

4. PROJECT EASI/ED TRANSITION SCHEDULE

The transition schedule is the heart of the *Project EASI/ED Transition Strategy*. This section presents that schedule, which includes major activities required to establish system infrastructure, to perform system-level design and implementation activities, to perform subsystem-level design and implementation activities, and to integrate each subsystem into the larger system. In addition, the schedule addresses organization change activities required to enable SFAP to meet EASI and EASI/ED objectives for service delivery and to maximize the benefit of the revised student aid processes and system. Finally, the schedule highlights milestone events (e.g., shutdown of current systems, current contract end dates, new contract award dates).

The EASI/ED transition schedule is described through summary graphics, a Microsoft Project schedule (presented in Appendix G), narrative project descriptions and summary information (i.e., task name, duration, start and end dates, and dependencies) from the detailed schedule. The remainder of this section is organized as described below.

- **Subsection 4.1 - Project EASI/ED Transition Schedule:** Uses four graphics summarizing major facets of the transition schedule – subsystem implementation, EASI/ED-wide activities, data conversion activities, and impact on current Title IV systems – to introduce the reader to major transition activities and their relative timing in the schedule. A fourth graphic summarizes the total transition schedule at the highest level to highlight the relationships and relative timing across major facets of the effort.
- **Subsection 4.2 – Project EASI/ED Transition Worksheets:** The Project EASI/ED transition comprises the following major elements:
 - ◆ System-Wide Activities
 - ◆ Organization Change
 - ◆ Phase I – Financial Services and Aid Application Implementation
 - ◆ Phase II – Program Management and Oversight (PMOS) Implementation
 - ◆ Phase III – Aid Origination and Disbursement and Repayment Implementation
 - ◆ Phase IV – Decision Support Implementation
 - ◆ Prototypes, Pilots, and Interim Improvements

Each major element comprises one or more “projects.” A transition project is a discrete set of related activities with a limited duration that together lead to completion of a goal – e.g., implementation of an EASI/ED subsystem, implementation of the technical infrastructure. These projects are described in this subsection using a standard worksheet to highlight each project’s purpose, major activities, anticipated responsibilities, issues, assumptions, and relationships.

4.1 Project EASI/ED Transition Schedule

The purpose of this subsection is to provide readers and managers with a quick reference tool for initially understanding key activities and relationships for major aspects of the EASI/ED transition. To achieve this, graphical summaries are presented for four major facets of the transition schedule and for the overall schedule. All five figures use a consistent scheme to present the schedule:

- **Inverted triangles** at the top of each page reflect key EASI/ED milestones – creation and population of the enterprise database and phase implementation – to enable readers to quickly correlate activities to these critical events.
- The **time scale** is presented in months and years, shown in the double lines near the top of the page.
- **Major activities** are represented by bars and columns, and include the acquisition of contractor support, related design and implementation activities, and integration.
- To help readers use the figures, **start and end dates** for each activity are presented through dotted vertical arrows that link the time scale to the beginning and end of each bar or column.
- **Relationships** are shown by the relative position of bars and columns on the page. Bars on a horizontal plane with one another and columns sharing that horizontal plane are related and occur in the sequence shown.

Figure 4-1 summarizes the transition schedule for EASI/ED subsystem implementation, using the implementation sequence described in Section 3.

Figure 4-2 summarizes the major system-wide transition activities. Examples of work within this area include: definition of system-wide design standards; sizing and capacity analysis, and performance planning; system-wide design activities; enterprise database design, implementation, and population; and user interface design and implementation.

Figure 4-3 presents the activities required to convert data to the Project EASI/ED enterprise database.

Figure 4-4 presents a consistent set of milestone events associated with the transition of current Title IV systems to EASI/ED. Each current system is named at the left side of the figure. The milestones presented are: migration to the Band 1 data center, end of the current contract to operate and maintain each system, partial shutdown (if applicable), and full shutdown. Although this transition schedule is based upon significant reuse of current systems, the reused systems are still considered to “shut down” at the point where they lose their current identify and become integral components of EASI/ED.

Figure 4-5 summarizes Figures 4-1, 4-2, and 4-3 in a single graphic. Readers seeking more detailed representations of the transition schedule should refer to the Microsoft Project schedule presented in Appendix G and to the narratives presented in subsection 4.2.

Figure 4-1 - Project EASI/ED Subsystem Implementation Schedule

Figure 4-2 – Project EASI/ED EASI/ED-Wide Activities

Figure 4-3 – Project EASI/ED Data Conversion

Figure 4-4 – Current Title IV System Transition Milestones

Figure 4-5 – Project EASI/ED Summary Transition Schedule

The following list reiterates from Section 2 the general assumptions upon which the transition schedule is based. They impact the relative timing, completion dates, and activity content presented in the transition schedule.

1. Timeframes estimated for the EASI/ED transition schedule are not resource constrained (i.e., number or type of staff, budget).
2. The earliest possible start date for work in the EASI/ED transition schedule is October 1, 1998, following completion of the definition phase of the life cycle and initiation of a new fiscal year.
3. ED has identified CDS, LSS, and the FFELP System, Debt Collection Subsystem, as needing replacement. Current contracts enable ED to continue operating CDS and LSS through CY2003. Given this, Aid Repayment needs to be implemented prior to the end of end of CY2003.
4. The acquisition cycle includes 3 months to define performance, skill, and functional requirements for task orders and requests for proposal.
5. ED will select a COTS package prior to preparing an acquisition to implement a COTS package.
6. Activities included in the acquisition cycle are listed below.
 - Performing a cost/benefit analysis (to assess subsystem implementation options and to support full-and-open competitions)
 - Writing a statement of work (SOW)
 - Developing a Government independent cost estimate
 - Coordinating a SOW internally at ED
 - Obtaining a delegation of procurement authority, when required
 - Preparing an acquisition plan, when required
 - Publishing a Commerce Business Daily notice, when required
 - Conducting a pre-release review with prospective vendors
 - Distributing the RFP to prospective vendors
 - Receiving and responding to questions
 - Receiving and evaluating proposals
 - Negotiating contract issues prior to award
 - Awarding a contract
7. Based ED guidance and analysis of the acquisition time required to migrate NSLDS to Band 1, a 9-month acquisition cycle was used for each competitive procurement in the EASI/ED transition schedule. A 3- to 6-month acquisition cycle was estimated for task order procurements, with the duration used dependent upon the complexity of the tasking.
8. To remain on schedule, ED will perform the integrator and other contractor roles until contracts have been awarded for this work.
9. To allow for staffing and contract start-up, there is a 1-month lag between contract or task order award and the date services begin.

10. Timeframes in the schedule are based on an assumption that all contractors are equally qualified and skilled. No allowance was made for the schedule impact of staff who have to learn new skills or for poorly skilled staff. No allowance was made for existing staff subject to competing priorities (i.e., running current programs and developing new programs).
11. Duration of system-level testing is assumed to be approximately 20 percent of the total SDLC.
12. Subsystem testing is assumed to be 3 months in duration per subsystem.
13. Phase-level integration and testing is assumed to be 3 months in duration per subsystem.
14. Based on discussions with ED, 9 months are allowed for data conversion from each current Title IV system to EASI/ED.
15. The construction phase of the life cycle encompasses developmental testing (i.e., unit and string or module testing). Given that developmental testing is performed thoroughly and correctly, timeframes for system testing are estimated as 20 percent of the total project duration (post contract award).
16. Each Project EASI/ED subsystem will be implemented in its entirety. All activities are scheduled to complete contiguously.
17. Activities required to shut down Title IV system, in full or in part, can be accomplished within the total time allocated to develop and implement each associated EASI/ED subsystem.
18. Based on industry standards, the following metrics were used to develop the Project EASI/ED transition schedule for estimating tasks. One person year equals 1,842 hours or an average of 38 hours per week. A working month is averaged at 20 working days per month. All timeframes for all acquisitions were based on true calendar months.
19. Each Project EASI/ED subsystem development effort is estimated to include 30 reports. Report development is estimated as an activity of low technical complexity.
20. Timeframes reflect minimum activity duration – i.e., the estimated duration for work if appropriately skilled staff are available in sufficient numbers on time to perform the work and if there are no substantial technical or budgetary setbacks.
21. Development and implementation of bridges is more technically complex than interface development and implementation. Each bridge is estimated as requiring twice the development and implementation time that an interface requires.

4.2 Project EASI/ED Transition Worksheets

This subsection provides additional information regarding the activities, assumptions, and issues associated with the EASI/ED transition schedule (presented in Appendix G). Amplifying information is provided via transition worksheets associated with each major element of the EASI/ED transition:

- Subsection 4.2.1: System-Wide Activities
- Subsection 4.2.2: Organization Change
- Subsection 4.2.3: Phase I (Financial Services and Aid Application)
- Subsection 4.2.4: Phase II (Program Management and Oversight [PMOS])
- Subsection 4.2.5: Phase III (Aid Origination and Disbursement and Repayment)
- Subsection 4.2.6: Phase IV (Decision Support)
- Subsection 4.2.7: Prototypes, Pilots, and Interim Improvements

Each subsection named above contains a brief summary of the projects that comprise that element or phase of the transition schedule. This is followed by one or more transition worksheets, each of which describes a single EASI/ED transition project. A project comprises all activities required for its completion – from the earliest planning for acquisition of services through implementation of functionality. The transition worksheets use a consistent set of elements to describe each project:

- **Project Name** – short descriptive title.
- **Project Number** – a unique alphanumeric designator to facilitate easy reference to the project.
 - ◆ System-Wide Activities: SYS-001, SYS-002, SYS-00N
 - ◆ Organization Change: OC-001, OC-002, OC-00N
 - ◆ Phase I (Financial Services and Aid Application): I-001, I-002, I-00N
 - ◆ Phase II (PMOS): II-001, II-002, II-00N
 - ◆ Phase III (Aid Origination and Disbursement and Repayment): III-001, III-002, III-00N
 - ◆ Phase IV (Decision Support): IV-001, IV-002, IV-00N
 - ◆ Prototypes, Pilots, and Interim Improvements: PPI-001, PPI-002, PPI-00N
- **Project Purpose** – briefly describes the project goal(s).
- **Project Duration** – states the estimated elapsed time to execute the project from start to finish.
- **Key Dates** – shows the expected start and stop dates for major activities comprising the project.
- **Assumptions** – lists any assumptions specific to schedule definition for the project and any exceptions to the assumptions listed in the *Transition Strategy*, Section 2.
- **Key Relationships** – identifies the principal dependencies among the project and other projects or major activities.
- **Major Activities** – briefly describes the nature of work to be performed for each major activity necessary to complete the project. These major activities correlate to the fourth level in the Microsoft Project transition schedule. The responsible organization and supporting organization(s) for each activity are also identified.

- **Decision Factors** – identifies considerations that could alter the time or approach taken to completing the project, as well as issues related to project planning, execution, or completion. This information is provided to help managers responsible for implementing EASI/ED understand some of the variables associated with the project schedule, and to make informed decisions at the time the project is initiated.

Four layers of testing have been applied to reflect key checkpoints for each phases of the transition. The purpose of testing is to identify and correct errors prior to implementation. The four layers begin with the testing of units of an application within a subsystem and build up to the testing of an entire phase of the transition. The four layers are:

- System testing – Assesses each application within a Project EASI/ED subsystem to ensure that all the components of an application interface properly and that the application provides the functionality as expected.
- Subsystem integration testing – Focuses on the interfaces between applications to ensure the delivery of complete business functionality and system performance across application boundaries and across technology platforms.
- User acceptance testing – Provides the users an opportunity to test each Project EASI/ED subsystem and gain confidence that the subsystem performs as expected.
- Phase integration and testing – Focuses on the interfaces between subsystems. Ensures that all components of a phase are integrated to provide a complete release of business functionality and meet performance expectations.

4.2.1 System-Wide Activities

System-wide activities form the foundation for Project EASI/ED subsystem implementation and operation. The objective for these projects is to design, create, and implement the system-wide infrastructure needed to operate and integrate EASI/ED subsystem implementation. Projects included in this subsection are listed below.

- **Project EASI/ED System Integration** – includes acquisition planning, the acquisition process, and planning for system integration and management.
- **Project EASI/ED Technical Infrastructure** – includes acquisition planning, the acquisition process, and planning for the technical infrastructure (i.e., hardware, system software, communications technology).
- **Project EASI/ED Web Applications** – includes acquisition planning, the acquisition process, and development and implementation of on-line web applications that comprise one facet of the user interface to EASI/ED.
- **Project EASI/ED Interactive Voice Response Unit** – includes acquisition planning, the acquisition process, development and implementation of the interactive voice response unit that comprises a second facet of the user interface to EASI/ED.
- **Project EASI/ED Enterprise Database** – includes acquisition planning, the acquisition process, development and implementation of the enterprise database.
- **Data Conversion** – includes acquisition planning, the acquisition process, and conversion of current Title IV systems data to the enterprise database

PROJECT EASI/ED SYSTEM INTEGRATION

Project Number: SYS-001

Project Purpose: The purpose of this project is to acquire the services of an integrator and of a production contractor to perform system-wide implementation planning and analysis, and to define system-wide development standards.

