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February 19, 2008

MEMORANDUM

To: Representative Henry "Kiki" Saavedra, Chairman
Senator Carlos R. Cisneros, Vice-Chairman
Program Evaluation and Information Technology Subcommittee

From: Kami Gupta, IT Program Evaluator 
Aurora B. Sánchez, IT Program Evaluations Manager 

Subject: **Public Education Department Student, Teacher Accountability Reporting System (STARS) Project Second Review**

EXECUTIVE SUMMARY

The objective of this second review was to assess the current status of the PED Student, Teacher Accountability Reporting System (STARS) project from August 2006 through February 2008, test validity of data and review workflow processes, and evaluate project plans for training, transition from outsourced hosting, and transition to operations.

Project Appropriations and Expenditures Project appropriations to-date are \$12.8 million, with \$9.7 million certified by DoIT and released by DFA. Expenditures through December 2007 are \$8.2 million leaving approximately \$4.5 million available for the project. Multiple contingencies included in the bill language of the Laws 2007 appropriation and the DoIT certification process must yet be fulfilled prior to the release of the remaining \$1.5 million of the 2007 appropriation.

Background and Implementation Status The purpose of the STARS project was to design, procure and implement a statewide application and tools to more effectively manage the collection, storing, analysis and reporting of data for state and federally mandated requirements, including the No Child Left Behind Act (NCLB).

STARS Phases 0, 1, and 2 completed the planning, procurement, and statewide roll-out in September 2006 of a centralized data warehouse, tools for automated data collection, and reporting for 89 school districts, six state schools and 52 charter schools. All districts submitted school year 2006-2007 staff and student data via STARS for 40th, 80th, Dec 1, 120th and End of Year reporting periods. Future Phases 3 and 4 are intended to increase STARS functionality and expand access to teachers, principals and administrators, parents and students.

Project Contracts

- Since the execution of initial project contracts totaling \$7.3 million, the development and implementation contract has been amended twice at a cost of \$1.1 million.
- A new services contract worth up to \$13.5 million over a four-year period was awarded to the sole bidder despite a short procurement period. The contract was amended nine months later to \$2.5 million over a two year-period.
- PED continues to rely on outside vendors and consultants to perform activities that could be handled by in-house staff dedicated to the project, for example project management or operational support activities.
- Reconciling invoices against contractual deliverables has been difficult for many of the project's contracts due to lack of sufficient detail on the invoices or not being able locate deliverables.

STARS Data Validation and Evaluation of Workflow

- Data validation of school year 2006-2007 80th day and 120th day STARS membership data for six districts revealed no significant anomalies.
- Members of PED staff indicated lack of confidence in STARS data due to frequently changing report formats and definitions.
- A combination of automated and manual processes are now in place at the districts for STARS data entry, transmittal, verification, and validation.
- The average number of workdays to transmit and certify STARS data ranged from 22 to 80 days for school year 2006-2007, depending on the reporting period.
- Technical and training issues that impact timeliness and the data transmission process still exist.

Review STARS Plan for Transitioning from Outsourced Hosting

- STARS outsourced hosting, maintenance, support and processing activities is \$877 thousand annually; approximately \$1.7 million has been paid to the vendor to-date for these services.
- The current hosting contract did not include the purchase of hardware, so any transition plan by PED would need to include an initial capital outlay for equipment.
- PED currently relies on the vendor to perform various non-hosting processing tasks.

Review STARS Training Plan

- Staff interviewed at six districts stated that they received minimal hands-on time during the initial STARS training and there was not enough focus on data validation and verification.

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- A comprehensive plan to address on-going training for new staff and to train all users on future application enhancements has not been developed.
- Assigned and trained back-up STARS coordinators do not exist at the districts.

Review Transition to Operations Plan

- The change control board does not have representation from the STARS user community.

BACKGROUND INFORMATION

This review is a continuation of the status review begun in FY06 which was summarized in a memorandum to the Audit, Computers and Capital Projects Subcommittee presented August 1, 2006. The objective of this review was to assess the current status of the STARS project from August 2006 through February 2008, test validity of data and review workflow processes, and evaluate project plans for training, transition from outsourced hosting, and transition to operations.

Procedures. The procedures to conduct the review included the following:

- Assess the current status of STARS project implementation from August 2006 through February 2008
- Perform 80th and 120th day data validation of data in STARS for selected school districts
- Evaluate data entry, verification, and transmittal workflow and processes
- Review Plan for transition from outsourced hosting to Department of Information Technology (DoIT)
- Review Training Plan for PED and school/district staff
- Review Transition to Operations/Production Plan

Public Education Department and the STARS Project. The purpose of the Student, Teacher Accountability Reporting System project was to design, procure and implement a statewide application and tools to more effectively manage the collection, storing, analysis and reporting of data for state and federally mandated requirements, including the No Child Left Behind Act (NCLB).

STARS Phases 0, 1, and 2 completed the planning, procurement, and statewide roll-out in September 2006 of the centralized data warehouse for data collection from the districts as well as reporting.

According to an October 19, 2007 presentation to the LFC by the PED CIO, Phase 3 is targeted at increasing STARS functionality and expanding access for teachers to assess historical performance of incoming students, identify peer teachers and resources to meet student needs, and collaborate with peer teachers through professional learning communities. Phase 3 will also allow principals and administrators to use STARS to create improvement plans and communicate to teachers, assess progress against goals, adjust strategies and communicate to teachers, and compare performance to peer schools. Phase 4 will expand that access to parents and teachers statewide. For example, students may access their profiles to track progress against goals and research resources. Parents can potentially use STARS to view teacher profiles and communicate with teachers, review the curriculums, and identify tutoring and other resources.

