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## Business Case

**Project Name: eCampus-Based Programs' System**

**Channel: Schools**

**Project Sponsor: Kay Jacks**

**Project Lead: Kerry Trahan**

### **Project Description**

**Describe the need for change (the business problem to be addressed).**

This initiative would modernize the current system platform that consists of an application developed in COBOL, running on an IBM mainframe with data stored in a VSAM file structure. The application was one of the earliest systems brought on-line by SFA over 20 years ago and was originally intended to be operated for just one year. Three separate contractors have maintained the system over this period, and due to the annual maintenance and long-term patching of the programs, there are concerns regarding the ability of the application to continue to be maintained on its current platform. Furthermore, the storage of data in its current form makes it very difficult for SFA staff and institutions to get access to information when and how they need it.

The IBM mainframe hosting the CB application is used primarily for PELL Grant processing and is currently scheduled to be retired during FY2003. Consequently, the CB application must find a new platform, or provide for the continuing operation of the IBM mainframe. In addition, the current contract for operations and maintenance (UAL) expires 6/30/01 and, due to the contract's 8a designation, will not be renewed. SFA expects to have a new contractor to succeed UAL by 3/05/01. Price re-negotiations details are included in the Acquisition Strategy section of this document.

Therefore, the condition of the current application's code, the difficulty in accessing information and the selection of a new contractor could result in a significant risk to CB Programs and schools. On the other hand, the new eCB system will provide a user-friendly web-based FISAP to the schools, be much simpler to update and maintain, provide for a much more efficient environment for the CB staff to perform their jobs, provide better support to our customers, and provide scalability.

### **What is the purpose of the initiative?**

This initiative is designed to reduce cycle time for application processing for institutions, reduce risk from aging system, increase SFA staff access to data and analysis capabilities, provide institutions and servicers with an alternative submission option for the FISAP file and increase maintainability while reducing cost. It will effectively bring the CB application into today's technology, realizing the vision of the SFA Modernization, by moving it off of the mainframe scheduled for retirement, and provide efficient interaction with other relational database systems (FMS, COD, etc.)

### **What is the scope of the initiative, including what it is not?**

The project scope will consist of analysis, design, construction and testing of the eCB System. The scope shall include:



- Participate in Focus Group sessions to validate requirements
- Re-write the current application business logic in object-oriented language:
  - Process CB funding
  - Maintain and edit FISAP data
  - Calculate and notify institutional awards
  - Allocate CB funds
  - Reconcile accounts and reporting
  - Tracking functions
  - Edit processing and delivery
  - Award Notification
- Migration of VSAM files structure to relational database structure
- Conversion of current and historical data
- Development of web front-end to replace FISAP software:
  - Ability to enter data and save incomplete FISAPs
  - Ability to upload single or multiple school records
  - Ability to print FISAP and signature pages (will incorporate GEPA and E-Sign as appropriate)
  - Ability to validate (edit process) data before submission
  - Ability to receive acknowledgement and edit files
- Secure Login
- Award Notification letters to schools
- Ability to see and print award information (Tentative funding, Final Funding, TC Payments, and ESOAs)
- Secure school/servicer log-in based on TIVWAN/SAIG participation file
- Ability to see and print tracking information
- Web access for SFA Staff

The scope shall not include:

- Modifications to the EDEXpress application and/or process
- Modifications to SAIG (TIVWAN) applications and/or process

**What is the start date and end date of the initiative?**

The duration of the eCB initiative is November, 2000 through November 30, 2001.

**What other business areas/external groups are affected by the implementation of this initiative and how are they affected?**

First, the new system will interface with CFO's Financial Management System (FMS). The eCB System will feed FMS initial school funding allocations, as well as reallocations and other financial adjustments during each award year. Both the CFO and schools will be positively affected by the systems ability to greatly enhance the focus on year-end reconciliation at schools.

Equally important, the design of the relational database will positively impact the Schools Channel. Through an interface with Common Origination and Disbursement (COD), the eCB System will realize one of COD's major customer service goals -- to dramatically reduce the administrative burden placed on institutions and servicers for completing the FISAP. Specifically, institutions and servicers will have the



option to submit CB student detailed records to COD. COD will aggregate this detailed data and interface with the eCB System allowing for the automatic population of the Income and Campus-Based FISAP grids, thereby reducing errors and OMB burden hours. While COD will provide institutions and servicers the capability to submit CB student-detailed records, the eCB System will maintain its current responsibilities of determining annual allocations, receiving and analyzing FISAP data, and producing award notifications.