Project Duration: Acquisition 11 months
Implementation 18 months

Key Dates:

Activity	Start Date	End Date
Integrator Acquisition	Oct 1, 1998	Oct 4, 1999
IV&V Contractor Acquisition	Oct 1, 1998	Oct 4, 1999
Data Quality Contractor(s) Acquisition	Oct 1, 1998	Oct 4, 1999
Security Requirements	Oct 1, 1998	Jan 20, 1999
Transaction Path and Usage Analysis	Oct 1, 1998	Jan 20, 1999
Configuration Management	Oct 1, 1998	Jan 1, 1999
Performance Planning	Nov 26, 1998	Feb 17, 1999
Architecture Management Strategy	Oct 1, 1998	Jan 1, 1999
Data Conversion Strategy	April 1, 1999	July 1, 1999
Data Mapping	Oct 1, 1998	July 1, 1999
Interface Strategy	Nov 26, 1998	Feb 17, 1999
Bridging Strategy	April 1, 1999	July 1, 1999
User Interface Standards	Nov 17, 1998	Feb 17, 1999
Data Quality	July 2, 1999	March 31, 2000
Capacity and Sizing	July 2, 1999	Oct 1, 1999
Security Design	Jan 21, 1999	May 21, 1999
Test Strategy	July 2, 1999	Oct 1, 1999
Technical Environment Design	Jan 7, 1999	April 7, 1999
Production Contractor Acquisition	Sept 24, 99	Sept 26, 2000

Assumptions: No unique assumptions apply to this project.

Key Relationships: This project is not dependent on any other projects or major activities.

Major Activities:

Activity 1:

Name: Acquire System Integrator

Description:

1. Define performance requirements, skill requirements, and scope of work for an EASI/ED integrator.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Not Applicable

Activity 2:

Name: Acquire Independent Validation and Verification (IV&V) Contractors

Description:

1. Define performance requirements, skill requirements, and scope of work for an IV&V contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Not Applicable

Activity 3:

Name: Acquire Data Quality Contractors

Description:

1. Define performance requirements, skill requirements, and scope of work for data quality contractors to assist ED in analyzing current systems data improving its quality.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Not Applicable

Activity 4:

Name: Define Security Requirements

Description:

Define EASI/ED system-wide security requirements to ensure data confidentiality, integrity, and availability. Determine requirements for physical security, availability, identification and authentication, access authorization, security administration, data transmission, and audit.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED

Activity 5:

Name: Perform Transaction Path and Usage Analysis

Description:

Analyze principal high-volume system transactions and patterns of use EASI/ED will support. Produce information major transaction volumes and data access paths to support performance planning, capacity and sizing analysis, and physical data modeling.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED
Current Title IV System Contractors

Activity 6:

Name: Establish Configuration Management

Description:

1. Assess requirements needed to establish a configuration management organization, processes and procedures.
2. Establish a configuration management organization, processes and procedures to control and document change to functional and/or technical requirements and system components, process change requests and audit conformance to requirements, specifications and/or technical documents.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED

Activity 7:

Name: Define Performance Requirements

Description:

Perform analysis to determine a balanced set of system performance requirements that define acceptable levels of performance (e.g., response time, throughput, batch processing turnaround) and corresponding measures. Performance measures should reflect EASI/ED vision, strategy, and business processes.

Responsible Organization(s):

Integrator (ED until integrator retained)

Supporting Organization(s):

ED

External Student Aid Community Representatives

Activity 8:

Name: Define Application Development Standards and Architecture Management Strategy

Description:

Define the EASI/ED application development infrastructure. This will provide a consistent set of tools and standards, including component libraries and application programming interfaces where appropriate, to support the creation of highly modular and reusable application components by multiple development teams. Develop an architecture management strategy that supports a reuse based development methodology, including a set of complementary procedures, repository tools, and utilities.

Responsible Organization(s):

Integrator (ED until integrator retained)

Supporting Organization(s):

Not Applicable

Activity 9:

Name: Define Data Conversion Strategy

Description:

Determine the strategy for converting data from existing Title IV systems to the EASI/ED enterprise database. Document system-wide data conversion sources and methods, selection and purge criteria, error identification and cleansing strategies, and reconciliation strategies. Assess which data is required in the primary production database and which data should be retained only for historic research. Document the strategy for purging, cleansing, correcting, and verifying current Title IV system data prior to its conversion into EASI/ED.

Responsible Organization(s):

Integrator (ED until integrator retained)

Supporting Organization(s):

ED

External Student Aid Community Representatives

Current Title IV Contractors

Activity 10:

Name: Perform Data Mapping

Description:

Map the attributes in each current Title IV system to the attributes in the EASI/ED Logical Data Model.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED
Current Title IV System Contractors

Activity 11:

Name: Define Interface Strategy and Standards

Description:

Analyze logical interface requirements and determine the physical interface strategy and standards for interfaces between EASI/ED and external systems. Assess which logical interfaces should be bundled into a single physical interface, taking into consideration source, frequency, performance requirements, and content.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): Not Applicable

Activity 12:

Name: Define Bridging Strategy

Description:

Devise a strategy for analyzing, designing, and developing temporary bridges to support the incremental shutdown of the current Title IV systems. Define the strategy for permanently bridging between subsystem databases within EASI/ED and the EASI/ED enterprise database.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): Current Title IV System Contractors

Activity 13:

Name: Define User Interface Standards

Description:

Define standards to govern development of the EASI/ED user interface. Address each user interface component – e.g., screens, windows, reports, languages, tools,

naming and numbering conventions, security, documentation. Develop a user interface prototype to create a common understanding of the standards, to facilitate decisions relating to the system look and feel, and to confirm that the proposed interface will support EASI/ED users appropriately.

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): Not Applicable

Activity 14:

Name: Improve Data Quality

Description:

For each current Title IV system and potentially for the systems as a whole, perform actions necessary to improve the quality of data to be converted to the EASI/ED enterprise database.

Responsible Organization(s): Current Title IV Contractors
Supporting Organization(s): Data Quality Contractor(s)

Activity 15:

Name: Assess Capacity and Sizing Requirements

Description:

Analyze transaction path and usage data and other available data – e.g., historical data, volume statistics, estimated user base, projected growth rate, data distribution and replication requirements – to estimate database, server, storage, and network bandwidth capacity and sizing requirements.

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): ED
Current Title IV System Contractors

Activity 16:

Name: Design System-wide Security

Description:

Design EASI/ED security services based upon the agreed-upon security requirements and taking into consideration standards specified for the system (e.g., COE).

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): Not Applicable

Activity 17:

Name: Develop Test Strategy

Description:

Define the system-wide test strategy to be used for all EASI/ED implementations to ensure that components are comprehensive, correct, and complete. Specify test objectives, test requirements – e.g., unit, string, system, integration -- test tools, documentation requirements, acceptance criteria, and roles and responsibilities.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED

Activity 18:

Name: Design Technical Environment

Description:

Design the overall topology and operating environment for the EASI/ED system. Base design on technical requirements, adherence to the EASI/ED vision, and EASI/ED standards and strategies. This design will establish the basic configuration and composition of the technical architecture, without excessively restricting options available to vendors selected to implement EASI/ED functionality.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): Not Applicable

Activity 19:

Name: Acquire Production Contractors

Description:

1. Determine contract architecture to be used to provide production support, including managing operations, software maintenance and enhancement, customer service, programmatic and functional support, mailing, imaging, etc. (The areas to be covered include all services identified for Bands 2 and 3.)
2. Identify organizations within SFAP to own each acquisition required.
3. Define performance requirements, skill requirements, and scope of work for each contract.
4. Review contractors to ensure all requirements addressed and overlap does not occur inappropriately.
5. Execute competitive acquisition process and award contracts.

Responsible Organization(s): ED (for specific contracts and/or until integrator retained)

Integrator (for specific contracts)

Supporting Organization(s): Not Applicable

Decision Factors:

All the activities named above, with exception of Activity 14, would be the responsibility of the integrator if the integrator were available. ED must undertake these activities in lieu of an integrator or delay the schedule. Suitably qualified ED staff may not be available to perform this work.

The activities described above are required to ensure the unity and integrity of the overall EASI/ED design as various elements of the system are implemented. They also provide consistent guidance (via standards, procedures, etc.) defined from a system-wide view so that individual contractor decisions for a single EASI/ED subsystem or component do not drive the overall system design.

PROJECT EASI/ED TECHNICAL INFRASTRUCTURE

Project Number: SYS-002

Project Purpose: The purpose of this project is to acquire contractor support, and procure, install, configure, test, and implement the system-wide technical infrastructure for EASI/ED. Technical infrastructure comprises hardware, system software, and communications.

Project Duration: Acquisition 9 months

Key Dates:

Activity	Start Date	End Date
Band 1 Acquisition	Oct 1, 1998	July 1, 1999

Assumptions:

1. Technical infrastructure support will be obtained from the Band 1 contractor and will become an integral part of the existing data center.
2. ED will design the technical infrastructure and define requirements as part of the system-wide activities.

Key Relationships: This project is not dependent on any other projects or major activities.

Major Activities:

Activity 1:

Name: Acquire Band 1 Support

Description:

Using technical infrastructure design and sizing information from system-wide activities, develop a task order, execute the acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Infrastructure Development

Description:

The EASI/ED technical infrastructure will be designed, acquired, and installed in increments, each increment supporting a release of EASI/ED functionality. The following activities involve technical infrastructure design and installation:

<u>Project</u>	<u>Activity</u>
Project EASI/ED Enterprise Database	Activities 3 and 4
Financial Services subsystem	Activities 4 and 5
Aid Application subsystem	Activities 4 and 5
Program Management and Oversight subsystem	Activities 5 and 6
Origination and Disbursement subsystem	
Aid Repayment subsystem	

Responsible Organization(s): Band 1 Contractor
Supporting Organization(s): Subsystem implementation contractors
Integrator

Decision Factors: None

PROJECT EASI/ED ENTERPRISE DATABASE

Project Number: SYS-003

Project Purpose: The purpose of this project is to: (1) acquire software development contractor support; (2) design, develop, test, and implement the EASI/ED enterprise database; (3) to plan and manage data conversion to the EASI/ED enterprise database; and (4) to design, develop, test, and implement bridges necessary for EASI/ED transition and operations.

Project Duration: Acquisition 11 months
Implementation 15 months

Key Dates:

Activity	Start Date	End Date
Database and Bridges Developer Acquisition	Oct 1, 1998	Oct 4, 1999
RDBMS Selection	Nov 5, 1998	Nov 26, 1998
Physical Data Model Development	Nov 26, 1998	June 9, 1999
Technical Environment	May 21, 1999	Aug 12, 1999
Acquire and Install Hardware and Software	Aug 13, 1999	Nov 4, 1999
Enterprise Database Creation	Nov 5, 1999	Jan 27, 2000

Assumptions: No unique assumptions apply to this project.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. Security requirements
2. Transaction path and usage analysis
3. Performance planning
4. Capacity and sizing requirements

Major Activities:

Activity 1:

Name: Acquire Database and Bridges Development Support
Description:

1. Define performance requirements, skill requirements, and scope of work for an EASI/ED enterprise database and bridges contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED
Supporting Organization(s): Not Applicable

Activity 2:

Name: Select Relational Database Management System (RDBMS)
Description:

Identify candidate RDBMS products that are compliant with the EASI/ED COE. Using agreed-upon evaluation criteria that reflect EASI/ED functional and performance requirements, assess each product. Select the product that provides the best fit and value for EASI/ED.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): ED
Integrator

Activity 3:

Name: Develop Physical Data Model
Description:

Verify attributes, entity types, and business rules reflected in EASI/ED logical data model (LDM). Develop the EASI/ED physical data model (PDM) by transforming the verified LDM into corresponding data constructs required by the selected RDBMS. Investigate and resolve physical design issues for the EASI/ED enterprise database – e.g., optimizing physical partitioning schemas and determining storage space configurations. Construct the physical database schema.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): ED
External Student Aid Community Representatives

Activity 4:

Name: Design Technical Environment for Enterprise Database

Description:

Define the hardware and system software required to support the Project EASI/ED enterprise database, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Evaluate infrastructure alternatives and select appropriate solution.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Integrator

Activity 5:

Name: Acquire and Install Hardware and Software

Description:

Procure the selected database hardware and system software. Install, configure, test, and implement the components to create development, test, training, and production environments for the enterprise database.

Responsible Organization(s): Band 1 Contractor

Supporting Organization(s): Database and Bridges Contractor
Integrator

Activity 6:

Name: Create the EASI/ED Enterprise Database

Description:

1. Generate the EASI/ED enterprise database, test the resulting code, and implement the database in the production environment.
2. Generate archival database based upon enterprise database PDM, test the resulting code, and implement the database in the production environment.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Band 1 Contractor
Integrator

Decision Factors:

The schedule calls for work to begin on the enterprise database in November 1998. ED will not have acquired the services of an integrator by that time. There is a risk that ED will begin multiple implementation threads—especially the crucial enterprise database—without implementing the necessary software engineering discipline and system-wide planning and without access to appropriate numbers of staff with needed skills. If the enterprise database is not implemented well, there will be an adverse impact on all other EASI/ED development.

