



**Metro**


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TO: BOARD OF DIRECTORS

THROUGH: ROGER SNOBLE  
CHIEF EXECUTIVE OFFICER 

FROM: RICHARD BRUMBAUGH  
CHIEF FINANCIAL OFFICER 

SUBJECT: STAFF RESPONSE TO AN ANONYMOUS REPORT TITLED  
"ANALYSIS OF FOUR (4) AUDIT REPORTS ON M3 PROJECT"

### ISSUE

At the January 20, 2005 Operations Committee meeting, Supervisor Burke asked staff to prepare a response to an anonymously prepared and widely circulated report titled "ANALYSIS OF FOUR (4) AUDIT REPORTS ON M3 PROJECT."

### BACKGROUND

The following discussion contains the report as circulated and staff's response in italics to each point.

#### Anonymous Report:

- Signed on 1/6/2003. The project started before ITS was transferred to the CFO, but the unit was reporting to Dick Brumbaugh at the time of contract signing. Elizabeth Bennett, the CIO, has been with the MTA and RTD for numerous years, over 10, and has been with the project since inception. According to the tape, Brumbaugh stated that neither he nor Elizabeth Bennett were employed here at project start-up.

#### Staff Response:

- *This project, Maintenance and Material Management System, was first initiated in 1997 and was unsuccessful in completing the procurement phase. A second attempt was started around 1998-1999 and was unsuccessful in completing the procurement phase also. The project managers and contract administrators involved in the first two attempts are no longer with the Agency. The current iteration of the project, code named M3, was initiated with a requirements study awarded to Westin Engineering in March 2001, under the project manager, Don Stiner, who reported to the Executive Officer, Administration, Frank Cardenas. Custody of the project was handed over to the Chief Information Officer, Elizabeth Bennett, in April 2001, and continues today.*

Anonymous Report:

- Progress payments were scheduled independent of the schedule for deliverables. Consequently, the budget (roughly \$20 M) plus another \$10 M were spent with the project being grossly behind the schedule and no end in sight (the completion schedule was 1/2004 and now will be, maybe, sometime late 2005). By 3/31/2004, Spears was paid 91% of the contract for approximately 70% of the contract work completed (according to Spears). In addition in 4/2004 Spears was paid the 10% retention on services that by contract was not to release until the entire M3 project is completed and accepted by the MTA.

*Staff Response:*

- *The contract, in the amount of \$18,976,212, was awarded to Spear Technologies on February 1, 2003. Forty-five percent of the contract value, \$8,604,774, was allocated for software licenses and hardware that have been received and paid. Fifty-five percent of the contract value, \$10,371,438, was allocated for implementation and post-implementation services. The remaining unpaid balance for services is \$364,411, or 3.5% of the services portion of the contract. Implementation services are estimated to be 90% complete. Project Management recognizes that payment is ahead of completion of 6.5%. This delta will be substantially narrowed upon the completion of the two implementations scheduled to occur in February 2005. The contract terms include a ten percent (10%) retention on services, estimated to be \$780,000, to be paid as part of the final payment. To date, the retention amount withheld is \$752,785.*

Anonymous Report:

- The contract provides that the full implementation will take three (3) months and the post-implementation support will continue for a full eighteen (18) months from the start of the implementation. That means that fifteen (15) months of the support would be provided after the M3 system was fully implemented. Because of the repeated schedule slippages, the support will cover less than three (3) months, if any, after full implementation.

*Staff Response:*

- *The M3 Scope of Work allocated three months for the system rollout phase of the project. Due to the anticipated issues that would arise in a project of the size and scope of M3, a longer post-implementation time line of 18 months was specified to manage the risk.*

*After Spear Technologies (Spear) completed a review of Metro's business processes, the feasibility of accomplishing the system rollout phase in three months was evaluated. Due to the sequence in which the system would have to be activated, Spear recommended a phased rollout for the various lines of business with the exception of the bus divisions. The bus divisions would be the last group using a simultaneous rollout approach. All lines of business agreed to the recommended rollout plan. In Spring 2004, Bus Operations requested a change to the*

*implementation plan, from a simultaneous to a phased sector-by-sector approach, which was deemed to be less difficult to manage.*

*The first system rollout to Rail Fleet Services took place on January 26, 2004. Post-implementation support began with this rollout and will continue through July 2005.*

Anonymous Report:

- Contractor was required to deliver system test plans, function specific test scripts and record of the results. All of the deliverables are both late and incomplete.