Additionally, the navigation for the web screens is based on the Portals design to ensure a common look-and-feel of SFA Products. The new system will present institutions and servicers who have web access with an alternative to EDEXpress when transmitting FISAP data to SFA.

**What systems are impacted by the implementation of this initiative and how are they impacted?**

The interfaces for multiple systems will need to be created or modified including FMS, COD, and SAIG (TIVWAN). The latter is currently under consideration for modifications that could impact this effort. In addition, the design of the solution will support integration with COD, and be consistent with the guidelines of the Portals design to ensure a common look-and-feel of SFA products.

**What business processes are impacted by the implementation of this initiative and how are they impacted?**

The eCB System will positively impact the FMS business obligation process through the ease of an interface brought about by a common platform and thus tighter integration. In addition, the school FISAP reporting process will be impacted. Specifically, the FISAP turnaround time will be reduced significantly from the current 5 day correction processing turnaround to real-time processing (real-time relates to business processing not transmission to and from institution/servicer). In addition, institutions and servicers will have the choice of transmitting the FISAP file via a web page versus SAIG (TIVWAN). SFA staff, institutions and servicers will also have advanced reporting capabilities. Finally, as stated earlier, the design of the solution will fully complement the COD business process by reducing the burden of the income and CB grid completion requirement.



## Technologies Used

List the proposed technologies that will be used to implement this project

Name/type	Proposed use	Has technology been used at SFA before? Where?	Does Technology fit SFA's Architecture Standard? Explain.	Does SFA have the technical expertise to implement this technology? Why?
IBM HTTP Server version 1.3.0.12	Serves HTML pages over the web.	Yes. In the SFA ITA production environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
IBM WebSphere Application Server Version 3.5.2 with support for JSP 1.1	Serves application files called from web pages.	Yes. In the SFA ITA development environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
Oracle 8i RDBMS version 8.1.6	Database storage for eCBS.	Yes. In the SFA ITA production environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
JDK version 1.2.2.03	Development kit for Java server pages.	Yes. In the SFA ITA development environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
VisualAge for Java	Development environment for Java, Java Beans.	Yes. In the SFA ITA development environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
WebSphere Studio	Integrated web and application development environment.	Yes. In the SFA ITA development environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.
Microstrategy Reporting Software	Ad Hoc reporting software	Yes. In the SFA ITA development environment	Yes. Covered in Task Order 16.1.6	Yes. Currently available at the VDC.



## **Benefits**

**Provide a narrative discussion to explain why SFA is doing the initiative and what project objectives or expected outcomes can be quantified and how can they be measured. Demonstrate that the initiative supports the goals and objectives of SFA, how it supports these goals and objectives, to what extent it helps SFA achieve these goals and objectives and when these benefits will be realized.**

First and foremost, schools will be ensured of receiving CB funding with the implementation of the eCB System. The web-based FISAP process will greatly improve customer satisfaction to the end-user schools and institutions through its look-and-feel consistency with the SFA Schools Portals. In addition, as COD becomes a reality, schools will no longer have to endure the administrative burden of filling in portions of the FISAP. The redesign of the current application and migration of the Campus-Based System from a VSAM storage system to a relational database system will increase customer satisfaction through the reduction of the FISAP correction processing cycle. Further, the solution will provide enhanced customer service and analytical reporting for SFA as well as Congress.

Finally, employee satisfaction will be increased by significantly improving usability through improved application functionality, improved access to data to increase effective oversight, the ability to quickly respond to internal and external ad-hoc inquiries, and increased self-service capabilities. The new system will eliminate the reliance on contracting partners for most ad-hoc report generation, resulting in a reduction in time and costs involved. In addition, the new system will allow regional off-site access to data via the web rather than through ED-LAN and improved roll-outs and updates.

### *Reduce Unit Cost*

Quantified Benefit (\$)	How will benefit be measured/realized?	When will benefit be realized?
\$755,000* annually	Maintenance cost reductions.	2002
\$94,800** annually \$202,800 annually	Operating cost reductions.	2002
<i>Assumptions</i>		
<ul style="list-style-type: none"> <li>- The unit cost reductions listed above will be realized annually.</li> <li>- The costs above assume maintenance and operating cost increases of 3.1% (3-year average CPI).</li> <li>- Discussions with Contracting and CIO have suggested VDC maintenance costs may go down by 10% over time.</li> </ul> <p>*Maintenance cost reductions are realized by reducing annual maintenance costs from \$1,400,000 to \$645,000.</p> <p>**Operating cost reductions are realized by reducing operating costs from \$802,800 to \$708,000 (Option A) or \$600,000 (Option B).</p>		