Project Appropriations and Expenditures. According to the December 2007 financial statement summary provided by PED, total project appropriations and expenditures are summarized in Table 1:

Table 1. PED STARS Financial Summary FY06 through FY08

Appropriations:		Amount (in thousands)
Laws 2005, Chapter 33, Section 7, Subsection 35		\$6,650.00
Laws 2006, Chapter 109, Section 7, Subsection 29		\$2,000.00
Laws 2007, Chapter 28, Section 7, Subsection 32		\$2,500.00
Laws 2008, Chapter 3, Section 7, Subsection 35		\$1,650.00
Total Appropriations:		\$12,800.00
Expenditures:		
Personal Services and Benefits ¹		\$450.90
Professional Services Contracts:		
Software and Integration ²	\$6,750.60	
IV & V Services	\$71.50	
Project management and other services	\$836.70	
IT maintenance Services	\$53.70	
Total professional services		\$7,711.90
Other expenses		\$63.80
Total expended as of December 2007		\$8,226.60
Funds available for project		\$4,573.40

Source: PED STARS Project to Date Financial Summary

¹ From July 07 through December 07, PED did not allocate any costs for FTE's to this project. The operating budget for fund 79000 doesn't include the personal services and benefits category (200).

² Includes hosting and maintenance (recurring) costs paid from project funds rather than from the PED base budget.

Total STARS project appropriations to-date are \$12.8 million, with \$9.7 million certified by DoIT and released by DFA. The Laws 2008, Chapter 3, Section 5, Subsection 106 provided \$877 thousand for STARS hosting services and \$400 thousand for the operating budget management system. These expenditures are on-going operating costs and should be included in the base budget of the department in the future. The Laws 2007, Chapter 28, Section 7, Subsection 32 provided \$2.5 million to continue implementation of the STARS system with several contingencies included in the bill language itself.

PED is mandated to:

- Reengineer business processes before proceeding and expending additional funds
- Develop and enforce reporting compliance
- Provide monthly status reports to DoIT

The DoIT Secretary certified the release of \$1 million. The remaining \$1.5 million is contingent upon execution of an Independent Validation and Verification (IV&V) contract which is to provide to DoIT within 30 days of contract execution:

- An impact assessment of legislative contingencies and an impact assessment of STARS on the state and district networks
- Validation of the status of the project
- Validation of collaboration between the Public Education Department and Higher Education Department to address the legislative requirements set forth in Senate Bill 211.

Apart from a cursory review of PED's July 25, 2007 *Request for Certification and Release of Funds Form* filed with DoIT which outlines activities undertaken to satisfy the contingencies, compliance not been evaluated.

Implementation Status. According to PED, Phases 1 and 2 of the project are complete with the STARS system operational statewide as of September 2006 for 89 school districts, six state schools, and 52 charter schools. All districts submitted school year 2006-2007 staff and student data via STARS for 40th, 80th, Dec 1, 120th and End of Year reporting periods. In addition, the system is being used for school budget calculations, reporting of Highly Qualified Teacher (HQT) data, special education performance indicator calculations and reporting, and assessment (testing) data calculations and reporting.

Project activities underway since the system go-live include finalizing the STARS data dictionary and user manual; enhancing production functionality via additional user reports, tools, and training; developing and implementing a STARS security policy and preparation of a proof-of-concept for Phase 3 of the project.

FINDINGS AND RECOMMENDATIONS

Project Contracts. PED conducted a procurement process which resulted in a 2005 award to Deloitte Consulting as the prime contractor to implement a commercial-off-the-shelf (COTS) Oracle-based eScholar data warehouse with decision support and reporting tools by Cognos. The solution also includes an Extract, Transform and Load (ETL) automated tool to electronically move data from districts' Student Information Systems (SIS) to the STARS data warehouse.

Three additional contractors handled project management services, programming and reporting services, and independent validation and verification (IV&V). An operational prototype was developed and a pilot conducted with 11 school districts who volunteered to be participants followed by regional user training and a statewide roll-out of the new system.

Since the execution of initial project contracts totaling \$7.3 million, the development and implementation contract has been amended twice at a cost of \$1.1 million to add the installation, implementation and hosting of the Uniq-ID system to manage unique student identifiers for New Mexico public education students and to include post-production support for the Fall 2006 data submissions, enhanced reporting and analysis, and a PED extraction proof-of-concept for teacher licensure and financial data. PED agreed that the 7.5 percent retainage in paragraph 5.4 of the original contract would not apply to the two amendments.

Additionally, a new contract for IV&V services was signed December 7, 2007 for \$67 thousand. Review of the contract shows due dates for completion of the first two DoIT certification contingencies by March 31, 2008.

Reconciling invoices against the 2006 initial development and implementation contracts and subsequent amendments was not possible as many invoices did not contain sufficient detail to determine to which deliverable(s) they related.

PED continues to rely on outside vendors and consultants to perform activities that could most likely be handled by in-house staff dedicated to the project, i.e. project management services, documentation, developing training strategies, and certain operational support activities. A new project contractor in November 2006 was engaged to provide professional services for strategic planning, project management, assistance in monitoring data submissions quality, organizational restructuring, subject matter expertise, and training. Although the contracted firm changed, the same individuals providing project management and NCLB expertise previously under separate contracts continue to provide these services.

The Request for Proposals (RFP) issued for this procurement in September 2006 did not follow the General Government Administration 1.4.1. NMAC procurement regulation recommendation to allow a minimum of 30 calendar days between the date of RFP issue and the proposal due date or a longer preparation time for complex procurements or procurements that require substantial offeror resources to prepare. PED allowed two weeks for vendor proposal submissions and no pre-proposal conference was conducted. However, a contract worth up to \$13.5 million over a four-year period was awarded to the sole bidder despite the short procurement period. The contract price was amended in November 2007 to \$1.5 million in FY07 and up to an additional \$1 million in FY08. Total payments to-date under this contract equals approximately \$993 thousand.

According the PED CIO, the strategy for the procurement was to create a PED-specific price agreement with multiple vendors for support services for STARS and eventually other agency programs in an effort to alleviate the high volume of individual procurements issued and managed. The scope of the procurement included, "the software and support services required for the further development and enhancement of the future phases of STARS. It will include but not be limited to, future software enhancements and ETL hardware (if necessary), additional software programs, data files, enhancements, modifications, systems or control software, and utilities as well as software training, maintenance, support, documentation, and any other related professional services."

The PED CIO indicated that the price agreement strategy was not discussed in advance with the State Purchasing Division. A more in-depth review of this procurement is planned.

A review of selected 2007 deliverables and services for the contract was conducted which included the CIO and Secretary briefing books from January through April, and December; project management support provided in April; Cognos training, report development and support; services for the STARS data conferences, and selected data review and certification status reports for April.