*Staff Response:*

- *Spear did deliver system test plans, functional test scripts and collected the results of the tests to determine system issues for correction as required. While some documents may have been delayed for a few days depending on various conditions, it would be incorrect to state that all of the deliverables are, both, late and incomplete.*

Anonymous Report:

- Contractor was required to develop a training plan, deliver training documentation and provide training equipment. None of this took place completely or in a timely manner, if at all. Training sessions have been cut and credit of \$84,302 was provided. **This seems an attempt to cut costs at the expense of ability to provide maintenance and support after Spear leaves the scene.**

*Staff Response:*

- *Spear did develop a training plan and training guides for the different system modules that were used to train Metro staff as required by the Statement of Work. Spear was not required to provide training equipment. Training for Metro staff was conducted as close as possible to the system rollout date for each respective business unit. In those cases where ITS project staff was able to attend training along with other project members, the duplicate classes scheduled for ITS staff were cancelled. This resulted in a savings of \$84,302.*

Anonymous Report:

- Contractor was required to provide a system supporting valuation of repairable components at standard, average and actual cost plus residual value. Spear now claims that their product only supports average pricing. Spears have agreed to enhance their product and wants additional \$\$ **Since spears committed to support the repairable valuation requirement with their standard product, claiming that the product was fully capable of satisfying the RFP, there is no rhyme or reason for the MTA to pay addition \$\$ for something that is already paid under the contract.**

*Staff Response:*

- *An M3 system requirement was the ability to value repairable components using standard pricing, average pricing or actual cost. These costing methods are defined within the system. However, Metro has changed its approach to valuation of repairable components to a defined or fixed cost. To support the defined valuation method, a change order for \$14,777.50 was approved by Project Management.*

Anonymous Report:

- Spear product's timekeeping module is not compliant with the timekeeping requirement in MTA's RFQ. MTA's business process rules were not considered in the design of the timekeeping module (of course, this is a vanilla software designed to apply to an "average" transit agency but not to any one specific). **Without corrections to the module, the impact on the Agency will be enormous. It will affect the budgets, the forecasts, and the reporting of expenditures. Corrections after the implementation will be expensive and time consuming.** The CFO and the CIO assert that this is simply an issue of programming logic, and it will be fixed sometime in the future.

*Staff Response:*

- *Spear met with Metro staff in April 2003 to review the requirements and collect the business rules for timekeeping. Metro tracks over 100 business rules associated with bargaining unit work rules. During the first iteration of testing, some design issues were uncovered and they are being corrected. This is an expected and normal result of testing. The second iteration of testing has further fine-tuned the process. The errors found were issues of program logic. The program corrections will be completed by the latter part of February. A third iteration of testing will be conducted in early March.*

Anonymous Report:

- M3 product was supposed to be a commercial, off-the-shelf product, specifically designed for transit agencies, and has been implemented in other large transit agencies. Its implementation at the MTA should be done with minimum of modifications. **It appears that the M3 product cannot be implemented as an off-the-shelf product. The project cost increase from approximately \$20M to \$33M, exclusive of the hidden costs absorbed the users that are probably in the millions, bears this assertion.**

*Staff Response:*

- *The Spear 3i product is an asset management commercial, off-the-shelf, product specifically designed for transit organizations. It has been implemented in large transit properties such as New York Transit Authority and Amtrak. While the base product is being implemented as an off-the-shelf product, Metro requires M3 to interface with its other established systems, such as Automated Storage Retrieval System (ASRS), Financial Information System (FIS) and Payroll, to create a seamless exchange of data. These system interfaces can never be "off-the-shelf" as the business rules and processes unique to each organization govern the required "handshake" between systems.*

Anonymous Report:

- Despite assurance to the contrary, the M3 system is incompatible with the current MTA accounting for movement of materiel going to and from RRC. This requires Spears to design changes to their product and MTA has to design the interface between this design and FIS, i.e., extra cost for MTA.