*Increase Customer Satisfaction*

<b>Quantified/Qualitative Benefit</b>	<b>How will benefit be measured/realized?</b>	<b>When will benefit be realized?</b>
Reduced turnaround time for processing FISAP	Schools' FISAP submission process	When web front-end system goes into production (8/31/01)
Alternative FISAP transmission capability	Schools may submit via web or software for first year of eCB	When web front-end system goes into production (8/31/01)
Access to prior year FISAP data	Component of new system	When back-end system goes into production (11/30/01)
Increased self-service capabilities	Component of new system	When web front-end system goes into production (8/31/01)
Ability to print FISAP and signature pages (will incorporate GEPA and E-Sign as appropriate)	Component of new system	When web front-end system goes into production (8/31/01)
Award Notification letters to schools will be available via the web	Component of new system	When web front-end system goes into production (8/31/01)
Ability to enter data and save incomplete FISAP's	Component of new system	When web front-end system goes into production (8/31/01)
Ability to decrease institutional users time and effort by pre-populating the FISAP grid.	Result of integration between the COD system and eCBS as a result of the new system implementation	When COD system goes live the pre-population of the FISAP grid will be available
Real time edit messages will be presented to the institution & servicers allowing them to make corrections more quickly	Component of the new system	When web front-end system goes into production (8/31/01)
Ability of institutions and servicers to sequence the FISAP process	Component of the new system	When web front-end system goes into production (8/31/01)
Eliminate the need to download, install and configure PC products at the institutions.	Schools submit FISAP via web	When web front-end system goes into production (8/31/01)
<i>Assumptions</i>		



*Increase Employee Satisfaction*

<b>Quantified/Qualitative Benefit</b>	<b>How will benefit be measured/realized?</b>	<b>When will benefit be realized?</b>
Increased effectiveness of program oversight through improved functionality and access to data	Component of new system	When back-end system goes into production (11/30/01)
Ability to quickly respond to internal and external ad-hoc inquiries	Component of new system	When back-end system goes into production (11/30/01)
Enhanced analytical reporting capabilities	Component of new system	When back-end system goes into production (11/30/01)
Increased self-service capabilities	Component of new system	When back-end system goes into production (11/30/01)
Integrated solution using "State of the Art" Technology	Component of new system	Front-end- 8/31/01 Back-end- 11/30/01
A simpler, integrated process for looking up institution / program data will reduce the amount of stress that is now synonymous with such lookups, and will increase the time available to review and analyze data (as opposed to trying to piece it together)	Component of new system	When back-end system goes into production (11/30/01)
Allows regional and remote SFA employees access to CB data for program reviews	Component of new system	When back-end system goes into production (11/30/01)
<i>Assumptions</i>		



Estimated overall dollar amount of all benefits listed above.

Quantified Benefits					
BY	BY+1	BY+2	BY+3	BY+4	Total
Assumptions					
Several qualitative benefits described above result in increased efficiencies for institutions and CB staff, which are difficult to quantify.					

### Costs

Provide costs, including those to implement the initiative and the costs to support it over its useful life.

Our Business Case includes costs based on two options. Option A costs are based on hosting the new system at the VDC. Operating cost reductions begin in FY03, with a 6-Year ROI of 6% and a payback occurring in FY05.

Option B costs associated with hosting the new system outside the VDC. Operating cost reductions begin in FY03, with a 6-Year ROI of 13% and a payback occurring in FY05.