Although the transition worksheet presents a competitively procured database and bridges development contractor, there is some advantage to having the integrator do database development. The enterprise database is the key to the EASI/ED integration effort. Beyond this, design and implementation of the bridges will require close cooperation with every subsystem implementation contractor. If a separate provider is selected, ED will require this contractor to have the same skilled staff in place throughout the transition period to ensure that bridges are correctly implemented. The work will also require extremely close cooperation with the current Title IV systems contractors and with the subsystem implementation contractors. The integrator may be in a position to do this more efficiently over the transition period.

PROJECT EASI/ED WEB APPLICATIONS

Project Number: SYS-004

Project Purpose: The purpose of this project is: (1) to acquire expert contractor support for development and implementation of World Wide Web components of the EASI/ED user interface, and (2) to design, construct, test, and implement a single web-based user interface for EASI/ED system-wide.

Project Duration: Acquisition 11 months

Key Dates:

Activity	Start Date	End Date
Web Integrator/Developer Acquisition	Oct 1, 1998	Oct 4, 1999

Assumptions:

1. All on-line user interfaces with EASI/ED will be through browser-enabled applications, accessed via the Internet, intranets, extranets, or local networks.
2. A single on-line user interface will be developed for EASI/ED. This interface will cross all subsystems, regardless of the implementation approach selected.
3. A single development contractor will be responsible for designing the on-line user interface, for ensuring that it properly reflects business rules for EASI/ED system-wide, and for integrating incremental additions to the user interface with previously constructed components.

Key Relationships: This project is not dependent on any other projects or major activities.

Major Activities:

Activity 1:

Name: Acquire Web Developer

Description:

1. Define performance requirements, skill requirements, and scope of work for an EASI/ED web developer.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Develop On-Line User Interface

Description:

Analyze business logic provided by subsystem implementers and design an on-line user interface using the web and browser enabled technology. Construct the interface incrementally, integrate later components with those completed earlier, perform testing, and implement the on-line user interface. The EASI/ED on-line user interface will be developed in increments, each increment supporting a release of EASI/ED functionality. The following activities involve on-line interface development:

<u>Project</u>	<u>Activity</u>
Aid Application subsystem	Activity 6
Program Management and Oversight subsystem	Activity 9
Origination and Disbursement subsystem	Activity 6
Aid Repayment subsystem	Activity 8

Responsible Organization(s):

Web Development Contractor

Supporting Organization(s):

Subsystem Implementation Contractors
Integrator

Decision Factors:

The web developer will need to understand the EASI/ED business logic for all subsystems to be able to deliver an appropriate user interface. This will require effective cooperation among the contractors implementing the subsystems and the web development contractor. The requirements for such cooperation – especially performance requirements – should be considered when defining the acquisitions for subsystem implementation and for the web developer.

PROJECT EASI/ED INTERACTIVE VOICE RESPONSE UNIT

Project Number: SYS-005

Project Purpose: The purpose of this project is to acquire contractor support and to design, procure, test, and implement the EASI/ED interactive voice response unit (IVRU) as part of the system-wide user interface.

Project Duration: Acquisition 11 months

Key Dates:

Activity	Start Date	End Date
IVRU Contractor Acquisition	Oct 1, 1998	Oct 4, 1999

Assumptions:

1. The IVRU user interface will be implemented consistently across EASI/ED.
2. A single contractor will be responsible for designing the IVRU user interface, for ensuring that it properly reflects business rules for EASI/ED system-wide, and for integrating incremental additions to the IVRU interface with previously constructed components.

Key Relationships: This project is not dependent on any other projects or major activities.

Major Activities:

Activity 1:

Name: Acquire IVRU Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work for an EASI/ED IVRU contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Implement IVRU

Description:

Analyze business logic provided by subsystem implementers and design the IVRU user interface. Construct the interface incrementally, integrate later components with those completed earlier, perform testing, and implement the IVRU. The EASI/ED IVRU user interface will be developed in increments, each increment supporting a release of EASI/ED functionality. The following activities involve IVRU interface development:

<u>Project</u>	<u>Activity</u>
Aid Application subsystem	Activity 6
Program Management and Oversight subsystem	Activity 9
Origination and Disbursement subsystem	Activity 6
Aid Repayment subsystem	Activity 8

Responsible Organization(s):	IVRU Contractor
Supporting Organization(s):	Subsystem Implementation Contractors Integrator

Decision Factors:

The IVRU contractor will need to understand the EASI/ED business logic for all subsystems to be able to deliver an appropriate user interface. This will require effective cooperation among the contractors implementing the subsystems and the IVRU contractor. The requirements for such cooperation – especially performance requirements – should be considered when defining the acquisitions for subsystem implementation and for the IVRU contractor.

DATA CONVERSION

Project Number: SYS-006

Project Purpose: The purpose of this project is: (1) to acquire contractor support for conversion of current Title IV systems data to the EASI/ED enterprise database, (2) to develop and implement conversion programs, (3) to develop and implement technical infrastructure required for data conversion, (4) to test the quality and performance of data conversion programs, and (5) to execute the data conversion programs to populate the EASI/ED database.

Project Duration:

Acquisition	3 months per task order; may prepare and execute multiple task orders in parallel
Implementation	9 months per EASI/ED subsystem

Key Dates:

Activity	Start Date	End Date
Phase I Data Conversion Acquisition	March 8, 1999	June 4, 1999
Financial Services Data Conversion	July 2, 1999	April 3, 2000
Aid Application Data Conversion	July 2, 1999	April 3, 2000
Phase II Data Conversion Acquisition	Dec 6, 1999	March 7, 2000
Program Management And Oversight Data Conversion	April 4, 2000	Jan 3, 2001
Phase III Data Conversion Acquisition	Sept 6, 2000	Dec 7, 2000
Origination and Disbursement Data Conversion	Jan 4, 2001	Oct 5, 2001
Repayment Data Conversion	Jan 4, 2001	Oct 5, 2001

Assumptions:

1. The existing Title IV system contractors will support the database and bridges contractor in developing the data conversion specifications, in designing and testing the resulting programs, and in converting the data from their respective systems to EASI/ED.
2. Data conversion requirements will be correlated to specific EASI/ED subsystems and will occur in the same sequence as the subsystem implementation activities.
3. Data conversion will proceed in advance of other subsystem implementation activities.

Key Relationships:

This project is dependent on the following projects and/or major activities:

1. Data conversion strategy
2. Data mapping
3. Enterprise database physical data model
4. Enterprise database creation

Major Activities:**Activity 1:**

Name: Acquire Current System Contractor Support – Phase I

Description:

Taking into consideration the data conversion strategy, define task orders for each current Title IV system contractor to provide support to the database and bridges contractor. Areas to be supported are data conversion specification development, conversion program design and testing, and data conversion.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Financial Services Data Conversion

Description:

1. Update the data mapping of current system attributes in affected systems to the EASI/ED LDM. Develop data conversion specifications by documenting conversion sources, methods, rules, and error identification and reconciliation rules. Construct and test data conversion programs. Execute the conversion programs for the Financial Services subsystem.
2. Execute the EASI/ED data conversion programs to extract any archival data from the current Title IV systems that was not populated into the EASI/ED enterprise database but that is still required for research or decision support purposes. Populate the archival database with this information.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Current Title IV System Contractor(s)
Integrator

Activity 3:

Name: Aid Application Data Conversion

Description:

1. Update the data mapping of current system attributes in affected systems to the EASI/ED LDM. Develop data conversion specifications by documenting

- conversion sources, methods, rules, and error identification and reconciliation rules. Construct and test data conversion programs. Execute the conversion programs for the Financial Services subsystem.
2. Execute the EASI/ED data conversion programs to extract any archival data from the current Title IV systems that was not populated into the EASI/ED enterprise database but that is still required for research or decision support purposes. Populate the archival database with this information.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Current Title IV System Contractor(s)
 Integrator

Activity 4:

Name: Acquire Current System Contractor Support – Phase II
Description:

Taking into consideration the data conversion strategy, define task orders for each current Title IV system contractor to provide support to the database and bridges contractor. Areas to be supported are data conversion specification development, conversion program design and testing, and data conversion.

Responsible Organization(s): ED
Supporting Organization(s): Integrator (once retained)

Activity 5:

Name: PMOS Data Conversion
Description:

1. Update the data mapping of current system attributes in affected systems to the EASI/ED LDM. Develop data conversion specifications by documenting conversion sources, methods, rules, and error identification and reconciliation rules. Construct and test data conversion programs. Execute the conversion programs for the Financial Services subsystem.
2. Execute the EASI/ED data conversion programs to extract any archival data from the current Title IV systems that was not populated into the EASI/ED enterprise database but that is still required for research or decision support purposes. Populate the archival database with this information.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Current Title IV System Contractor(s)
 Integrator

Activity 6:

Name: Acquire Current System Contractor Support – Phase III

Description:

Taking into consideration the data conversion strategy, define task orders for each current Title IV system contractor to provide support to the database and bridges contractor. Areas to be supported are data conversion specification development, conversion program design and testing, and data conversion.

Responsible Organization(s): ED
Supporting Organization(s): Integrator (once retained)

Activity 7:

Name: Origination and Disbursement Data Conversion

Description:

1. Update the data mapping of current system attributes in affected systems to the EASI/ED LDM. Develop data conversion specifications by documenting conversion sources, methods, rules, and error identification and reconciliation rules. Construct and test data conversion programs. Execute the conversion programs for the Financial Services subsystem.
2. Execute the EASI/ED data conversion programs to extract any archival data from the current Title IV systems that was not populated into the EASI/ED enterprise database but that is still required for research or decision support purposes. Populate the archival database with this information.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Current Title IV System Contractor(s)
Integrator

Activity 8:

Name: Aid Repayment Data Conversion

Description:

1. Update the data mapping of current system attributes in affected systems to the EASI/ED LDM. Develop data conversion specifications by documenting conversion sources, methods, rules, and error identification and reconciliation rules. Construct and test data conversion programs. Execute the conversion programs for the Financial Services subsystem.
2. Execute the EASI/ED data conversion programs to extract any archival data from the current Title IV systems that was not populated into the EASI/ED enterprise database but that is still required for research or decision support purposes. Populate the archival database with this information.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Current Title IV System Contractor(s)
Integrator

Decision Factors:

Conversion of data from the current Title IV systems into the EASI/ED enterprise database is a primary responsibility of the database and bridges contractor. Data conversion activities in the *Transition Strategy* have been arranged as a contiguous set of tasks that begin when the enterprise database is initially created and end when the database is fully populated. The intent here is to allow the creation of a fully populated enterprise database that can support consolidated reporting relatively early in the transition schedule. An alternative approach would be to place the data conversion activities for a subsystem within the tasks for that subsystem. In this scenario data conversion tasks would be more tightly tied to the development tasks for a subsystem, but a fully populated enterprise database would not exist until very late in the transition schedule.

It is anticipated that there will be some archival data in the current systems that will not need to be converted into the enterprise database since it is not used on a day-to-day basis. However, this data may be needed for research purposes and for an occasional query. The data conversion programs will only convert the data required for the enterprise database during the subsystem data conversion tasks shown in this project. A separate task exists to use these programs to populate the archival data into an archive database with the same structure as the enterprise database. This data can then be extracted to populate the data warehouse with historical summary data.

For data conversion to succeed, active support from the current Title IV system contractors is necessary. Current system staff need to be involved in the specification, design, testing, and execution of data conversion programs.

4.2.2 Organization Change

EASI/ED reflects revised business processes for delivery of student financial aid. Given this – and given the changes that the EASI/ED system represents in terms of timeliness, accuracy, and accessibility of data — SFAP will be required to reconsider how the organization can best operate to meet EASI/ED objectives and to take advantage of new capabilities. Organization change represents the path for assessing the current state of the organization in comparison to organizational goals and objectives, and for planning and implementing organization change.

This subsection contains one organization change transition worksheet for a project that encompasses acquisition planning, the acquisition process, assessing the current organization, and designing and implementing a new SFAP organization.

PROJECT EASI/ED ORGANIZATIONAL CHANGE

Project Number: OC-001

Project Purpose: The purpose of this project is to obtain contractor support, to assess the requirements for a new SFAP organization, and to plan and implement that organization.

Project Duration:

Acquisition	11 months
Planning	11 months
Implementation	33 months

Key Dates:

Activity	Start Date	End Date
Organizational Change Contractor Acquisition	Oct 1, 1998	Oct 4, 1999
Current Organizational Assessment	Nov 11, 1999	Jan 10, 2000
Concept of Operations	Nov 30, 1999	Jan 24, 2000
New Organizational Design	Dec 28, 1999	Mar 20, 2000
Gap Assessment	Feb 22, 2000	Mar 20, 2000
Organizational Change Implementation Strategy	Feb 8, 2000	Apr 3, 2000
Organizational Transition Plan	Mar 2, 2000	July 24, 2000
Organizational Change Implementation	Aug 22, 2000	Feb 6, 2003

Assumptions:

1. Organization change activities begin prior to implementation of the first EASI/ED subsystem and complete prior to the implementation of Phase III.

