documentation for reimbursement requests, most recently with respect to securing appropriate Federal reimbursement for September 11th - World Trade Center disaster recovery and assistance activities. These internal control benefits and imputed savings cannot be discounted in contemplating a system such as AutoTime.

Our comments on each of the Auditor's recommendations are listed below:

Auditors' Recommendation #1:

HRA should assemble a project team headed by a full-time project manager who will ensure that all necessary AutoTime functions are identified and implemented. The team should include a representative from HRA's audit group to serve as a quality assurance consultant.

HRA's Response:

HRA will consider this recommendation for future information system development projects with respect to establishing a project team with a full-time manager, but given the advanced stage of the Autotime project and the handful of timekeeping processes that remain to be incorporated into AutoTime, at present we do not see the need to develop an entirely new project management structure for AutoTime.

With respect to including a representative from HRA's internal audit bureau, we do not believe this would be appropriate because it would preclude this unit from ever conducting its own independent audit of any future system for which it was part of the project team.

Auditors' Recommendation #2:

HRA should immediately survey system users to determine areas of AutoTime that require changes to meet their needs.

HRA's Response:

We were never given the original listing of "system users" used to arrive at your original conclusion, nor even a firm definition as to who "system users" refers to specifically. However, we will consider conducting a survey of Agency timekeepers, who use the system on a constant basis, and take any issues they have into consideration for future analysis and action.

Auditors' Recommendation #3:

HRA should monitor the activities of the "super users" to ensure that only authorized work is performed on the system.

HRA's Response:

As noted earlier, the underlying finding related to this recommendation is inaccurate. HRA monitors the activities of "super users" and as stated above also works with Davisco to limit the number of employees with access to the Autotime database. Further, any "superuser" access by Davisco is limited to the Autotime servers and does not allow Davisco "superuser" access to other network resources as implied in the audit.

Auditors' Recommendation #4:

HRA should amend Davisco's renewal contract to include training for HRA's technical staff so that they can take over the programming, maintenance, reporting, and database administration of AutoTime when the renewal contract ends.

HRA's Response:

The Autotime contract provides for the contractor being responsible for these functions. These functions were contracted out because HRA did not at the time of the original contract nor at the present time have sufficient technical staff to perform these functions "in-house". Further, even if staff resources were available it would not be practical for HRA to perform a number of the maintenance functions specified by the audit such as system software and application software maintenance since HRA does not own the system or application source code. Similarly, hardware

maintenance is a function that organizations typically contract out because of the required expertise in equipment repair and issues of parts availability.

Auditors' Recommendation #5:

HRA should use the experience of developing AutoTime as a guide in the development of future systems projects.

HRA's Response:

We agree with this recommendation and will endeavor to use this experience as a guide in developing future systems.

Auditors' Recommendation #6:

HRA should retain an independent quality assurance consultant to help identify the needs of the users and evaluate the proposals received in response to future RFP's.

HRA's Response:

MIS has full time staff assigned to writing specifications based on the needs of users, testing system changes and monitoring performance. We see no need for an expensive outside entity who would have to learn our current systems environment, understand HRA's business operations and familiarize themselves with HRA's users' needs. This would take many months and involving consultants in RFPs could raise issues of conflict of interest and confidentiality. Further, as noted earlier in this response, the audit report references standards from a version of Directive 18 that was released in 1998, four years after the release of the Autotime RFP. The report should disclose this fact, and should not imply that HRA was not in compliance with Directive 18 with respect to Autotime procurement, design, development and implementation activities, since the Directive 18 provision related to QA consultants was not in force at the time the AutoTime project began.

HRA will consider the findings and recommendations of this report in evaluating the overall success of the AutoTime project and in planning, developing and implementing future information systems. We strongly suggest, though, that in future audits, the authors of this report (a) make a more complete disclosure of the relevance and applicability of the compliance requirements they choose to cite; (b) consider more carefully the reliability and materiality of their findings; (c) consider more carefully the conclusions that they draw and recommendations that they impart; and (d) refrain from inserting their own opinions into the text of the report, and instead present a more objective and impartial account of their findings, conclusions and recommendations.

Sincerely,



Frances Abbadessa

cc: Patricia Smith
David Hansell
Jean Matthews
Dennis Fecci