### Option A

Project Year	BY	BY+1	BY+2	BY+3	BY+4	BY+5	Total
Fiscal Year	2001	2002	2003	2004	2005	2006	Total
<b>Costs</b>							
<b>Old System</b>							
VDC Operating Costs	-802,800	-200,700	0	0	0	0	-1,003,500
System Maintenance	-1,400,000	-350,000	0	0	0	0	-1,750,000
ED Express Update	-347,000	0	0	0	0	0	-347,000
<b>Total Cost of Old System</b>	<b>-2,549,800</b>	<b>-550,700</b>					<b>-3,100,500</b>
<b>New System</b>							
Funds Obligated	-1,100,000						
Design/Development/Testing	-2,260,000	-1,000,000	0	0	0	0	-3,260,000
Design/Test Environment	0	0	0	0	0	0	0
Training	-250,000	0	0	0	0	0	-250,000
IV&V	-400,000	0	0	0	0	0	-400,000
Security Assessment	-100,000	0	0	0	0	0	-100,000
VDC Operating Costs	-59,000	-708,000	-729,948	-752,576	-775,906	-799,959	-3,825,390
System Maintenance	-20,833	-250,000	-257,750	-265,740	-273,978	-282,472	-1,350,773
Other Direct Costs	-32,917	-395,000	-407,245	-419,870	-432,886	-446,305	-2,134,222
<b>Total Cost of New System</b>	<b>-4,222,750</b>	<b>-2,353,000</b>	<b>-1,394,943</b>	<b>-1,438,186</b>	<b>-1,482,770</b>	<b>-1,528,736</b>	<b>-12,420,385</b>
<b>TOTAL eCB Costs</b>	<b>-6,772,550</b>	<b>-2,903,700</b>	<b>-1,394,943</b>	<b>-1,438,186</b>	<b>-1,482,770</b>	<b>-1,528,736</b>	<b>-15,520,885</b>
<b>Old System</b>							
VDC Operating Costs	-802,800	-827,687	-853,345	-879,799	-907,073	-935,192	-5,205,895
System Maintenance	-1,400,000	-1,443,400	-1,488,145	-1,534,278	-1,581,841	-1,630,878	-9,078,541
ED Express Update	-347,000	-499,000	-499,000	-514,469	-530,418	-546,860	-2,936,747
<b>TOTAL Legacy CB Costs</b>	<b>-2,549,800</b>	<b>-2,770,087</b>	<b>-2,840,490</b>	<b>-2,928,546</b>	<b>-3,019,331</b>	<b>-3,112,930</b>	<b>-17,221,183</b>
<b>NET CASH FLOW</b>	<b>-4,222,750</b>	<b>-133,613</b>	<b>1,445,547</b>	<b>1,490,359</b>	<b>1,536,561</b>	<b>1,584,194</b>	<b>1,700,298</b>
<b>TOTAL FUNDS REQUESTED</b>	<b>-3,010,000</b>	<b>-1,000,000</b>					

*Operating and maintenance costs were calculated using a 3-year average CPI of 3.1 %*

*\* ED Express costs are calculated by academic year. We have applied them to fiscal year. FY02-03 remains constant due to contract options to hold costs.*



**Option B**

Project Year	BY	BY+1	BY+2	BY+3	BY+4	BY+5	
Fiscal Year	2001	2002	2003	2004	2005	2006	Total
<b>Costs</b>							
<b>Old System</b>							
VDC Operating Costs	-802,800	-200,700	0	0	0	0	-1,003,500
System Maintenance	-1,400,000	-350,000	0	0	0	0	-1,750,000
ED Express Update	-347,000	0	0	0	0	0	-347,000
<b>Total Old System</b>	<b>-2,549,800</b>	<b>-550,700</b>					<b>-3,100,500</b>
<b>New System</b>							
Funds Obligated	-1,100,000						
Design/Development/Testing	-2,260,000	-1,000,000	0	0	0	0	-3,260,000
Design/Test Environment	0	0	0	0	0	0	0
Training	-250,000	0	0	0	0	0	-250,000
IV&V	-400,000	0	0	0	0	0	-400,000
Security Assessment	-100,000	0	0	0	0	0	-100,000
Non-VDC Operating Costs	-50,000	-600,000	-618,600	-637,777	-657,548	-677,932	-3,241,856
System Maintenance	-20,833	-250,000	-257,750	-265,740	-273,978	-282,472	-1,350,773
Other Direct Costs	-32,917	-395,000	-407,245	-419,870	-432,886	-446,305	-2,134,222
<b>Total New System</b>	<b>-4,213,750</b>	<b>-2,245,000</b>	<b>-1,283,595</b>	<b>-1,323,386</b>	<b>-1,364,411</b>	<b>-1,406,708</b>	<b>-11,836,851</b>
<b>TOTAL eCB Costs</b>	<b>-6,763,550</b>	<b>-2,795,700</b>	<b>-1,283,595</b>	<b>-1,323,386</b>	<b>-1,364,411</b>	<b>-1,406,708</b>	<b>-14,937,351</b>
<b>Old System</b>							
VDC Operating Costs	-802,800	-827,687	-853,345	-879,799	-907,073	-935,192	-5,205,895
System Maintenance	-1,400,000	-1,443,400	-1,488,145	-1,534,278	-1,581,841	-1,630,878	-9,078,541
ED Express Update	-347,000	-499,000	-499,000	-514,469	-530,418	-546,860	-2,936,747
<b>TOTAL Legacy CB Costs</b>	<b>-2,549,800</b>	<b>-2,770,087</b>	<b>-2,840,490</b>	<b>-2,928,546</b>	<b>-3,019,331</b>	<b>-3,112,930</b>	<b>-17,221,183</b>
<b>NET CASH FLOW</b>	<b>-4,213,750</b>	<b>-25,613</b>	<b>1,556,895</b>	<b>1,605,159</b>	<b>1,654,919</b>	<b>1,706,222</b>	<b>2,283,832</b>
<b>TOTAL FUNDS REQUESTED</b>	<b>-3,010,000</b>	<b>-1,000,000</b>					