Key Relationships: This project is not dependent on any other projects or major activities.

Major Activities:

Activity 1:

Name: Acquire Change Implementation Support

Description:

1. Define performance requirements, skill requirements, and scope of work for change implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Not Applicable

Activity 2:

Name: Assess Current SFAP Organization

Description:

Develop and document a baseline organizational assessment by reviewing the current SFAP organization structure; workforce profile; current knowledge, skills and abilities (KSAs); customer satisfaction ratings; key issues by program area; use of contractors; and approaches to interacting with stakeholders.

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED

Activity 3:

Name: Develop an SFAP Concept of Operations

Description:

Evaluate how becoming a performance-based organization and implementing the EASI/ED system affects the way SFAP implements its strategy. Develop scenarios depicting alternative ways of implementing the SFAP strategy.

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED
Integrator

Activity 4:

Name: Envision New SFAP Organization

Description:

Envision a new SFAP organization to manage operations in support of new functionality groupings. Determine organization structure, workforce profile, KSAs, performance measures and incentives, key issues by business area, contracting requirements, approaches to interacting with stakeholders, and business processes. Assess how the envisioned organization maximizes EASI/ED benefits.

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED
Integrator

Activity 5:

Name: Identify Gaps in Organizational Capabilities

Description:

Analyze gaps between current and target organizations, taking into consideration the availability of adequate skills, the existence of cultural barriers, and the availability of an appropriate reward and incentive system.

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED

Activity 6:

Name: Determine Strategy to Implement Organizational Change

Description:

Define a strategy to implement organizational change, considering the EASI/ED system roll-out, transition to PBO, and SFAP resource constraints (i.e., budget, staff, time).

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED
Integrator

Activity 7:

Name: Develop Organizational Transition Plan

Description:

Define and document plans to transition to the new organization. Include transition schedule, stakeholder management plan, communication plan, performance measurement plan, and training plans for implementation and for on-going performance support.

Responsible Organization(s): Change Implementation Contractor

Supporting Organization(s): ED

Activity 8:

Name: Implement Organizational Change

Description:

Implement the targeted organizational change in accordance with the transition plan.

Responsible Organization(s): ED

Supporting Organization(s): Change Implementation Contractor

Decision Factors:

Currently, the schedule shows the planning for organizational change occurring simultaneously with the planning and development of the Financial Services subsystem. The organizational change implementation coincides with the implementation of the Financial Services Subsystem and spans the rest of the transition to Project EASI/ED. As ED makes decisions on the implementation of the organizational change, the schedule may need to be modified to reflect accurately how the transition will occur. Specifically, the organizational change implementation timeframe may need to be reduced or shown in phases.

ED will need to select a strategy for implementing organizational change taking into account the following considerations:

- Will the implementation of organizational and the systems changes run in parallel phases, will one lead the other, or will the organizational change be implemented all at once?
- What are the impacts of organizational change to the current contract structure?
- How will ED manage and transfer knowledge to new staff and contractors throughout the organizational change?
- How will ED manage current operations while transforming the organization?
- How much organizational change is ED able to manage at one time (i.e., number of new position descriptions ED is able to develop and implement at one time, scope of changes to facilities ED can manage at one time, number of staff ED is able to move to new locations and training at one time, and number of training programs ED is able to manage)?

4.2.3 Phase I

Phase I comprises implementation of the Financial Services subsystem and of the Aid Application subsystem, their integration with each other and with the EASI/ED enterprise database and user interface, and integration testing. The three projects included in this subsection are listed below.

- **Financial Services Subsystem** – includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of financial services functionality.
- **Aid Application Subsystem** – includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of aid application functionality.
- **Phase I Integration and Testing** – includes integration of the Financial Services subsystem and of the Aid Application Subsystem with each other and with EASI/ED infrastructure (i.e., enterprise database, common user interface), and integration testing.

Phase I Business Value

Phase I software provides new functionality, beyond that currently reflected in ED's Title IV systems, enhances some of the current capabilities, and eliminates deficiencies associated with the current systems. The following list itemizes some of the major Phase I business value expected from Project EASI/ED.

- **Centralizes and integrates SFAP's accounting and financial management systems. Benefits of this will include:**
 - **Audit trail improvement.** An integrated financial services subsystem would reduce the high costs associated with manually maintaining audit trail records, would allow better cost accounting practices to be implemented (so that SFA could adhere to GPRA regulations), would better support OCFO and Credit Reform Act requirements, and would facilitate providing better cash management information to IPOS.
 - **Flexibility.** Fewer interfaces to OCFO will be required, and accounting and financial management software will be modernized and standardized across all programs.
 - **Reconciliation.** Automated reconciliation between SFA and OCFO, and within SFA programs (particularly Direct Loans) will improve data integrity.
- **Retrieval and/or verification of student data (e.g., income data, employment data) from databases belonging to other government agencies.** This capability will permit students to supply less data to

apply for aid and is expected to provide ED with more reliable data for use in eligibility calculations. Use of IRS, Department of Defense (DoD), state departments of labor, and other government databases is proposed for this purpose.

- **Release of aid eligibility information, with applicant consent, to state and private scholarship organizations that are seeking recipients for their funds.** This capability will enhance the delivery of available funds to qualified students that these fund sources may otherwise not know about.
- **Provision of aid application counseling support for students.** Project EASI/ED software would make counseling information available to supplement counseling currently provided by schools.
- **Financial modeling capabilities for students, prospective students, and family members to enable them to estimate amounts of financial aid required for specific schools, to estimate eligibility, and to project repayment responsibilities associated with various levels of debt.** This is expected to facilitate better long-term planning for postsecondary education and to support better debt management.
- **Provides users -- including participants, schools, lenders, guarantors, ED staff, and other postsecondary education community members -- improved access to more timely, accurate data.** By obtaining data as close as possible to the original source and by using other databases to verify data where possible, the quality of data for Project EASI/ED is expected to be higher than the current systems allow. Additionally, easy and fast access to this data for all users is one of the prime themes underlying many of the Project EASI/ED requirements.
- **Reduction of data quality problems by gathering more data from its source.** Project EASI/ED is expected to obtain more data from the original source, thus reducing the opportunity for error to be introduced in the data. Additionally, by obtaining some data from external databases (e.g., IRS), the burden of providing accurate and complete data on less reliable providers (e.g., students initially applying for aid) may also be reduced. A byproduct of obtaining more data from its source should be that fraud and abuse will be reduced.

FINANCIAL SERVICES SUBSYSTEM

Project Number: I-001

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement, and test Financial Services subsystem functionality; to implement technical infrastructure specific to Financial Services subsystem; and to partially shut down affected Title IV systems.

Project Duration: Acquisition 11 months
Implementation 15 months

Key Dates:

Activity	Start Date	End Date
Financial Services Contractor Acquisition	Oct 1, 1998	June 3, 1999
Current System Contractor Acquisition	Dec 2, 1998	June 3, 1999
Documentation and Database Review and Update	July 1, 1999	July 14, 1999
Technical Environment Design for Financial Services	July 15, 1999	Sept 15, 1999
Hardware and Software Acquisition and Installation	Sept 16, 1999	Dec 16, 1999
Requirements Analysis and Tailor COTS	July 15, 1999	April 25, 2000
System Test Plan and Execution	April 26, 2000	July 18, 2000
Bridges Development and Implementation For Current Systems	July 1, 1999	July 18, 2000
Current System Changes for Partial Shutdown	July 1, 1999	July 18, 2000
Bridges Development and Implementation	Dec 2, 1999	March 2, 2000
Subsystem Integration Test Plan and Execution	July 5, 2000	Sept 5, 2000
User Acceptance Test Plan and Execution	Sept 6, 2000	Sept 26, 2000

Assumptions:

1. COTS product selection for the Financial Services subsystem has already been performed by ED/OPE/SFAP Accounting and Financial Management Service (AFMS) managers.

2. The Financial Services COTS product implementation will require minimal tailoring of the product – i.e., a standard implementation.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. System-wide activities
2. Creation of enterprise database
3. Data conversion for the Financial Service subsystem

Major Activities:

Activity 1:

Name: Acquire Financial Services Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work (based on *EASI/ED BARD*) for a financial services implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Acquire Current System Contractor Support

Description:

1. Define and award task orders for current system contractors to perform work necessary to partially shut down CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS.
2. Define and award task orders for current system contractors to support bridge analysis and design, to participate in bridge construction and testing, and to operate temporary bridges between current Title IV systems and the EASI/ED enterprise database.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 3:

Name: Review and Update Documentation and Database

Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current

Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database schema if necessary.

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): Not Applicable

Activity 4:

Name: Design Technical Environment for Financial Services Subsystem
Description:

Identify specific hardware and system software required for the Financial Services subsystem, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): Financial Services Implementation Contractor
Band 1 Contractor

Activity 5:

Name: Acquire and Install Hardware and Software
Description:

Procure selected hardware and system software specific to the Financial Service subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments.

Responsible Organization(s): Band 1 Contractor
Supporting Organization(s): Integrator
Financial Services Implementation Contractor

Activity 6:

Name: Analyze Requirements and Tailor COTS Software
Description:

Building upon *EASI/ED BARD*, define detailed requirements for the Financial Services subsystem, and tailor the selected COTS package to deliver required functionality.

Responsible Organization(s): Financial Services Implementation Contractor
Supporting Organization(s): ED
Band 1 Contractor

Activity 7:

Name: Plan and Execute System Test

Description:

In accordance with system-wide test strategy, plan and execute end-to-end system test of the Financial Services subsystem. System test will verify that functionality is correct and complete, and that the subsystem meets performance requirements.

Responsible Organization(s): Financial Services Implementation Contractor

Supporting Organization(s): Band 1 Contractor

ED

Activity 8:

Name: Develop and Implement Bridges to Current Systems

Description:

Temporary bridges will be used to support continued operations of current Title IV systems as partial shutdown occurs. Analyze CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS to determine detailed requirements for bridges between each system and the EASI/ED enterprise database. Design, develop, test, and implement required bridges.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Current Title IV Contractors for Affected Systems

Integrator

Activity 9:

Name: Design and Implement Current System Changes for Partial Shutdown

Description:

As Financial Services functionality is implemented, corresponding functionality in CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS will no longer be used. Analyze these systems to determine exactly what changes are needed to enable each to partially shut down the appropriate processes. Design, construct, test, and implement required changes.

Responsible Organization(s): Current Title IV Contractors for Affected Systems

Supporting Organization(s): Integrator

Activity 10:

Name: Develop and Implement Bridge to Enterprise Database
Description:

The Financial Services subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into Financial Services applications and to support the transmission of data from the Financial Services database to the enterprise database following processing. Analyze requirements, design, construct, test, and implement a bridge between the Financial Services subsystem and the enterprise database for this purpose.

Responsible Organization(s): Database and Bridges Contractor
Supporting Organization(s): Financial Services Implementation Contractor
Integrator

Activity 11:

Name: Plan and Execute Subsystem Integration Test
Description:

Plan and execute a subsystem integration test to ensure that the Financial Services subsystem is error-free. The test will verify that interfaces between the application software and bridges to both the current Title IV systems and the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Financial Services Implementation Contractor
Supporting Organization(s): Integrator
Database and Bridges Contractor
Current Systems Contractors
ED
Band 1 Contractor

Activity 12:

Name: Plan and Execute User Acceptance Test
Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the Financial Services subsystem.

Responsible Organization(s): ED
Supporting Organization(s): Integrator
Band 1 Contractor
Financial Services Implementation Contractor

Decision Factors:

Requirement for Integrator

As currently planned, acquisition of services and implementation of the Financial Services subsystem would proceed well in advance of ED retention of an integrator. ED may not have available sufficient numbers of appropriately skilled staff to perform this work. There is a need for unity and integrity of acquisition requirements, technical approach, schedules across EASI/ED, not just within this project. A high degree of coordination and cooperation across the Database and Bridges contractor, Financial Services contractor, and current systems contractors is also required to make this a success. Without an integrator, PMO, and appropriate software engineering and management disciplines, success is placed at a substantial risk.

COTS Selection

Traditionally, COTS selection has been the purview of competitors participating in ED full-and-open competitions. For EASI/ED COTS selection is presumed to have occurred prior to solicitation of contractor support for Financial Services implementation and for other COTS-based implementations. The advantage of this is that a higher degree of consistency can be achieved for EASI/ED system-wide (e.g., complementary products may be selected across subsystems, COE compliance is more assured). This approach does imply that ED will do less-than-full-and-open acquisitions for contractor support for COTS-based implementations. Additionally, one risk associated with this approach is that if ED is using existing vehicles to obtain implementation support, the contractor selected may not have optimum experience with the specific COTS package chosen. This risk can be mitigated by appropriate structuring of evaluation criteria for the limited competitions.