*Staff Response:*

- *While it is a correct statement that the legacy system and Spear 3i does not account for movement of materiel in an identical manner, it does not follow that one system design is flawed in relation to the other. Two disparate systems performing an identical function will perform them differently while achieving the desired end result. A good example of this is the two commercially available word processing products, Microsoft Word and WordPerfect. Both products produce the desired end result; however each product uses a different design to achieve the end result.*

*Creating system interfaces to exchange data seamlessly between the Spear product and Metro's existing Automated Storage Retrieval System (ASRS) and the Financial Information System (FIS) are known requirements requested in the Statement of Work. The vendor has to determine what is the appropriate design within their product to support Metro's system interfaces. If the vendor makes a design change and it is part of their base product, the design change becomes a standard feature available to all its customers. It is not custom code created specifically for Metro. Therefore, there is no extra cost to Metro.*

Anonymous Report:

- Spears proposed a credit of \$326,655 to reduce the post implementation support by approximately one third (the total post implementation services contract was for \$1,110,219). There is no valid reason to reduce the post-implementation support. **The downside is that critical disruption and downtime will probably occur at significant cost to the MTA but not to the M3 project. Amazingly, the M3 project management asserts that the post-implementation support is not a high-risk item.**

*Staff Response:*

- *Spear did not propose a reduction in the post-implementation support of the contract. Post- implementation support will be available through July 2005. Spear proposed a graduated reduction in the rollout support for the last two weeks in a rollout cycle that resulted in a credit of \$326,654.56.*

Anonymous Report:

- In responding to the RFP requirement to electronically capture "job-on/job-off" data by employee, Spears stated, "the Spear product fully meets the requirement". Subsequently, Spears submitted a change order to reduce the number of proximity cards (needed to job on/off electronically) from 425 to 145 for a credit of \$94,773. Later Spear wanted to completely eliminate proximity cards (no credit) and that the mechanics will have to use manual keyboards leading to loss of production time. Now, Spears has submitted a change order for \$120,000 to license mechanic workbenches that will allow automatic job on/off capability. The net result is that MTA will pay an additional \$25,227 for the original SOW.

*Staff Response:*

- *At the time of proposal evaluation, the Spear product supported the “job on/off” function using “dumb” cards. The mechanic workbench function was not available. The product allows entry of “job on/off” data manually through the keyboard also.*

*Metro’s adoption of the combined HID/Universal Fare System “smart”card required a chip correction to Metro’s existing HID/Proximity card readers to read these cards. As Metro had an inventory of card readers that were ordered for the Transit Operators Trend System (TOTS) but had not yet been installed, Spear was requested to reduce the number of card readers by the quantity on-hand in order to clear the existing inventory. This resulted in a credit of \$94,773.*

*In May 2004, Spear announced its Mechanic Workbench product would be available in August. As Bus Operations wanted to use the function, Metro was able to obtain a site license at a deep discount, an early adopter incentive, for \$120,000.*

**Anonymous Report:**

- Underestimated the complexity of the MTA’s business operations. Consequently, users had to assist Spears to develop the Lists of Values and the task was delayed at least two months. Spears submitted a proposal for change order of an additional \$176,533 to cover its management expense due to their schedule slippage. This was in addition to the money spent by the user doing work Spear was paid for.