Operating and maintenance costs were calculated using a 3-year average CPI of 3.1 %

\* ED Express costs are calculated by academic year. We have applied them to fiscal year. FY02-03 remains constant due to contract options to hold costs.

**Total Cost of Ownership**

**What is the level of required enhancement after implementation?**

The level of required enhancement would be dependent on SFA's strategy. During Phase I, we met with the CB staff in order to identify and document their specific requirements. Although some of these requirements are beyond the scope of the initial release, the requirements were captured in the System Requirements Document, and considered in the system redesign.

**What is the life span of this initiative?**

The implementation is scheduled to be completed by November 30, 2001. It is anticipated that the solution will be modified significantly by the implementation of the COD solution.



## Alternatives

Discuss what could be done in place in this initiative and describe the consequences of each alternative.

Alternative	Consequence
Remain as-is	The mainframe platform is supported by the PELL program and is scheduled for retirement. CB System would be solely responsible for maintaining the mainframe and/or identifying a new mainframe platform. In addition, the age and frequent patching of the code result in ever increasing maintenance cost and complexity. The current CB Windows is exceeding its design for the CB staff, resulting in potential system failures and losses to productivity.
Non-technology solution	N/A
Enhance an existing system	Implement a portion of the solution (i.e. migration of data to relational database w/o redesign of application. This would require complex modifications of the COBOL programs to access the relational database. The solution would also need to continue to support the flat file format on the front end, and not address the concerns regarding on-going support of the application on the mainframe platform.
Implement on a smaller scale	The BPA holder could maintain and operate the existing system until another solution could be implemented. This alternative incurs the risk of system failures, due to the current CB Windows running above its capacity.

## Risks

Risk	Description of Risk	Mitigation Strategy
Technology	<p>Institutional impact on distribution of funds due to inability of new contractor to perform maintenance responsibilities.</p> <p>Inability to meet implementation schedule for database migration and application development could impact institutions and servicers</p> <p>Insufficient performance of end-user testing.</p>	<p>Hire knowledge base from incumbent contractor.</p> <p>Allow current legacy system and eCB System application to run in parallel to ensure required uptime</p> <p>IV&amp;V Support.</p>
Management	<p>Failure to properly communicate roles to ED/ SFA staff and provide support could hinder the implementation</p> <p>Failure to properly communicate changes to institutions/servicers/SFA Staff community may impact success</p>	<p>Detailed communication plan and involvement of ED/ SFA employees throughout the development and implementation process</p> <p>Detailed roll-out and training plan that addresses communication needs</p>



## Acquisition Strategy

**Sources** (Indicate the prospective sources of supplies or services that can meet the need of this project. List the most likely offerors for the requirement, and/or the manufacturer and model of the equipment that will most likely be offered).

This business case assumes the VDC will host and operate the new system, and the maintenance will be provided at the best value.

**Competition** (Describe how competition will be sought, promoted, and sustained throughout the course of the acquisition, including any performance requirements that will be required).

Using our revised cost estimate figures and more refined eCB System specifications we will renegotiate the maintenance cost for the new system with the BPA holder on 8/1/01. If the BPA holder's response is not competitive, then we will solicit to 4 Small Businesses with GSA schedules on 9/1/01 to meet or exceed our projected savings. This contract will be awarded on 11/1/01 and maintenance of the new system will begin on 12/1/01.

## Schedule/Milestones (including acquisition cycle)

#	Milestone	Start Date	End Date
1	<b>Phase II Kick-off</b>	Fri 3/2/01	
2	<b>FISAP Web Development/Test</b>	Fri 3/2/01	Mon 07/09/01
3	System Integration/Test/PRR	Mon 07/09/01	Wed 08/22/01
4	FISAP Web to Production		Fri 08/31/01
5	<b>Application Server Dev/Test</b>	Mon 3/05/01	Thu 11/01/01
6	System Integration/Test/PRR	Thu 11/01/01	Fri 11/30/01
7	CB App. to Production		Fri 11/30/01