The review was difficult as some of the deliverables requested could not be found and the titles of many deliverables did not match the titles on the invoices. Two of the November 2007 deliverables that could not be located totaled \$25 thousand. The PED Secretary's office provided an edited selection of information from the January through April briefing books, although the complete binder for the December Secretary briefing book was provided.

The bi-monthly briefing books are comprised primarily of reprints of industry articles, information about other states, and relevant legislation, statistics, and trends. The accompanying memos serve as a status report on consultant activities and also devote some space to the marketing of future services to PED. The cost for the 2007 briefing books was approximately \$74 thousand.

The contractor coordinated multiple on-site Cognos sessions which provided STARS reports training for over 200 PED staff including STARS project and IT staff. According to the PED CIO, the initial development and implementation contract included some generic reports training not tailored to the STARS application. The cost of Cognos-related services totaled \$103 thousand which included development of custom reports and providing end-user and technical support.

The project management support provided at a cost of approximately \$22 thousand was actually production support in tracking and reporting daily on the status of STARS data submissions and quality. The April 2007 data review and certification status reports were also related to monitoring the data submissions and cost an additional \$10 thousand. The STARS project team also participated in these activities, with the consultants serving as facilitators.

PED paid \$50 thousand for the logistical (per the PED CIO, this included reserving the venue, enrollments, arranging lunches) arrangements for the April 2007 STARS data conference and \$50 thousand for developing training presentations and exercises for the October 2007 STARS data conference.

Summary of Findings.

- Since the execution of initial project contracts totaling \$7.3 million, the development and implementation contract has been amended twice at a cost of \$1.1 million.
- A new services contract worth up to \$13.5 million over a four-year period was awarded to the sole bidder despite a short procurement period. The contract was amended nine months later to \$2.5 million over a two year-period.
- PED continues to rely on outside vendors and consultants to perform activities that could be handled by in-house staff dedicated to the project, for example project management or operational support activities.
- Reconciling invoices against contractual deliverables has been difficult for many of the project's contracts due to lack of sufficient detail on the invoices or not being able locate deliverables.
- The value received for the cost of certain project deliverables warrants some re-evaluation, i.e. \$50K for logistical arrangements for a STARS data conference.

Recommendation.

Institute tighter project and contract management to ensure that deliverables meet expected requirements and value prior to sign-off and approval.

Transition operational and production support activities such as tracking the district data submissions from contractors to PED project and IT staff, since the structure and processes have now been established.

Transition responsibility for STARS data conference coordination and content from contractors to PED project and IT staff, since the structure and processes have now been established.

Data Validation of STARS 80th and 120th day data. The STARS system is PED's primary vehicle to centrally gather data that will allow it to have sufficient information to foster public school reform and facilitate reporting by schools to the department and by the department to oversight entities in compliance with numerous statutes. Quality and timely data reporting is critical for compliance with the following statutes:

- The state equalization guarantee distribution, Section 22-8-25, NMSA 1978, requires schools to report program units on "eightieth and one hundred twentieth days of the prior year or the fortieth day of the current year, whichever is greater."
- Section 22-8-29, NMSA 1978 requires reporting of district operations on the fortieth day.
- Section 22-10A-20, NMSA 1978 requires reporting of staffing, class and teaching load on the fortieth day of the school.
- Section 22-24-4, NMSA 1978 requires reporting of the average full-time-equivalent enrollment using leased classroom facilities on the fortieth, eightieth and one hundred twentieth days.

Six randomly selected small to mid-sized school districts (total student membership from approximately 40 to 4,600 students) statewide were chosen for on-site visits to test 80th day and 120th day STARS data for school year 2006-2007, the first year that STARS was used for reporting. District sites visited over a six-week timeframe October through November 2007 were Mosquero, Dulce, Espanola, Moriarty, West Las Vegas, and Corona.

Overall, the test results showed a great deal of accuracy in the data with no significant anomalies. There were six instances where membership totals increased over 10 percent between 80th and 120th day reporting. All instances were verified as accurate by supporting documentation from the respective districts' Student Information Systems (SIS).

PED's Inspector General report *Audit of Student Counts used in the SEG Funding Formula, Audit #07-06* dated August 15, 2007 shows PED auditors tested student membership counts from STARS data for basic education, bilingual education, and special education programs on a sample basis for seven schools, four schools in the Santa Fe school district and three schools in the Espanola school district. Results of PED's audit could not be compared to the LFC staff validation because the LFC review was conducted at the district level, not by individual schools; the only overlap was the Espanola school district. According to the PED audit report, "Test

results showed a high degree of accuracy in the basic education and special education counts. Bilingual counts were found to be less accurate. The audit work will be continued in the FY2007-2008 fiscal year”.

Several members of PED staff indicated a general lack of confidence in the validity and quality of the STARS data, and stated that the standard STARS reports formats/definitions continue to change on a day-to-day basis as the vendor makes enhancements and corrects issues with the reports. The September 2007 memo from PED which accompanied the requested reports for school year 2006-2007 stated “Included are reports that have not been tested, which have been pulled from STARS. Both the Special Education and School Budget Bureaus are in the process of verifying the data, particularly the ancillary full-time equivalent (FTE) components, to confirm the logic/formulas and the validity of the data”.

Although the agency does have a change management policy in place that might alleviate some of these issues, it is not being used, according to the PED project manager. A change management and control policy can help an organization with ensuring that changes are agreed upon, evaluating all the potential impacts of a proposed change, and managing changes when and as they occur. An effective policy will also allow for documenting and capturing changes so a system baseline can be established. Even though the system is being hosted and managed by the vendor remotely, PED staff should be actively involved in management of changes.

A comparison of the 40th day data for the 2007-2008 school year with the prior year’s data could not be done because the six districts had not finalized and certified the current school year’s 40th day data at the time of the site visits. Final numbers for 40th day for 2007-2008 were not received until January 10, 2008. Comparison of total membership counts from the previous year 120th day figures as of March 1, 2007 with the current school year 40th day figures revealed that all membership totals have decreased with the exception of one district which saw a small increase of less than 1 percent.

Summary of Findings.