The timeframe for Financial Services COTS product implementation is based upon a standard (e.g., "plain vanilla") approach. If more extensive changes are elected, the duration of this portion of the task may take longer than estimated.

Alternative Implementation Options

Taking all reasonable implementation alternatives into consideration, COTS implementation was seen as the only viable implementation option for the Financial Services subsystem.

AID APPLICATION SUBSYSTEM

Project Number: I-002

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement and test Aid Application subsystem functionality; to implement technical infrastructure specific to Aid Application subsystem; and to partially shut down affected Title IV systems.

Project Duration: Acquisition 11 months
Implementation 12 months

Key Dates:

Activity	Start Date	End Date
Aid Application Contractor Acquisition	Oct 1, 1998	Sept 3, 1999
Current System Contractor Acquisition	Mar 2, 1999	Sept 3, 1999
Documentation and Database Review and Update	Oct 1, 1999	Oct 28, 1999
Technical Environment Design for Aid Application	Oct 29, 1999	Dec 29, 1999
Hardware and Software Acquisition and Installation	Dec 30, 1999	Mar 30, 2000
New Functionality	Oct 29, 1999	June 1, 2000
CPS Data Standardization	Oct 1, 1999	June 1, 2000
System Test Plan and Execution	May 19, 2000	June 29, 2000
Bridges to LOS	Feb 25, 2000	May 18, 2000
LOS and NSLDS Changes For Partial Shutdown	Oct 29, 1999	June 30, 2000
Bridges Development and Implementation	Mar 31, 2000	June 30, 2000
Subsystem Integration Test Plan and Execution	June 30, 2000	Aug 31, 2000
User Acceptance Test Plan and Execution	Sept 1 2000	Sept 21, 2000

Assumptions:

1. The Aid Application subsystem will be implemented via reuse of CPS, augmented by additional custom application software to implement all envisioned functionality.
2. The current system contractor for CPS will implement the Aid Application subsystem, because of existing expert knowledge of CPS processes and data.

3. Additional custom development will be done in language(s) or tools compliant with the *EASI/ED COE* unless (a) the code is integral to an existing application in a non-compliant language or (b) an exception is applied for and approved.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. System-wide activities
2. Creation of enterprise database
3. Data conversion for the Aid Application subsystem

Major Activities:

Activity 1:

Name: Acquire Aid Application Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work (based on *Project EASI/ED BARD*) for an aid application implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Acquire Current System Contractor Support

Description:

Define and award task order for current system contractors to perform work necessary for partial shutdown of LOS and for NSLDS, to support bridge analysis and design, to participate in bridge construction and testing, and to operate temporary bridge(s) between LOS and the EASI/ED enterprise database.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 3:

Name: Review and Update Documentation and Database

Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current

Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database schema if necessary.

Responsible Organization(s): Integrator (ED until integrator retained)
Supporting Organization(s): Not Applicable

Activity 4:

Name: Design Technical Environment for Aid Application Subsystem
Description:

Identify specific additional hardware and system software required for the Aid Application subsystem, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Integrator
Supporting Organization(s): Aid Application Implementation Contractor
Band I Contractor

Activity 5:

Name: Acquire and Install Hardware and Software
Description:

Procure selected hardware and system software specific to the Aid Application subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments. To the extent that the existing CPS technical environment is maintained, ensure that appropriate development, test, training, and production environments exist.

Responsible Organization(s): Band 1 Contractor
Supporting Organization(s): Integrator
Aid Application Implementation Contractor

Activity 6:

Name: Add New Functionality
Description:

1. Define detailed requirements for Aid Application functionality that is not provided by CPS, but is sufficiently independent and separable to be created as a distinct set of batch transactions. Design and construct new batch software to implement this functionality. These batch transactions will retrieve data from and will directly update the CPS database.
2. Define detailed requirements for the EASI/ED user interface that reflect on-line functionality of the Aid Application subsystem. Implement requirements through web pages, IVRU dialogues, or other interactive communication mechanisms.

User interface functionality must be tightly integrated with batch functionality in the Aid Application subsystem to seamlessly enable required business processes.

3. Define detailed requirements for Aid Application that is not provided by CPS, but that can most effectively be implemented by modifying CPS code to encompass new batch transactions.

Responsible Organization(s): Aid Application Implementation Contractor –
Batch Applications
Web Development Contractor – On-Line Applications
IVRU Contractor – On-Line Applications

Supporting Organization(s): Integrator

Activity 7:

Name: Standardize CPS Data

Description:

1. Using the system-wide data mapping results as input, modify attributes in the CPS PDM to ensure their definitions and lengths match those of corresponding attributes in the EASI/ED enterprise database.
2. Modify CPS application code so that it works with the modified CPS data definitions. This will require modifying the working storage definitions within CPS programs, and changing data manipulation language statements as necessary to access the new database. Modifications to the program logic should only be necessary if changes to the database structure are made.
3. Unload the CPS database, modify the database schema to match the revised PDM, and reload the CPS database.
4. In accordance with the system-wide test strategy, plan and execute a regression test of CPS to ensure that the database changes did not affect system functionality.

Responsible Organization(s): Aid Application Implementation Contractor

Supporting Organization(s): Database and Bridges Contractor

Activity 8:

Name: Plan and Execute System Test

Description:

In accordance with system-wide test strategy, plan and execute a system test of the Aid Application subsystem application software. System test will verify that functionality is correct and complete, that new and old components work correctly together, and that the subsystem meets performance requirements.

Responsible Organization(s): Aid Application Implementation Contractor

Supporting Organization(s): Band 1 Contractor
Integrator

Activity 9:

Name: Develop and Implement Bridge(s) to LOS

Description:

Temporary bridge(s) will be used to support continued operations of the LOS as partial shutdown occurs. Analyze LOS to determine detailed requirements for bridges between it and the EASI/ED enterprise database. Design, develop, test, and implemented required bridge(s).

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Current LOS Contractor

Integrator

Activity 10:

Name: Design and Implement LOS and NSLDS Changes for Partial Shutdown

Description:

As Aid Application functionality is implemented, corresponding functionality in LOS and in NSLDS will no longer be used. Analyze LOS and NSLDS to determine exactly what changes are needed in each to enable partial shutdown of the appropriate processes. Design, construct, test, and implement required changes.

Responsible Organization(s): Current LOS and NSLDS Contractors

Supporting Organization(s): Integrator

Activity 11:

Name: Develop and Implement Bridge to Enterprise Database

Description:

The Aid Application subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into the Aid Application applications and to support the transmission of data from the Aid Application database to the enterprise database following processing. Analyze requirements, and design, construct, test, and implement a bridge between the Aid Application subsystem and the enterprise database for this purpose.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Aid Application Implementation Contractor

Integrator

Activity 12:

Name: Plan and Execute Subsystem Integration Test
Description:

Plan and execute a subsystem integration test to ensure that the Aid Application subsystem is error-free. The test will verify that interfaces between the application software and bridges to both the current Title IV systems and the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Aid Application Implementation Contractor
Supporting Organization(s): Integrator
Database and Bridges Contractor
Current system Contractors
Band 1 Contractor
ED

Activity 13:

Name: Plan and Execute User Acceptance Test
Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the Aid Application subsystem.

Responsible Organization(s): ED
Supporting Organization(s): Integrator
Band 1 Contractor
Aid Application Implementation Contractor

Decision Factors:

Requirement for Integrator

As currently planned, acquisition of services and implementation of the Aid Application subsystem begins prior to ED retention of an integrator. ED may not have available sufficient numbers of appropriately skilled staff to perform this work. There is a need for unity and integrity of acquisition requirements, technical approach, schedules across EASI/ED, not just within this project. A high degree of coordination and cooperation required across the database and bridges contractor, Aid Application contractor, and LOS contractors to make this a success. Without an integrator, PMO, and appropriate software engineering and management disciplines, success is placed at risk.

Current System Contract End Dates

The full shut down of the existing CPS and EDExpress systems occurs 14 months prior to the end of the current CPS/EDExpress contract. ED will need to re-evaluate the need for contractor support after the implementation of the Aid Application subsystem and consider negotiating a

new termination date. Given the fact that major components of CPS are to be reused as part of the Aid Application subsystem, ED may consider use of this contractor as backup support during and after implementation. The Aid Application subsystem will support award year 2001-2002, so no new contract should be required in 1999 to support CPS development for this award year.

The MDE contract extends one year beyond the projected date of full shut down. Costs may be incurred by ED in negotiating an early termination to this contract option year.

Pre- and Post-Screening

Currently, NSLDS handles pre- and post-screening functionality. In the EASI/ED architecture, the enterprise database and archival database provide data for pre- and post-screening that would be required by the Aid Application and Aid Origination subsystems. For the purposes of the *Transition Strategy*, pre- and post-screening functionality is included within the new batch functionality created for these subsystems.

Alternative Implementation Options

Two alternative implementation options were considered for the Aid Application subsystem. These were:

- **Outsourcing of application processing, with custom development providing the functionality that could not be outsourced.** In comparing timeframes with the reuse option presented in the schedule, this alternative may take slightly more time to frame the appropriate acquisition since great care would need to be given to performance measures and other aspects of shaping the deal. Assuming that ED outsources to an organization already performing this type of business, start up time to "implement" a subsystem should be less. However, if the organization to which they outsource has to substantially modify their business systems or processes or has to establish a new center or substantial additional staff, this time frame might be longer.
- **COTS implementation of application processing, with custom development providing the functionality that could not be implemented through COTS.** Implementing the core of the Aid Application subsystem through COTS was estimated to require a slightly longer time than the reuse-based option. However, the difference in duration is not dramatic.

A more detailed description of the alternative implementation scenarios and the timeframes associated with them is provided in Appendix E, Section 3.2, Other Implementation Options Analysis.

PHASE I INTEGRATION AND TESTING

Project Number: I-003

Project Purpose: The purpose of this project is: (1) to integrate the Financial Services subsystem and the Aid Application subsystem with one another and with the EASI/ED enterprise database and user interface; and (2) to perform integration testing of the resulting system.

Project Duration: Implementation 3 months

Key Dates:

Activity	Start Date	End Date
Phase 1 Integration and Testing	Sept 27, 2000	Dec 28, 2000

Assumptions:

Key Relationships:

1. Successful completion of system test for Financial Services subsystem.
2. Successful completion of system test for Aid Application subsystem.

Major Activities:

Activity 1:

Name: Plan and Execute Phase I Integration and Testing

Description:

1. Plan the schedule, resources, and activities required to integrate the Financial Services and Aid Application subsystems with the production environment and operational Title IV systems.
2. Execute integration activities in accordance with the plan.
3. In accordance with system-wide test strategy, plan and execute integration testing to ensure that the production system provides uninterrupted service delivery.

Responsible Organization(s):

Integrator

Supporting Organization(s):

Band 1 Contractor

Financial Services Implementation Contractor

Aid Application Implementation Contractor

Web Development Contractor

IVRU Contractor

Current Title IV Contractors for Affected Systems

4.2.4 Phase II

Phase II comprises implementation of the PMO subsystem, its integration with EASI/ED, and integration testing. The two projects included in this subsection are listed below.

- **PMO Subsystem** – includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of PMOS functionality.
- **Phase II Integration and Testing** – includes integrating the PMOS subsystem with the EASI/ED enterprise database, user interface, and previously implemented subsystems, and performing integration testing.

Phase II Business Value

Phase II software provides new functionality, beyond that currently reflected in the current Title IV systems, enhances some of the current capabilities, and eliminates deficiencies associated with the current systems. The following list itemizes some of the major Phase II business value expected from Project EASI/ED.

- **Collection of student-level information on Campus-Based Program aid recipients.** Comprehensive information regarding Perkins Loans, FWS, and FSEOG would be available, improving recipient visibility into their entire aid portfolio (encompassing these and other programs) and increasing ED's ability to effectively manage these programs.
- **Automatic generation of much of the information contained on the FISAP.** Using student-level information reported on the Campus Based Programs, along with improved enrollment status data, schools will be relieved of much of the burden associated with generating the FISAP each year.
- **A single point of contact for customer service related questions or complaints, with the ability to communicate with the system through a number of different media (e.g., phone calls, letters, e-mail, the Internet)**

PROGRAM MANAGEMENT AND OVERSIGHT SUBSYSTEM

Project Number: II-001

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement, and test PMO subsystem functionality, to implement technical infrastructure specific to PMO subsystem; and to partially shut down affected Title IV systems.