*Staff Response:*

- *One of Metro’s tasks was to provide Spear with all the codes to be used for each line of business. These codes are called the List of Values. Only Metro staff, within each business unit, can perform the identification of codes to be used in M3 as they are the most knowledgeable people on what the codes mean and how they are used by Metro. In many cases, additional codes had to be created. This proved a more time consuming task than was anticipated for project staff as the business process and how the codes will be used have to be analyzed. This task, originally scheduled for 30 days, took 90 days to complete. Spear submitted a change order for \$176,533 to cover its administrative and management expenses resulting from the schedule slippage. This amount was offset by the credit received for the reduction in rollout support during the last two weeks of a rollout cycle.*

**Anonymous Report:**

- Although problems identified during the development are tracked in the project issues log, Spears marches along ignoring some of those problems. For example, a module was signed off by MTA M3 project management although Spears did not resolve all the open items related to the module. This will result to additional costs in the future and might impact the functionality of the product.

*Staff Response:*

- *(This item is stated so generally that a definitive response cannot be made.)*

Anonymous Report:

- Spears fail to satisfy MTA's requirement to capture work time for employees with either multiple tasks or working multiple shifts. Spear solutions will result in additional work for the users and loss of production time.

*Staff Response:*

- *The Timekeeping module will track all tasks that an employee is allocated to on any shift the employee is assigned to within each payroll period.*

Anonymous Report:

- Not enough personnel assigned to each area of responsibility.

*Staff Response:*

- *For the breadth of scope of the M3 project, Metro does not have sufficient personnel assigned to each area of responsibility. Metro's reduction in staff over the past two years have made it difficult to allocate additional knowledgeable personnel to the project. This is a recognized risk factor to the project and schedule.*

Anonymous Report:

- In order to relieve the budget and schedule pressures, the MTA M3 project management cuts corners in the testing of the system. Of particular concern is the elimination of the stress test. The project management (and Spears) claim that since the M3 system was stress tested for New York Transit, that test should suffice. But the M3 system for MTA has been modified, and is still being modified, significantly to make reliance on prior tests a high-risk item. An additional concern is rushing to test the production environment while changes are made to the system. This will result in a corrupt production environment. In accordance with the contract Spears delivered several interface and data conversion specification documents to the MTA for review and signoff. The general consensus among the users was that the documents were inadequate and declined to sign the specifications. The CIO directed ITS technical staff to signoff on the specifications.

*Staff Response:*

- *Stress testing is conducted to gauge the performance of a system relative to a specified work load. The system architecture and the environment in which M3 operates are well understood by ITS staff. The effects of these issues were taken into consideration during proposal evaluation to assure the resulting environment would be sufficiently robust to meet Metro's projected workload. Conducting a stress test is resource intensive and time consuming. As there are other environmental metrics that can be used to derive the anticipated stress a given work load will place on a given system configuration, use of this information to gauge system performance is significantly less costly. A majority of the M3 system is in production use and any modifications made are to fine-tune the system. These modifications have little impact on the stress placed on the environment.*

*At a project review meeting, the project staff representing the business units stated they did not fully understand the interface and data conversion documents as the*

*content was very technical. The Chief Information Officer stated ITS would accept the responsibility for sign-off on these documents. ITS project staff was directed to review the documents and prepare them for signoff as appropriate.*

**Anonymous Report:**

- The M3 system must be tested to identify defects involving system components and system interfaces. This is called integration test. The M3 system must also be tested to validate if it performs at the same level as the legacy systems it replaces. This is called parallel test. The two tests must be run independently of each other. The CIO has decided to compress and shorten the tests and to combine the two tests in one. This undermines and violates the basic tenet of testing: "Testing is all about failure." **The CFO and CIO stated that the project is managed in accordance with the time and financial budget constraints specified by the executive management. This is an extraordinary statement about a project that is at least 50% over budget and will take over three (3) times the original time to complete.**

*Staff Response:*

- *As a majority of the M3 system is in production use, a system test is conducted before a new module or function is added to the production environment. These tests are conducted to ensure that the new components integrate smoothly into the existing environment.*

*As the functions and features of M3 are conceptually different than the legacy systems it replaces, the results from a full parallel test will provide limited applicability, as it is not an apples-to-apples comparison. Conducting a parallel test is resource intensive and time consuming and should not be undertaken if the anticipated result does not warrant the cost and effort. As the work time calculation for the new and existing Timekeeping modules are the same, a partial parallel test will be conducted to validate the calculations.*