- Data validation of school year 2006-2007 80th day and 120th day STARS membership data for six districts revealed no significant anomalies.
- PED’s Inspector General August 2007 audit of seven schools concluded that there is a high degree of accuracy within the STARS data with the exception of bilingual membership counts.
- Members of PED staff indicated lack of confidence in STARS data due to frequently changing report formats and definitions.
- Final numbers for school year 2007-2008 40th day were received on January 10, 2008.
- Comparison of this data with prior year 120th day data revealed that all membership totals decreased with one exception.

Recommendation.

Use the PED STARS change control board and change management policy to evaluate, approve, schedule, implement, test, document and deploy to production any changes to software

functionality, report formats/templates, and other enhancements, release upgrades, service packs, and hot fixes. This should assist in establishing a baseline system and better manage changes so that PED and districts can have more confidence in the data and reports from the system.

Continue and expand scope of audit work conducted by PED’s Inspector General staff.

Evaluate STARS data entry, verification, and transmittal workflow and processes. Two aspects of the STARS workflow process were reviewed: the process used by PED technical and program staff as the data is submitted from the districts, and the workflow process at the district sites to enter and transmit the data to PED. Overall, the current combination of automated and manual procedures appears to be working fairly well and improvements continue to be made.

STARS-generated reports used to track the process are reviewed on a weekly basis by the PED STARS project team with the assistance of the subject matter consultants during district reporting period windows. An iterative process ensues as PED program staff reviews the submitted data and finds errors or issues; they are responsible for contacting the respective program staff at the school or district to correct the item. Data issues are identified as such on a log, coded as red or yellow. Red data issues impact the funding formula for the given reporting period; yellow data issues do not. A yellow data issue may change to red for a subsequent reporting period. A resolution is sought for all issues. Minutes for the December 2007 meetings were requested of PED for further clarification on how issues are documented and tracked but were not provided. It is unclear if minutes were not provided due to oversight or if they did not exist.

The *Open and Close Status for Reporting Period 40D, Dec 1, 80D, 120D, and EOY* summary report is also generated from STARS to assist the project team in evaluating how well data was submitted from the districts for all reporting periods. Start and finish dates are captured by district for each reporting period and an average duration calculated for all districts per reporting cycle. This report is used to pinpoint which districts have a longer average duration that may be due to difficulties with the data submission process. PED’s goal is to reduce the average reporting period to five days for each reporting cycle. Results from last school year 2006-2007 are:

**Table 2. Average Number of Workdays to Finalize and Certify STARS Submissions by Reporting Period
School Year 2006-2007**

Reporting Period	40 th day	80 th day	Dec 1	120 th day	End of Year
Average # Workdays to finalize Submission for all Districts	61	61	80	48	22

In March 2008, in their response to this review, PED provided preliminary data for the current 2007-2008 school year which indicates that the average number of workdays to finalize submissions has improved significantly. However, this information has not been validated by the LFC staff.

Interviews with the STARS coordinators and other staff at the six districts revealed that there appear to be adequate checks and balances in place for data entry, transmittal, verification, and validation. STARS coordinators and district program staff are knowledgeable about their SIS data as well as data on hard-copy source documents and take ownership to ensure the quality prior to transmission to STARS.

There are multiple opportunities to check for data quality and completeness within the process. Extract reports from the SIS software are first run to check for obvious problems such as missing data fields, especially the STARS student ID, birthdates, primary disability code or ethnicity. Duplicate fields and invalid course codes may also be determined from these reports. Once errors are researched and corrected in the SIS, data files are extracted and submitted via secure file transfer to STARS. Data files undergo another basic validation upon transmittal and then are available to be batched and processed which is when the STARS master files in the data warehouse are updated. For each file, a STARS summary and detail report may be run to verify that the expected data has been loaded into STARS. On-line error files may be displayed to aid in problem determination.

Error resolution appears to be fairly expedient at the six districts interviewed as the membership volumes are manageably low to medium. At one district with enrollment of 41 students, the district staff knows each student personally so discrepancies are easy to resolve. However, some improvements are still warranted.

According to several of the districts visited, issues affecting timeliness of data submission and the data transmission process itself were:

- the entire process involves too many steps
- if an invalid key field has been updated in the STARS master files in production after processing, a request to delete the record(s) affected has to be handled by the vendor. This occurs frequently and turnaround time for the deletion could take a week or more, delaying the retransmission of corrected data
- inadequate training/knowledge of the STARS system
- inadequate knowledge of verification and validation processes and reports
- identification of data errors is essentially a manual process
- all steps have to be repeated when moving from the STARS test to the STARS production environment so many districts bypass using the test environment altogether

Additionally, comments by district staff indicated that stronger leadership, guidance and recommendations from PED with respect to data validation and verification processes would also be helpful. For example, more “cookbook or checklist approaches” as to which validation reports to execute and how to interpret the data would be beneficial, much like the presentation given at the October 2007 Data Conference, “40th Day. How do I know I am done?”

Summary of Findings.

- A combination of automated and manual processes are in place at the districts for STARS data entry, transmittal, verification, and validation.

- STARS coordinators and district program staff are knowledgeable about their School Information System (SIS) data and take ownership to ensure data quality in submissions to STARS.
- PED staff has a process in place now to track STARS data submissions from the districts for reporting timeliness and accuracy.
- The average number of workdays to transmit and certify STARS data ranged from 22 to 80 days for school year 2006-2007.
- Technical and training issues that impact timeliness and the data transmission process still exist.
- District staff welcome stronger leadership and guidance from PED regarding data validation and verification processes.

Recommendation.

Evaluate STARS program logic for the possibility of committing records to the STARS master files in a third step after the batch validations are finished and errors corrected. This may alleviate having to delete so many records out of the STARS master files.

Research adding more advanced validation processing to the STARS program logic and business rules such as comparing totals (membership, for example) from previous school year submissions for a given district to highlight anomalies in decreases or increases. This may be more feasible now that a full year of STARS data has been captured, and would assist in automating identification of errors beyond basic syntax errors.

Research if there is a more streamlined way to move transmitted and validated files from the test environment to the production environment. This may encourage more use of the test environment, reducing the number of errors to resolve in production.