Project Duration: Acquisition 14 months
Implementation 24 months

Key Dates:

Activity	Start Date	End Date
Customer Service Contractor Acquisition	Dec 1, 1998	Mar 6, 2000
Customer Service COTS Selection	April 5, 1999	June 4, 1999
Current System Contractor Acquisition	Sept 7, 1999	Mar 6, 2000
Documentation and Database Review and Update	April 1, 2000	April 28, 2000
Technical Environment Design for PMOS	May 1, 2000	July 3, 2000
Hardware and Software Acquisition and Installation	July 4, 2000	Oct 4, 2000
Default Rate Calculation Implementation	May 1, 2000	Dec 8, 2000
Customer Service Implementation	Apr 17, 2000	Oct 20, 2000
Program Management Implementation	Apr 3, 2000	Nov 27, 2001
Bridges Development and Implementation	Aug 21, 2000	Sept 26, 2001
Current System Changes for Partial Shutdown	Apr 3, 2000	Nov 27, 2001
Subsystem Integration Test Plan and Execution	Nov 14, 2001	Jan 15, 2002
User Acceptance Test Plan and Execution	Jan 16, 2002	Feb 5, 2002

Assumptions:

1. The Customer Service COTS product implementation will require minimal tailoring of the product – i.e., a standard implementation.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. System-wide activities
2. Creation of enterprise database
3. Data conversion for the Program Management and Oversight subsystem

Major Activities:

Activity 1:

Name: Acquire Customer Service Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work (based on *EASI/ED BARD*) for a customer service implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Select COTS Package for Customer Service

Description:

Identify candidate customer service products that are compliant with the *EASI/ED COE*. Using agreed-upon evaluation criteria that reflect *EASI/ED* functional and performance requirements, assess each product. Select the product that provides the best fit and value for *EASI/ED*.

Responsible Organization(s): Integrator (ED until integrator retained)

Supporting Organization(s): ED

Activity 3:

Name: Acquire Current System Contractor Support

Description:

1. Define and award task orders for current system contractors to perform work necessary to partially shut down CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS.
2. Define and award task orders for current system contractors to support bridge analysis and design, to participate in bridge construction and testing, and to operate temporary bridges between current Title IV systems and the *EASI/ED* enterprise database.

3. Define and award task order for current NSLDS contractor to standardize NSLDS data to EASI/ED standards.
4. Define and award task order for current PEPS contractor to support the reverse engineering of PEPS on-line functionality.

Responsible Organization(s): ED
Supporting Organization(s): Integrator

Activity 4:

Name: Review and Update Documentation and Database

Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database schema if necessary.

Responsible Organization(s): Integrator
Supporting Organization(s): Not Applicable

Activity 5:

Name: Design Technical Environment for PMO Subsystem

Description:

Identify specific hardware and system software required for the PMO subsystem, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Integrator
Supporting Organization(s): Current NSLDS Contractor
 Customer Service Implementation Contractor
 Band 1 Contractor

Activity 6:

Name: Acquire and Install Hardware and Software

Description:

Procure selected hardware and system software specific to the PMO subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments.

Responsible Organization(s): Band 1 Contractor

Supporting Organization(s): Integrator
Current NSLDS Contractor
Customer Service Implementation Contractor

Activity 7:

Name: Implement Default Rate Calculation

Description:

1. Identify NSLDS database tables required for default rate calculations.
2. Using the data mapping output as a base, modify attributes in the NSLDS PDM for the required tables so that their definitions and lengths match those of associated attributes in the EASI/ED enterprise database.
3. Modify NSLDS default rate application code to work with the revised data definitions. This will require modifying the working storage definitions within NSLDS programs, and changing data manipulation language statements as necessary to access the new database. Modifications to the program logic should only be necessary if changes to the database structure are made.
4. Unload the NSLDS database, modify the database schema to match the revised PDM, and partially reload the NSLDS database – reloading only the tables and records required for default rate calculations.
5. In accordance with system-wide test strategy, plan and execute a regression test of NSLDS default rate calculations to ensure that the database changes did not affect system functionality.
6. The reduced NSLDS database will be retained to support default rate calculations. A bridge is required to support the receipt of data from the enterprise database into the default rate database and to return data from the default rate database to the EASI/ED enterprise database following processing. Analyze requirements, design, construct, test and implement a bridge between the default rate database and the enterprise database for this purpose.

Responsible Organization(s): Current NSLDS Contractor – NSLDS Data Standardization and Application Code Modifications
Database and Bridges Contractor – Bridge to Enterprise Database

Supporting Organization(s): Integrator

Activity 8:

Name: Implement Customer Service

Description:

1. Building upon *EASI/ED BARD*, define detailed requirements for the Customer Service subsystem and tailor the selected COTS package to deliver required functionality.
2. The Customer Service subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into customer service applications and to support the transmission of data from

the customer service database to the enterprise database following processing. Analyze requirements, design, construct, test, and implement a bridge between the customer service subsystem and the enterprise database for this purpose.

3. In accordance with system-wide test strategy, plan and execute end-to-end system test of Customer Service subsystem. System test will verify that functionality is correct and complete, that bridges work correctly, and that the subsystem meets performance requirements.

Responsible Organization(s): Customer Service Implementation Contractor – COTS
Implementation and System Test
Database and Bridges Contractor - Bridge
Supporting Organization(s): Integrator

Activity 9:

Name: Implement Program Management Functionality

Description:

1. Reverse engineer PEPS on-line forms and reports to generate detailed requirements for EASI/ED program management functionality.
2. Forward engineer program management requirements into the EASI/ED user interface.
3. Based upon the *EASI/ED BARD*, analyze additional requirements for program management functionality; define more detailed requirements; design, construct, test and implement additional user interface software to implement these requirements.
4. In accordance with system-wide test strategy, plan and execute end-to-end system test of program management functionality implemented through the on-line interface with EASI/ED. System test will verify that the functionality is correct and complete, that business logic between the user interface and the enterprise database works correctly, and that the software meets performance requirements.

Responsible Organization(s): Web Development Contractor
Supporting Organization(s): IVRU Contractor
Integrator

Activity 10:

Name: Develop and Implement Bridges to Current Systems

Description:

Temporary bridges will be used to support continued operations of current Title IV systems as partial shutdown occurs. Analyze CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS to determine detailed requirements for bridges between each system and the EASI/ED enterprise database. Design, develop, test, and implement required bridges.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Current Title IV Contractors for Affected Systems Integrator

Activity 11:

Name: Design and Implement Current System Changes for Partial Shutdown
Description:

As PMO functionality is implemented, corresponding functionality in CBS, CDS, FFELP System, LCS, LOS, LSS, NSLDS, and RFMS will no longer be used. Analyze these systems to determine exactly what changes are needed to enable each to partially shut down the appropriate processes. Design, construct, test, and implement required changes.

Responsible Organization(s): Current Title IV Contractors for Affected Systems
Supporting Organization(s): Integrator

Activity 12:

Name: Plan and Execute Subsystem Integration Test
Description:

Plan and execute a subsystem integration test to ensure that the PMO subsystem is error-free. The test will verify that interfaces between the application software and bridges to both the current Title IV systems and the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Integrator
Supporting Organization(s): ED
Band 1 Contractor
Customer Service Implementation Contractor
Web Development Contractor
Current NSLDS Contractor

Activity 13:

Name: Plan and Execute User Acceptance Test
Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the PMO subsystem (user interface, customer service, default rates).

Responsible Organization(s): ED

Supporting Organization(s):

Integrator
Band 1 Contractor
Customer Service Implementation Contractor
Web Development Contractor
Current NSLDS Contractor

Decision Factors:

PMOS Subsystem Integration

Under the implementation strategy reflected in the transition schedule, PMOS –which was defined as a single EASI/ED subsystem – effectively becomes three separate subsystems: default rate calculations, customer service, and a user interface that implements existing and enhanced program management capabilities. The acquisition approach reflected here treats these as separate subsystems and does not include retention of a PMOS implementation contractor to oversee implementation of the entire subsystem. The risk with this approach is that the various components will not remain on schedule or be implemented in a way that ensures coverage of all capabilities required for PMOS. The factors that mitigate this risk are (a) that the integrator needs to play a strong role in this case to ensure that all requirements are implemented and that work proceeds as it should and (b) three separate and focused contracts would have been awarded to perform the discrete work elements. It seems that requiring a fourth contractor to oversee these efforts – in addition to the integrator’s role – may incur too much overhead for the work.

COTS Selection

The customer service COTS product implementation presumes that a “plain vanilla” implementation will occur, with limited tailoring. Should more tailoring be elected or required, the time for this facet of the project may take longer than projected.

As with other COTS product implementations for EASI/ED, this schedule presumes the COTS product evaluation will occur prior to the acquisition for a customer service implementation contractor. See trade-offs described in other areas.

Current System Contract End Dates

The current PEPS contract ends 26 14-months prior to the full shut down of PEPS. ED will need to ensure continued contractor support for this system up to and including the shut down date. A decision must be made whether to extend or recompet the current PEPS contract. Recompeting the contract involves some schedule risk since if someone other than the current contractor wins the new PEPS contract, start up and familiarization time will have to be taken into account. This could impact the implementation date of the Program Management and Oversight subsystem because knowledgeable PEPS contractor support will be required during the development of this subsystem.

Alternative Implementation Options

Two alternative implementation options were considered for the Program Management and Oversight subsystem. These were:

- **Outsourcing customer service, with program management functionality split between COTS and custom development.** In comparing timeframes with the reuse option presented in the schedule, this alternative may take slightly more time to frame the appropriate acquisition since great care would need to be given to performance measures and other aspects of shaping the deal. Assuming that ED outsources to an organization already performing this type of business, start up time to "implement" the customer service portion of the subsystem should be less. However, if the organization to which they outsource has to substantially modify their business systems or processes or has to establish a new center or substantial additional staff, this time frame might be longer. The custom development portion of the subsystem is substantially shorter in this scenario compared to the reuse-based scenario.
- **COTS implementation of customer service, with program management functionality being implemented through a mixture of COTS, outsourcing, and custom development.** Implementing customer service and some program management functions through COTS was estimated to require approximately six months less than the reuse-based option.

A more detailed description of the alternative implementation scenarios and the timeframes associated with them is provided in Appendix E, Section 3.2, Other Implementation Options Analysis.

PHASE II INTEGRATION AND TESTING

Project Number: II-002

Project Purpose: The purpose of this project is: (1) to integrate the PMOS subsystem with the EASI/ED enterprise database, user interface, and previously implemented subsystems; and (2) to perform integration testing of the resulting system.

Project Duration: Implementation 3 months

Key Dates:

Activity	Start Date	End Date
Phase 2 Integration and Testing	Jan 16, 2002	May 7, 2002

Assumptions:

Key Relationships:

Successful completion of system test for PMOS subsystem.

Major Activities:

Activity 1:

Name: Plan and Execute Phase II Integration and Testing

Description:

1. Plan the schedule, resources, and activities required to integrate the Program Management and Oversight subsystems with the production environment and operational Title IV systems.
2. Execute integration activities in accordance with the plan.
3. In accordance with system-wide test strategy, plan and execute integration testing to ensure that the production system provides uninterrupted service delivery.

Responsible Organization(s): Integrator

Supporting Organization(s): Band 1 Contractor
PMOS Implementation Contractor
Web Development Contractor
IVRU Contractor
Current Title IV Contractors for Affected Systems

4.2.5 Phase III

Phase III comprises implementation of the Origination and Disbursement subsystem and of the Aid Repayment subsystem, their integration with each other and with previously implemented EASI/ED components, and integration testing. The three projects included in this subsection are listed below.

- **Origination and Disbursement Subsystem** – includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of origination and disbursement functionality.
- **Aid Repayment Subsystem** – includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of repayment functionality.
- **Phase III Integration and Testing** – includes integration of the Origination and Disbursement subsystem and of the Aid Repayment subsystem with each other and with previously implemented EASI/ED components (i.e., enterprise database, common user interface, other subsystems), and integration testing.

Phase III Business Value

Phase III software provides new functionality, beyond that currently reflected in the current Title IV systems, enhances some of the current capabilities, and eliminates deficiencies associated with the current systems. The following list itemizes some of the major Phase III business value expected from Project EASI/ED.

- **Implementation of a multi-year promissory note (comparable to a line of credit) to cover multiple loans from one or more fund sources under multiple financial aid programs with comparable terms.** A multi-year promissory note is intended to relieve aid recipients (students and parents) and schools from the burden of creating and signing individual promissory notes for each loan for each year. A multi-year promissory note is also envisioned as promoting borrower refinancing of all loans under a promissory note into a single loan, thus simplifying the repayment requirements (i.e., number of loan holders, number of monthly payments) for the borrower.
- **Collection of student-level information on Campus-Based Program aid recipients.** Comprehensive information regarding Perkins Loans, FWS, and FSEOG would be available, improving recipient visibility into their entire aid portfolio (encompassing these and other programs) and increasing ED's ability to effectively manage these programs.
- **Enrollment tracking based upon total enrollment rather than on enrolled students who are receiving Title IV aid.** This capability will decrease the burden on schools to provide enrollment data, since they

will be able to "dump" their entire enrollment database from the registrar's office instead of having to identify financial aid recipients (often requiring coordination between the financial aid office, registrar, and ED). In addition, this will help prevent technical defaults for students who are eligible for in-school deferments by providing more complete visibility to current enrollment status when students transfer schools and do not continue receiving Title IV aid.