Continue to transfer technical skills and responsibilities from the vendor and consultants to PED STARS staff to promote future self-sufficiency (i.e. master file deletions and the data submission tracking process).

Consider creating a User Reports Manual with descriptions and examples for a subset of the most useful and commonly used STARS reports.

Consider development of “cookbook” type checklists for the STARS coordinators, especially for reports to be run for data validation.

Document minutes for the weekly data submission review meetings.

Review Plan for STARS Transition from Outsourced Hosting to Department of Information Technology. In March 2004, Governor Richardson signed Executive Order 2004-14 requiring consolidation of information technology operations including data centers.

In support of the consolidation of data centers and technical services, PED's document dated April 11, 2007, *STARS Self-Hosting Transition Plan and Readiness Assessment*, outlines

requirements for moving hosting responsibility from eScholar to PED. In the document, no mention is made of the State (DoIT) data center specifically and the assessment does not analyze the physical capacities of any particular data center. According to the document overview, "While no decision has been made to change the current hosting provider, the New Mexico Public Education Department (PED) wanted to be prepared in the event a decision was made in the future to self-host the system. Moving proactively, PED asked the prime contractor and Escholar to prepare a plan to transition hosting responsibility from Escholar to PED".

The cost for STARS hosting, maintenance, support and processing activities in White Plains, NY is approximately \$877 thousand annually, and that has remained constant since project inception. To date, approximately \$1.7 million has been paid to the vendor for hosting. Not included in this figure is the one-time cost of \$100 thousand paid in January 2006 for the initial set-up of the hosting facility. Included in the annual \$877 thousand are software support and maintenance costs of approximately \$296 thousand which would continue even if hosting is eventually moved from eScholar to another site.

Non-hosting activities performed by the vendor include such processing tasks as:

- executing batch programs for the Adequate Yearly Progress (AYP) calculations to be performed and loaded into the STARS data warehouse
- synchronizing data from the teacher licensure system on the PED AS/400 to the STARS data warehouse
- deletion of records from the production data warehouse when requested from the districts as previously described.

Currently, PED staff does not have the expertise or training to handle these technical and processing functions and others, and continues to rely heavily on the vendors. Although there are informal plans for skills transfer from the vendor, that has not yet happened, even though the system has been in production for over a year.

According to the PED CIO, the hosting cost averages out to about \$3.00 per student record maintained in the data warehouse. Using a per student cost is not suitable for projecting future costs as it is not an industry standard for hosting services per se, but refers to a per student cost for application development and support for a student information system which can vary greatly.

When the application is deployed out to more users (potentially thousands including teachers and parents) as intended in Phase 3 and beyond of the project, PED is anticipating that the hosting model may change to a per user basis significantly increasing the total cost. No agreements to this potential pricing change have been entered into yet by PED, but it continues to build the business case for transitioning from outsourced hosting in the near future.

The transition plan prepared by the prime contractor sufficiently covers facility requirements, hardware/software requirements, and two options for transitioning from outsourced hosting: phased and a not-phased "big bang" approach. The plan accounts for future growth by recommending four servers to add to the existing sixteen servers which comprise the current

production (11 servers) and test (5 servers) environments. The current hosting contract did not include the purchase of hardware, so any transition plan by PED would need to include an initial capital outlay for equipment.

The prime contractor also conducted a PED readiness assessment for the following areas to prepare for in-house hosting: infrastructure services support including database, server, and security administration, application services (primarily reports design, development and maintenance), end-user support, training, data services including data collection from the districts, data analysis and quality, and clarifying the organizational roles, responsibilities and communication channels for on-going STARS support and maintenance.

An e-mail from the PED CIO dated December 6, 2007 states that efforts to address the recommendations have begun including funding on-site Cognos report training for IT staff, hiring a person to focus on data quality, and assigning and training a point person for reports administration and support. Although some good progress has been made, more remains to be done to ensure a successful transition.

Summary of Findings

- The prime contractor prepared, at PED's request, an April 2007 plan and readiness assessment outlining requirements for transitioning hosting responsibilities from the vendor to PED.
- STARS outsourced hosting, maintenance, support and processing activities is \$877 thousand annually; approximately \$1.7 million has been paid to the vendor to-date for these services.
- Annual software support and maintenance costs of approximately \$296 thousand would continue even if hosting is eventually moved in-state.
- The current hosting contract did not include the purchase of hardware, so any transition plan by PED would need to include an initial capital outlay for equipment.
- PED currently relies on the vendor to perform various non-hosting processing tasks; skills transfer from the vendor has not taken place even though the system has been in production over one year.
- Some efforts have been made by PED to address recommendations in the readiness assessment from the vendor; much more remains to be done to prepare for hosting transition.

Recommendation.

Update the transition plan to specifically evaluate alternatives to eScholar hosting. The evaluation should include a cost/benefit analysis of continuing hosting with eScholar or moving to DoIT or PED's data center and should include pros and cons of each alternative. The recommendation should include working with DoIT to determine adequate infrastructure needs and the timeframe in which the data warehouse could be moved to the state data center.

Prepare a detailed hosting transition plan including a timeline based on the outcome of the evaluation.

Include recurring costs (maintenance and hosting) for STARS in the PED base operational budget.

Continue to address areas covered in the Readiness Assessment document. Again, particular focus should be on skills transfer from the vendor to the STARS team at PED to reduce current reliance on the vendor and consultants, i.e. the additional processing activities currently performed by eScholar.

Review STARS Training Plan. The STARS Training Plan PED provided is a copy of a Microsoft Powerpoint presentation, *Training and Change Management Plans* (Deliverable Reference: Contract Exhibit A, Item 2) dated January 9, 2006 which was presented to the PED STARS project team. The presentation's stated purpose was to outline "the assumptions, scope, timing, and approach to developing the Training and Change Management Plans for the Pilot and Statewide Rollout as referenced on Line 7 of Exhibit A in the Contract [development and implementation contract]. This document sets forth the overall requirements for the complete Training and Change Management Plans for the Pilot and Statewide Rollout."

One of the "next steps" highlighted in the presentation would be to "Deliver the Pilot/Rollout Training and Change Management Plan on or before contractually required deadline of March 1, 2006." The cost for this deliverable was \$100 thousand which was invoiced and paid in April 2006.

For a project of this budget and scope, typically a training plan should minimally address the

- specific population/roles to be trained during pilot and roll-out;
- due dates and tasks for pilot training and subsequent state-wide roll-out training;
- training team resources, technical training environment specifications;
- measures of training effectiveness and methods of feedback by students;
- training constraints, assumptions, risks and mitigation; and
- plan for on-going training to accommodate new staff and train all users on future application enhancements.

According to the STARS project manager, the PowerPoint presentation *was* the training and change management plan and no other pertinent documents were provided by the prime contractor to the STARS project team. The *STARS Workflow Manager and Unique ID Statewide Rollout Communication and Training Plan* dated May 17, 2006 did address some, but not all of the items listed above. The document lacked any mention of a plan for on-going training to accommodate new staff and train all users on future application enhancements.

Although the June 25, 2007 post-implementation report provided by the IV&V vendor concluded that "adequate and appropriate knowledge transfer took place for STARS....the vast majority of students highly rated the STARS training as meeting their needs", a mixed response was received by the district staff interviewed for this review when asked about training.

Some of the concerns cited included minimal hands-on training time during the initial training, and not enough focus on data verification and validation processes. Several districts indicated a

majority of their STARS training was provided not by the PED STARS team, but contract IT staff at their location, in some cases from the SIS software vendor. At another district, the STARS coordinator was planning to resign due to frustration with insufficient training and not understanding the system and procedures for data submission and validation. After some one-on-one training at the PED offices in Santa Fe, the coordinator was persuaded to stay in the position.

In general, all district staff interviewed welcomed more training on the system. The \$100 thousand spent for Cognos training for PED program and IT staff may have had more impact at the district level given their requests for additional training.

An issue that became apparent during district site visits was that the STARS coordinators did not have any trained back-up staff to cover for them during planned or unplanned absences. At one district, the STARS coordinator had to come into the office from maternity leave last school year to complete the 80th and 120th day submissions.

Since STARS went into production in 2006, PED has conducted two state-wide Data Conferences that received positive feedback from four of the six districts visited, although attendance was spotty as none of the staff interviewed attended all days of the conferences. Several districts indicated that the break-out sessions during the second Data Conference were of value, but were sometimes hampered by technical difficulties. Informal review of feedback forms from conference attendees from other districts were also positive.

Summary of Findings.

- A training and change management deliverable provided by the development and implementation contractor for which PED paid \$100 thousand was incomplete.
- Staff interviewed at six districts stated that they received minimal hands-on time during the initial STARS training and there was not enough focus on data validation and verification; all welcomed more training.
- A comprehensive plan to address on-going training for new staff and to train all users on future application enhancements has not been developed.
- Assigned and trained back-up STARS coordinators do not exist at the districts.
- Several statewide Data Conferences have been conducted since the STARS go-live and have been well-received.

Recommendation.

Develop a detailed Training Plan to address the next phases of the STARS project, as well as on-going training for new and existing staff.

Hire one term FTE as Training coordinator to provide on-site and centralized training to districts state-wide on STARS data submission, transmittal, validation/verification, and reporting, along with other topics as required. This individual should also be responsible for updating the training manuals, user guides and other training materials and developing new training tools as necessary.

Consider a survey of STARS users to determine which training topics would be most beneficial now that the system has been in production for over a year.

Require school districts to designate STARS coordinator back-ups and provide necessary training to effectively use STARS.

Consider making attendance at the periodic Data Conferences mandatory for district STARS coordinators and their designated back-ups, to ensure a baseline of knowledge among district staff.

Focus on providing more quality hands-on training for district staff, perhaps increasing the number and variety of break-out sessions at the Data Conferences.

Review Transition to Operations/Production Plan The *STARS Operational Support Project Management Plan* dated July 25, 2007 establishes a post-live governance structure, and adequately documents management policies for the areas of correspondence tracking, meeting communications, issue tracking and resolution, change order management, and risk management.

The change order management policy has not been used to-date; the STARS project manager stated that no meetings have been held. Review of the current participants on the STARS change control board shows no representation from the user community the system is intended to benefit, whether district or PED program staff. The plan does not address some of the common types of scenarios that may occur with a system that has gone into production, for example, “automatic” approval of defined categories of changes, and procedures to handle changes that may be approved without prior review in the case of emergencies. Both of these types of changes would still need to be captured, documented, and phased into the production environment to minimize any negative impact.

Once transition from outsourced hosting takes place and future phases greatly expand the number of users of the system, the plan will need to be updated to take into consideration new requirements including but not limited to release management, service level management, availability and service continuity management, help desk policies and responses, and maintenance of end-user and IT support documentation.

Recommendation.

Consider adding one or two voting representatives of the user community to participate on the STARS change control board.

Update the change order management policy with procedures for emergency changes and “automatic” approval of defined categories of changes if applicable.

Update the plan once the transition from outsourced hosting has taken place, and for each future phase.

March 12, 2008

MEMORANDUM

TO: *Manu Patel, Deputy Director, Legislative Finance Committee*

FROM: Robert Piro, Chief Information Officer, Public Education Department

RE: **PED RESPONSE TO STARS' PROJECT SECOND REVIEW**

Thank you for your work on the PED STARS' Project Second Review and for providing the PED with an early copy of the report memorandum. Below is the PED's response. Please note that Secretary Veronica C. Garcia and I have placed the March 17, 3:00 p.m. hearing date on our calendars.

Additionally, please note that the preliminary IV&V report has been delivered to DoIT, meeting all contingencies, and the funds' certification letter has been released. Also, the LFC report states that apart from a cursory review of PED's July 25, 2007 Request for Certification and Release of Funds Form filed with DoIT, which outlines activities undertaken to satisfy the contingencies, compliance has not been evaluated. The preliminary report addressing these contingencies was delivered to DoIT, and the remaining funds have been authorized for budgeting and expenditure.