- **Borrower access to a record of their entire Title IV aid portfolio from a single source.** This capability will give Title IV borrowers the ability to assess their indebtedness and repayment status, and to identify all of their loan holders. This is expected to decrease defaults that occur when borrowers are unable to determine who holds their loans, and to increase the borrowers' ability to effectively manage debt.
- **Confirmation of student eligibility for financial aid at origination and at disbursement.** In cases where there is a delay between aid origination (i.e., packaging) and aid disbursement, Project EASI/ED software will reconfirm student eligibility. The software will check for defaults, grant overpayments, and eligibility in relation to aid threshold amounts. (The aggregate loan limit information held by the system should be much improved.) This is expected to decrease the number of repeat defaults on loans and to enable ED to more efficiently ensure that the correct amount of aid is reaching the correct, qualified recipient.
- **Calculation of guaranty agency ACA payments.** Project EASI/ED software will enable ED to calculate AEA amounts based upon detailed data instead of based upon summary information provided by guarantors on Forms 1130 or 1189. Data on these forms (if they are retained) then could be used to reconcile ED and guarantor records.
- **Split disbursements of Title IV aid funds between students and schools, at each school's discretion.** This capability would enable schools to direct Project EASI/ED to direct Federal payments in part to the school (to cover tuition or other costs) and in part to students (when there are remaining funds). Schools exercising this option would be relieved of cutting checks or otherwise distributing remaining funds to students.
- **Provision of disbursement and repayment counseling support for students.** Project EASI/ED software would make counseling information available to supplement counseling currently provided by schools. Counseling support regarding repayment is expected to remove much of the burden for exit counseling from schools.
- **Implementation of invoice (i.e., just-in-time) disbursement of funds to schools.** Under the invoice method of disbursement, schools would request funds from ED based upon student-level records submitted much closer to the planned disbursement date than is currently required for all programs. This is expected to improve cash management for both the

schools and for ED, and to minimize reconciliation requirements and issues associated with excess cash residing at schools.

- **Modification of draw down disbursements of funds to schools to require origination records to be submitted by a school before any funds are disbursed to it.** Again, this will improve cash management by providing a tighter link between funds being disbursed using this method and individual recipients.
- **Ability for borrowers, or for loan holders acting at borrowers' request, to request consolidation to an FFELP or Direct Loan Consolidation Loan through a single resource.** The Project EASI/ED system would notify all affected parties of the consolidation request, and would facilitate the consolidation process by requesting and transmitting loan verification data.
- **Elimination of the requirement for schools to generate Financial Aid Transcripts (FAT's).** Once student-level data is maintained on all Title IV aid programs, and assuming that required Title VII aid is also covered, schools will be able to obtain complete financial aid histories from Project EASI/ED. This will eliminate the substantial burden incurred by schools to generate and respond to FAT requests. It will also improve the quality of information available to schools to support decisions regarding financial aid eligibility.
- **Reduction of delays in awarding Pell Grants to students who transfer schools mid-year and of erroneous disbursement of Pell Grant funds to schools students are no longer attending.** The Project EASI/ED system will check for students with two or more origination records for Pell Grants within a single academic period, and will notify all involved schools when such a conflict occurs. Use of the invoice method of disbursement by schools participating in the Pell Grant program would also minimize this problem, since schools would not request funds until the recipient actually appears at the school.
- **Improved processing of FFELP origination and disbursement records.** Project EASI/ED will edit FFELP origination and disbursement records, using information unavailable to any individual lender, and accurately determine participant eligibility both at the point of origination and of disbursement.
- **Automatic initiation of in-school deferments based upon current enrollment data.** A corollary benefit to more comprehensive enrollment tracking is that Project EASI/ED will be able to notify a borrower and all of the associated loan holders of the borrower's eligibility for an in-school deferment.
- **System notification of loan holders when there is a change in a borrower's enrollment status that would change their eligibility for aid.** This capability will provide the loan holders more accurate, up-to-

date information to use in managing their portfolios, and will decrease the burden on students to notify multiple loan holders if their enrollment status changes.

- **Ability for borrowers to request deferment or forbearance on loans through a central resource.** The Project EASI/ED system would notify all related loan holders of the borrower's request and would notify all loan holders when any loan holder approves such a request.
- **Use of an integrated database to support all ED Title IV applications will eliminate inappropriate redundancy and minimize the potential for conflicting data to be obtained from various sources.** Under Project EASI/ED, it is envisioned that students, schools, lenders, guarantors, and other participants would submit each piece of data required only once, and that all system users would share the resulting set of data.
- **Providing a single point of interface for schools when they submit data to, or request information from, ED.** This would also enable schools to submit data one time for use by multiple organizations.

ORIGINATION AND DISBURSEMENT SUBSYSTEM

Project Number: III-001

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement and test Origination and Disbursement subsystem functionality; to implement technical infrastructure specific to Origination and Disbursement subsystem; and to shut down affected Title IV systems.

Project Duration: Acquisition 6 months
Implementation 18 months

Key Dates:

Activity	Start Date	End Date
Origination and Disbursement Contractor Acquisition	June 14, 2000	June 18, 2001
Current System Contractor Acquisition	Dec 20, 2000	June 18, 2001
Documentation and Database Review and Update	July 15, 2001	Aug 10, 2001
Technical Environment Design for Disbursement	Aug 13, 2001	Oct 12, 2001
Hardware and Software Acquisition and Installation	Oct 15, 2001	Jan 15, 2002
New Functionality Addition	Aug 13, 2001	July 12, 2002
RFMS Data Standardization	Aug 13, 2001	July 12, 2002
CBS and FFELP Data Standardization	Sept 10, 2001	July 12, 2002
Bridges Development and Implementation	Nov 5, 2001	Feb 5, 2002
System Test Plan and Execution	July 15, 2002	Sept 18, 2002
Subsystem Integration Test Plan and Execution	Sept 5, 2002	Nov 6, 2002
User Acceptance Test Plan and Execution	Nov 7, 2002	Nov 27, 2002

Assumptions:

1. The Origination and Disbursement subsystem will be implemented primarily via reuse of RFMS, augmented by additional custom application software and reuse of other Title IV system components to implement all envisioned functionality.

2. The current system contractor for RFMS will implement the Origination and Disbursement subsystem because of existing expert knowledge of RFMS processes and data, and because of familiarity with EASI/ED origination and disbursement processes.
3. The Origination and Disbursement implementation contractor will integrate the work of other current Title IV system contractors into a single application subsystem for EASI/ED.
4. Additional custom development will be done in language(s) or tools compliant with the *EASI/ED COE* unless (a) the code is integral to an existing application in a non-compliant language or (b) an exception is applied for and approved.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. System-wide activities
2. Creation of enterprise database
3. Data conversion for the Aid Origination and Disbursement subsystem

Major Activities:

Activity 1:

Name: Acquire Origination and Disbursement Implementation Contractor

Description:

4. Define performance requirements, skill requirements, and scope of work (based on *Project EASI/ED BARD*) for an origination and disbursement implementation contractor.
5. Perform cost benefit analysis.
6. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator

Activity 2:

Name: Acquire Current System Contractor Support

Description:

Define and award task orders for the CBS and FFELP system contractors to support expansion of the RFMS database to accommodate selected data from each system, and to change CBS and FFELP system code to work with the revised database. This effort includes analysis, design, construction, test, and implementation support for revised application software.

Responsible Organization(s): ED

Supporting Organization(s): Integrator

Activity 3:

Name: Review and Update Documentation and Database

Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database schema if necessary.

Responsible Organization(s): Integrator

Supporting Organization(s): Not Applicable

Activity 4:

Name: Design Technical Environment for Origination and Disbursement Subsystem

Description:

Identify specific additional hardware and system software required for the Origination and Disbursement subsystem, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Integrator

Supporting Organization(s): Origination/Disbursement Implementation Contractor
Band 1 Contractor

Activity 5:

Name: Acquire and Install Hardware and Software

Description:

Procure selected hardware and system software specific to the Origination and Disbursement subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments. To the extent that the existing RFMS technical environment is maintained, ensure that the appropriate development, test, training, and production environments exist.

Responsible Organization(s): Band 1 Contractor

Supporting Organization(s): Integrator
Origination/Disbursement Implementation Contractor

Activity 6:

Name: Add New Functionality

Description:

1. Define detailed requirements for Origination and Disbursement functionality that is not provided by RFMS and CBS, but that is sufficiently independent and separable to be created as a distinct set of batch transactions. Design and construct new batch software to implement this functionality. These batch transactions will retrieve information from and will directly update the RFMS database.
2. Define detailed requirements for the EASI/ED user interface that reflect on-line functionality of the Origination and Disbursement subsystem. Implement requirements through web pages, IVRU dialogues, or other interactive communication mechanisms. User interface functionality must be tightly integrated with batch functionality in the Origination and Disbursement subsystem to seamlessly enable required business processes.
3. Define detailed requirements for Origination and Disbursement functionality that is not provided by RFMS, but that can be implemented most effectively by modifying RFMS code to implement new batch transactions.
4. Define detailed requirements for Origination and Disbursement functionality that is not provided by CBS, but that can be implemented most effectively by modifying CBS code to implement new batch transactions.

Responsible Organization(s):

Origination/Disbursement Implementation Contractor

Supporting Organization(s):

Current CBS Contractor – Item 4 Only

Web Development Contractor – Item 2 Only

IVRU Contractor – Item 2 Only

Integrator

Activity 7:

Name: Standardize RFMS Data

Description:

1. Using the system-wide data mapping results as input, modify attributes in the RFMS PDM to ensure their definitions and lengths match those of corresponding attributes in the EASI/ED enterprise database.
2. Modify RFMS application code so that it works with the modified RFMS data definitions. This will require modifying the working storage definitions within RFMS programs, and changing data manipulation language statements as necessary to access the new database. Modifications to the program logic should only be necessary if changes to the database structure are made.
3. Unload the RFMS database, modify the database schema to match the revised PDM, and reload the RFMS database.
4. In accordance with the system-wide test strategy, plan and execute a regression test of RFMS to ensure that the database changes did not affect system functionality.

Responsible Organization(s):

Origination/Disbursement Implementation Contractor

Supporting Organization(s):

Database and Bridges Contractor

Activity 8:

Name: Standardize CBS and FFELP System Data

Description:

1. Analyze the CBS and FFELP Systems to identify data to be reused, based upon processes being reused.
2. Modify the RFMS database to include data to be reused from CBS and FFELP.
3. Modify the reused CBS applications to work with the modified RFMS database.
4. Modify the reused FFELP System applications to work with the modified RFMS database.
5. Define data conversion specifications, develop and test conversion programs, and convert data from CBS into the modified RFMS database.
6. Define data conversion specifications, develop and test conversion programs, and convert data from the FFELP System into the modified RFMS database.

Responsible Organization(s):

Origination/Disbursement Contractor

Supporting Organization(s):

Current CBS and FFELP System Contractors
Database and Bridges Contractor

Activity 9:

Name: Develop and Implement Bridge to Enterprise Database

Description:

The Origination and Disbursement subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into the Origination and Disbursement applications and to support the transmission of data from the Origination and Disbursement database to the enterprise database following processing. Analyze requirements, design, construct, test, and implement a bridge between the Origination and Disbursement subsystem and the enterprise database for this purpose.

Responsible Organization(s):

Database and Bridges Contractor

Supporting Organization(s):

Origination/Disbursement Contractor
Integrator

Activity 10:

Name: Plan and Execute System Test

Description:

In accordance with system-wide test strategy, plan and execute end-to-end system test of the Origination and Disbursement subsystem application software. System test will verify that functionality is correct and complete, that new and old components work correctly together, and that the subsystem meets performance requirements.

Responsible Organization(s):

Origination/Disbursement Implementation Contractor

Supporting Organization(s): Integrator
Band 1 Contractor

Activity 11:

Name: Plan and Execute Subsystem Integration Test

Description:

Plan and execute a subsystem integration test to ensure that the Aid Origination and Disbursement subsystem is error-free. The test will verify that interfaces between the application software and bridges to both the current Title IV systems and the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Aid Origination and Disbursement Implementation Contractor

Supporting Organization(s): ED
Band 1 Contractor
Database and Bridges Contractor
Current FFELP System and CBS Contractors

Activity 12:

Name: Plan and Execute User Acceptance Test

Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the Origination and Disbursement subsystem.

Responsible Organization(s): ED

Supporting Organization(s): Integrator
Band 1 Contractor
Origination/Disbursement Contractor
Current FFELP System and CBS Contractors

Decision Factors:

Aid Origination and Disbursement Subsystem Implementation Contractor

Although implementation of the Origination and Disbursement subsystem reuses all or part of three current Title IV systems, the approach shown in the transition schedule attempts to form these into one integrated subsystem. By moving the database requirements for CBS and FFELP into the RFMS database, a single subsystem database is created that should more readily support evolution or replacement downstream as requirements and technology change. Given the goal of creating the most technically integrated solution possible, the approach of using the RFMS contractor to integrate the subsystem components also makes sense. This enables one contractor

to ensure that the end-to-end design and implementation of the subsystem is consistent and affords the best quality.