Project Contracts

- In considering this review, it is important to remember that the purpose of STARS is more than to collect and report data. The language in HB 2 of 2005 summarizes the intent of STARS as follows: For implementation of the system architecture recommended by the decision support architecture consortium to meet state and federal reporting requirements, including the requirements of the *No Child Left Behind Act* in fiscal years 2005, 2006 and 2007.
- The additional \$1.1 million is directly tied to enhancements needed to implement the unique student ID number and post-production support.
- Celero's original cost was \$13.5 million. Given available funding, its contract was amended to match services to the available dollars.
- The PED has begun transitioning contractor tasks to PED staff where possible. But the PED disagrees that the Project Management task was outsourced. Project management has always been within PED. STARS' development was and is a very complex implementation. Within PED, we lacked the skill set to do this; thus, Celero was hired to augment project management activities. After implementation, Celero took a quality assurance role.

The operational activities that were performed by Celero might have been done in-house. However, with the limited staff available, we made the conscious decision to let PED staff develop the

technical skill set required to support STARS long term. The team has now developed much of the technical skill set, so we are now in the process of transitioning most of the operational support to PED.

In the Pilot and Implementation Phase, the PED utilized a deliverable acceptance process in which a detailed review of the deliverable was done and signed off on before payment. During the last Operational Support Phase, STARS' related deliverables were provided to multiple divisions of PED, not directly to IT. These were specifically related to STARS. We reviewed and matched the invoice to the deliverable. At times, titles may not have exactly matched, but the content was what was expected.

The PED has already begun re-institutionalizing "Project-Based Deliverable Acceptance," which will address concerns related to the reconciling of invoices. PED is working to build STARS' costs into its base budget.

- On page 7, the LFC states that PED paid \$50,000 for the logistical arrangements (hotel, conference room, data ports, audio visual needs, copying, eight breakout rooms, cables) for the April 2007 STARS' data conference and \$50,000 for developing training presentations and exercises for the October 2007 STARS' data conference. The contract was reviewed by several parties regarding the deliverables. The data conferences were executed on a change request. The expense reflects the cost to hold three-day data conferences for 450 attendees each. No professional fees were included in this deliverable; payment was for the actual costs of holding the conferences. Actually, the conferences cost \$59,000 each. Celero and Deloitte sponsored several events, including a box lunch, in order to lower the costs. The protocol now exists for bringing the data conference in-house, which PED anticipates doing in 2009. To save on logistical costs, PED will connect the conferences to trainings already being scheduled by PED divisions and bureaus where feasible.

STARS Data Validation and Evaluation of Workflow

- The PED expects the positive experiences with data validation to continue.

The PED continues to develop tools to assist the districts and departments with data validation and certification. However, the PED would welcome supplemental funding to purchase and implement a data validation tool.

PED is researching a data auditing/validation software tool whereby districts would get immediate feedback when data is wrong or contradictory. Because STARS has multiple years of data, such a tool could also show yearly variances.

PED, in collaboration with Office of Education Accountability (OEA), is developing a Data Quality Initiative for both district and PED internal staffs. We're designing and developing tools that identify data anomalies for education programs (Educator Quality, Bilingual, Special Education, Assessment and School Budget). We expect this effort to improve the data quality not only at PED but also within district software systems.

Specifically, the PED is reviewing salaries for certified staff, which vary throughout the state. Findings will probably require that manuals be edited regarding what is entered for FTE and salary ranges. We're also reviewing the federal indicators for special education and developing a series for reports for bilingual so that districts can check for variances.

- The PED believes that any lack of staff confidence in STARS' data is not current. Increasingly, STARS is the source that PED staff relies on for their work. Early on, there was some difficulty in going from the former ADS' reports to STARS, but that has greatly diminished. Further, because more IT staff are the immediate contacts to the divisions and bureaus, there is greater accessibility to data and requests are no longer channeled through one or two IT staff members.
- Regarding the change management policy on page 9, this policy is to document changes to the system. It addresses major changes to STARS, like adding the unique ID functionality, upgrading to Common Data Warehouse Version 9 and implementing the Validation Rules. Although report changes need to be better documented, using the Change Board to address changes to departmental reports would only delay progress. PED report changes are related more to our continuous improvement efforts and the ongoing business process changes.
- Regarding the concern on page 10 related to minutes for December 2007 meetings, as explained to LFC, no minutes are taken at the weekly submission status meetings. People provide updates, PED staff document the updates in a new report and send that report out immediately with the updates. The new submission report is in essence the meeting minutes. We have several boxes of these reports, which have been offered to the LFC for review. Preparing minutes would in essence duplicate the updates.
- The number of days to transmit and certify STARS' data for school year 2007-2008 has dramatically improved over 2006-2007 as follows:
 - 58 districts submitted their 40th-day data within the five-day statutory window
 - 82 districts completed their December 1 submissions within two weeks
 - 70 districts submitted their 80th-day data within the five-day day statutory window
 - Of the 71 districts whose 120th-day window is past, 60 have submitted their data within the five-day window.

We believe the reference to school year 2006-2007 is outdated. These are all improvements from last year and a dramatic step forward over ADS' submittal times.

- Regarding trainings, our plans are to continue to use the two data conferences as the primary source for training new users. We might want to consider developing a detailed training guide to be given to new users as they are hired, but this would take a tremendous effort because each district utilizes STARS differently. All training material is posted on the STARS website and is accessible to all. Please note that PED is the primary deliverer of all trainings. We have needed help developing the training material, but aside from the technical Cognos training to PED IT staff on how to write reports utilizing Cognos, all training has been delivered by PED staff. We will need some help with the data conference, but all other internal and external training is being provided by PED staff (both IT and programs).

We agree with the LFC about the importance of hands-on training. PED's IT staff conducted 12 STARS' hands-on trainings for PED program staff using the computer labs at DOT in 2007. This has further enhanced our efforts to build STARS' accessibility and expertise within the PED.

The majority of the districts' issues encountered or needing assistance revolves around district installation of new or changed data systems. Typically, these new or changed systems have resulted in difficult data conversions and lowered data quality. We've subcontracted with two former district

employees to assist districts on site with their Student Information Systems. While on site we also provide one-on-one STARS' support/training.

Additionally, PED is discussing how to include RECs in providing on-site support for STARS.

- Regarding the recommendation on page 12 to consider creating a User Report Manual, we agree. We've developed program-specific training material that includes the description and examples of reports, as well as how to use them. We're considering producing a user-friendly CD manual.
- Also on page 12, the LFC recommends that the PED consider development of "cookbook" type checklists for the STARS coordinators, especially for reports to be run for data validation. The PED has developed several "checklists," "Profiles" and "exception reports" to help districts know when they are done. These are available through the STARS website and districts were trained on these during the data conferences. Those that did not attend have been coached via phone calls using this material.

As new tools are developed an email is distributed to the LEAs with instructions on how to use them. More are being created as needed. With \$400,000 of the \$1.65 million funded for FY 08-FY 10, the PED plans to help districts understand and use these tools within their own locations, not just for what the PED needs for reporting, to support their local information needs. This strategy for continuous improvement rollout is working.

Review STARS' Plan for Transitioning from Outsourced Hosting

- We will continue to evaluate our hosting alternatives, even though today we feel that no other alternative exists.
- The PED has not completed any details for a transition plan because, from initial discussions, New Mexico does not have the technical skills to support the administration requirements at this time. If we are to develop a more detailed plan, as is suggested, then equipment will have to be considered. The PED's preference is to develop and release a hosting RFP during the spring of 2009. The PED will need to begin taking action since the Deloitte contract expires in December 2009. This is a strategic decision that must be made.
- Regarding non-hosting processing tasks, these are the system administration tasks contracted through the hosting contract, including the Open and Close process, Delete processing, EDEN data extraction, Adequate Yearly Progress calculation and Licensure/Highly Qualified Teacher calculation. These tasks are very technical in nature. Up to this point, PED staff did not have the technical expertise or the time to execute these tasks. We are now in the process of bringing some of these tasks in-house, specifically Open/Close and the delete process.
- Regarding the statement on page 13 that PED staff does not have the expertise or training to handle technical and processing functions and others, and continues to rely heavily on the vendors, the skill transfer has occurred. There are some technical tasks identified that would not be in the PED's best interest to assume. Adequate Yearly Progress is a good example. eScholar has accepted that responsibility within system maintenance. The licensure tasks are closer to being on site. The tasks that make sense are the delete and open and close processes, which the PED is bringing in house. Further, as with any commercial off-the-shelf product, modifications require in-depth knowledge, which the PED is developing.

- Regarding the recommendation on page 14 to update the transition plan to specifically evaluate alternatives to eScholar hosting, this is a strategic decision the PED needs to make. The Deloitte contract expires on December 2009; the PED will have no other contracting vehicle. The PED plans to release a "hosting" RFP in the spring of 2009. Further, the PED has started preliminary conversations with DoIT to augment the "Transition Plan."

Review STARS Training Plan

- The PED will continue to execute its training strategy using the data conferences and on-site support as appropriate. As noted, we've had success subcontracting this to former district employees.
- Page 16 of the report states, "A training and change management deliverable provided by the development and implementation contractor for which PED paid \$100 thousand was incomplete." This was the initial Training and Change Management Document created during the Implementation Phase of the project. This deliverable was reviewed and accepted by the PED project manager, agreed to by the QA vendor and accepted by the IV&V vendor to meet the requirements in the contract. Further training documentation was developed by PED and was the basis for the data conferences and trainings that have been continually provided by PED staff; no deliverable was created. In addition to the PowerPoint referenced by the LFC, the following was produced: quick reference guide, five PowerPoints and two additional documents for hands-on trainings. The contractor also facilitated with the delivery of the trainings. There were targeted weekly conference calls, including STARS' access user group meetings and support for district vendors.
- Also on page 16, the LFC recommends that the PED hire one term FTE as training coordinator to provide on-site and centralized training to districts statewide on STARS' data submission, transmittal, validation/verification and reporting, along with other topics as required. This individual should also be responsible for updating the training manuals, user guides and other training materials and developing new training tools as necessary. Legislation in 2008 did not include this FTE. PED will absorb two of the original four FTE into the operational budget and the remaining two will be funded from 2008 legislation. PED plans to continue the development of district tools and be on site as requested for STARS' support. When possible, we prefer to handle one-on-one training at PED where we have access to more resources, as the majority of questions are program/policy related.

PED also plans to request additional resources in the base budget.

In its report, the LFC recommends modifying STARS to assist districts in the validation of data. This cannot be accomplished with existing staff or with the level of funding provided.

There is a validation tool available to integrate with STARS, but the PED has not been funded to acquire such a tool. Such a tool could provide immediate feedback on data errors and reduce the custom report development effort. Modifying the base system to incorporate the business rule validation is not on the vendor's development list. The PED will implement lookup validations that will address 75% of the errors but will not address business rule errors. Utilizing the test environment would not give the districts timely enough data refreshes to add much value and would only add to their frustrations. The validation tool as suggested above is the way to accomplish the recommendation but funding would be needed.

The PED is in the process of transitioning tasks from Deloitte and Celero to PED staff. Due to limited staff availability, the PED should only transition the tasks that will help the agency move forward.

- On page 16, the LFC notes that STARS' coordinators lack backups. PED agrees and will recommend that each district identify to PED a backup for the STARS coordinator. PED will ensure that this individual is included on distribution lists and invited to any and all trainings.
- Finally, on page 16, the LFC recommends that the PED consider a survey of STARS' users to determine which training topics would be most beneficial now that the system has been in production for over a year. We agree and we are completing our summary of the survey. We will provide it to the LFC when it is complete.

Review Transition to Operations Plans

- The PED views a better approach as first expanding the STARS team to include districts' STARS coordinators. This will give districts direct representation to all STARS' decisions. The Change Control Board that made sense during the Pilot and Rollout would be too cumbersome to utilize in our operational environment. 75% of the upcoming changes are program/department specific and should be approved by the program/department. The remaining 25% are cross agency, like the major upgrade decisions, which are best made within the group of IT stakeholders. The PED is evaluating which approach makes the most sense.

Thank you.

cc: Secretary Veronica C. García, Public Education Department
Brian Condit, Office of the Governor
David Abbey, Legislative Finance Committee
Aurora B. Sánchez, Legislative Finance Committee
Kami Gupta, Legislative Finance Committee
Peter Winograd, Office of Education Accountability
Ruth Williams, Public Education Department