The duration for the acquisition to obtain the Origination and Disbursement implementation contractor is based on the assumption that this will be done through a task order to the RFMS contractor. If a competitive acquisition is used, the duration of this activity would increase as much as 5 months.

FFELP Data Standardization

The technical approach taken to reusing the lender interest and special allowance functionality from the FFELP System requires the RFMS database to be modified to include this data, conversion of the data from an Integrated Database Management System (IDMS) to the RFMS database, and modification of the FFELP application code to read and update this database. Converting IDMS data structures, and code written to operate on those data structures, into a relational format is very complicated technically. This aspect of the project needs to be evaluated carefully before committing to reuse of FFELP applications. It may pose too high a technical risk to be palatable or may require too much time to complete. Skill requirements and availability of qualified staff for this piece of work should be carefully assessed prior to task order award. A possible alternative approach for the short term is to leave the IDMS database in place and to rewrite this portion of the EASI/ED system entirely at a later date.

Current System Contract End Dates

The CBS contract ends 28 months prior to the full shut down of CBS. ED will need to ensure full contractor support up to and including the date of full shut down for CBS. A decision must be made whether to extend or recompute these contracts. Recomputing these contracts involves some schedule risk since if someone other than the current contractor wins the new contracts, start up and familiarization time will have to be taken into account. This could impact the implementation date of the Aid Origination and Disbursement subsystem because knowledgeable CBS contractor support will be required during the development of this subsystem.

The LOS/LCS contract ends 16 months prior to the full shut down of LOS and LCS (LCS shuts down when the Aid Repayment subsystem is implemented. This is currently the same time as when the Aid Origination and Disbursement subsystem is implemented). ED will need to ensure full contractor support up to and including the date of full shut down LOS and LCS. A decision must be made whether to extend or recompute these contracts. ED could renegotiate the contract to limit support to LCS, since that system is to be reused as a component of the Aid Repayment subsystem. Recomputing this contract involves some schedule risk since if someone other than the current contractor wins the new contracts, start up and familiarization time will have to be taken into account.

The contract for RFMS extends 1 month beyond the date when this system will be fully shut down. Costs may be incurred by ED in negotiating an early termination to these contract option years.

The contract for NSLDS ends on 12/31/98. The lack of a long term contract for NSLDS through the shut down date of the system risks a potential loss of knowledgeable staff to do data conversion and default rate calculation code modifications.

Alternative Implementation Options

One alternative implementation options were considered for the Aid Origination and Disbursement subsystem. This was:

- **Outsourcing of invoice and drawdown origination and disbursement, with custom development providing the functionality that could not be outsourced.** In comparing timeframes with the reuse option presented in the schedule, this alternative may take slightly more time to frame the appropriate acquisition since great care would need to be given to performance measures and other aspects of shaping the deal. Assuming that ED outsources to an organization already performing this type of business, start up time to "implement" a subsystem should be less. However, if the organization to which they outsource has to substantially modify their business systems or processes or has to establish a new center or substantial additional staff, this time frame might be longer.

A more detailed description of the alternative implementation scenarios and the timeframes associated with them is provided in Appendix E, Section 3.2, Other Implementation Options Analysis.

AID REPAYMENT SUBSYSTEM

Project Number: III-002

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement, and test Repayment subsystem functionality; to implement technical infrastructure specific to Repayment subsystem; and to shut down affected Title IV systems.

Project Duration: Acquisition 14 months
Implementation 16 months

Key Dates:

Activity	Start Date	End Date
Aid Repayment Contractor Acquisition	July 30, 1999	Nov 2, 2000
Loan Servicing COTS Selection	Nov 2, 1999	Feb 2, 2000
Current System Contractor Acquisition	May 4, 2000	Nov 2, 2000
Documentation and Database Review and Update	Dec 1, 2000	Dec 28, 2000
Technical Environment Design for Repayment	Dec 29, 2000	Feb 28, 2001
Hardware and Software Acquisition and Installation	Mar 1, 2001	June 1, 2001
Loan Servicing Implementation	May 7, 2001	Sept 6, 2002
New Functionality Addition	Dec 29, 2000	Nov 29, 01
LCS Data Standardization	Dec 29, 2000	Nov 29, 01
Bridges Development and Implementation	Jan 26, 2001	Apr 27, 2001
System Test Plan and Execution	Nov 2, 2001	Jan 8, 2002
Subsystem Integration Test Plan and Execution	Sept 9, 2002	Nov 8, 2002
User Acceptance Test	Nov 11, 2002	Nov 29, 2002

Assumptions:

1. COTS product selection for the Aid Repayment subsystem will occur prior to acquisition of Aid Repayment implementation support.
2. The COTS product selected will have “hooks” to facilitate linking custom code to the COTS product applications.

Key Relationships:

This project is dependent on the following projects and/or major activities:

1. System-wide activities
2. Creation of enterprise database
3. Data conversion for the Aid Repayment subsystem

Major Activities:**Activity 1:**

Name: Acquire Aid Repayment Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work (based on EASI/ED BARD) for an aid repayment implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator

Activity 2:

Name: Select COTS Package for Loan Servicing

Description:

Identify candidate loan servicing products that are compliant with the *EASI/ED COE*. Using agreed-upon evaluation criteria that reflect EASI/ED functional and performance requirements, assess each product. Select the product that provides the best fit and value for EASI/ED.

Responsible Organization(s): Integrator

Supporting Organization(s): ED

Activity 3:

Name: Acquire Current LCS Contractor Support

Description:

Define requirements for reuse of LCS to deliver partial functional for the Aid Repayment subsystem. Create requirements to: (1) standardize LCS data to conform to EASI/ED data standards, and (2) support bridge analysis and design, participate in bridge construction and testing, and operate the bridge between LCS and the EASI/ED enterprise database. Develop a task order and award it to the LCS contractor.

Responsible Organization(s): ED
Supporting Organization(s): Integrator

Activity 4:

Name: Review and Update Documentation and Database

Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database if necessary.

Responsible Organization(s): Integrator
Supporting Organization(s): Not Applicable

Activity 5:

Name: Design Technical Environment for Aid Repayment Subsystem

Description:

Identify specific hardware and system software required for the Aid Repayment subsystem, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to the *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Integrator
Supporting Organization(s): Aid Repayment Implementation Contractor
Current LCS Contractor
Band 1 Contractor

Activity 6:

Name: Acquire and Install Hardware and Software

Description:

Procure selected hardware and system software specific to the Aid Repayment subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments. To the extent that the LCS technical environment is retained, ensure that appropriate development, test, training, and product environments exist.

Responsible Organization(s): Band 1 Contractor
Supporting Organization(s): Integrator
Aid Repayment Implementation Contractor
Current LCS Contractor

Activity 7:

Name: Implement Loan Servicing

Description:

1. Define detailed requirements for the loan servicing subsystem and tailor the COTS package to support these requirements. For requirements not satisfied by the COTS package, design, construct, and test custom code as appropriate to supplement the COTS package.
2. The loan servicing subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into the loan servicing applications and to return data from the loan servicing database to the EASI/ED enterprise database following processing. Analyze requirements, and design, construct, test, and implement a bridge between the loan servicing subsystem and the enterprise database for this purpose.
3. In accordance with system-wide test strategy, plan and execute a system test of the loan servicing functionality to ensure that it fully and correctly implements defined requirements.

Responsible Organization(s): Aid Repayment Implementation Contractor
Supporting Organization(s): Database and Bridges Contractor – Step 3 Only

Activity 8:

Name: Implement New Loan Consolidation Functionality

Description:

1. Define detailed requirements for loan consolidation functionality that is not provided by LCS, but is sufficiently independent and separable to be created as a distinct set of batch transactions. Design and construct new batch software to implement this functionality. These batch transactions will retrieve data from and will directly update the LCS database.
2. Define detailed requirements for the EASI/ED user interface that reflect on-line loan consolidation functionality. Implement requirements through web pages, IVRU dialogues, or other interactive communication mechanisms. User interface functionality must be tightly integrated with batch loan consolidation functionality to seamlessly enable required business processes.
3. Define detailed requirements for loan consolidation functionality that is not provided by LCS, but that can most effectively be implemented by modifying CPS code to encompass new batch transactions. Design, construct, test, and implement programs.

Responsible Organization(s): Current LCS Contractor
Supporting Organization(s): Web Development Contractor – Step 2 Only
IVRU Contractor – Step 2 Only
Integrator

Activity 9:

Name: Standardize LCS Data

Description:

1. Using the system-wide data mapping results as input, modify attributes in the LCS PDM to ensure their definitions and lengths match those of corresponding attributes in the EASI/ED enterprise database.
2. Modify LCS application code so that it works with the modified LCS data definitions. This will require modifying the working storage definitions within LCS programs, and changing data manipulation language statements as necessary to access the new database. Modifications to the program logic should only be necessary if changes to the database structure are made.
3. Unload the LCS database, modify the database schema to match the revised PDM, and reload the LCS database.
4. In accordance with the system-wide test strategy, plan and execute a regression test of LCS to ensure that the database changes did not affect system functionality.

Responsible Organization(s): Current LCS Contractor

Supporting Organization(s): Database and Bridges Contractor

Activity 10:

Name: Develop and Implement Bridge from LCS to Enterprise Database

Description:

The loan consolidation subsystem will use a local database to support processing. A bridge is required to support the receipt of data from the enterprise database into the loan consolidation applications and to support the transmission of data from the loan consolidation database to the EASI/ED enterprise database following processing. Analyze requirements, and design, construct, test, and implement a bridge between the loan consolidation subsystem and the enterprise database for this purpose.

Responsible Organization(s): Database and Bridges Contractor

Supporting Organization(s): Current LCS Contractor

Integrator

Activity 11:

Name: Plan and Execute System Test

Description:

In accordance with system-wide test strategy, plan and execute end-to-end system test of the EASI/ED loan consolidation functionality. System test will verify that functionality is correct and complete, that new and old components work correctly together, that bridges work correctly, and that the subsystem meets performance requirements.

Responsible Organization(s): Aid Repayment Implementation Contractor
Current LCS Contractor
Supporting Organization(s): Database and Bridges Contractor
Band 1 Contractor
Integrator

Activity 12:

Name: Plan and Execute Subsystem Testing
Description:

Plan and execute a subsystem integration test to ensure that the Aid Repayment subsystem is error-free. The test will verify that interfaces between the application software and bridges to both the current Title IV systems and the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Aid Repayment Implementation Contractor
Supporting Organization(s): Database and Bridges Contractor
Band 1 Contractor
Integrator
Current LCS Contractor

Activity 13:

Name: Plan and Execute User Acceptance Test
Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the Aid Repayment subsystem.

Responsible Organization(s): ED
Supporting Organization(s): Integrator
Band 1 Contractor
Aid Repayment Implementation Contractor
Current LCS Contractor

Decision Factors:

Aid Repayment Subsystem Integration

Under the implementation strategy reflected in the transition schedule, Aid Repayment – which was defined as a single EAIS/ED subsystem – effectively becomes two separate subsystems: loan consolidation and loan servicing. The acquisition approach reflected here treats these as separate subsystems and does not include retention of an Aid Repayment implementation contractor to

oversee implementation of the entire subsystem. The risk with this approach is that the various components will not remain on schedule or that they will not be implemented in a way that ensures coverage of all capabilities for Aid Repayment. The factors that mitigate this risk are (a) that the integrator needs to play a strong role in this case to ensure that all requirements are implemented and that work proceeds as it should, and (b) two separate and focused contracts would have been awarded to perform the discrete work elements.

COTS Selection

Should a COTS product be selected for loan servicing that does not have “hooks” to facilitate linking of custom code to the COTS applications, then the time frame for implementing loan servicing may be longer than is projected in this schedule.

As with other COTS products implementations for EASI/ED, this schedule presumes the COTS product evaluation will occur prior to the acquisition for an Aid Repayment implementation contractor. See trade-offs described in other areas.

Current System Contract End Dates

The FFELP contract ends 40 months prior to the full shut down of FFELP. ED will need to ensure contractor support up to and including the date that these systems shut down. A decision must be made whether to extend or re compete these contracts. Re competing these contracts involves some schedule risk since if someone other than the current contractor wins the new contracts, start up and familiarization time will have to be taken into account. This could impact the implementation date of the Aid Repayment subsystem because knowledgeable FFELP contractor support will be required during the development of this subsystem. However, the large time difference between the FFELP contract end date and the implementation date of the Aid Repayment subsystem makes it unlikely that in this case the contract could be extended all the way to FFELP system shut down. Should ED decide to re compete the FFELP contract, a couple of alternatives exist. If enough time exists, ED could include EASI/ED transition support activities within the FFELP current systems contract. Alternatively, separate contracts could be created – one to maintain the FFELP system until shut down, and one to the current FFELP contractor to support EASI/ED transition activities.

The shut down of LCS is discussed along with the shut down of LOS in project III-01, Aid Origination and Disbursement subsystem.

The LSS contract ends 7 months beyond the date when these systems will fully shut down. Costs may be incurred by ED in negotiating an early termination to this contract option year.

The CDS contract ends 29 months prior to the full shutdown of the system. As with FFELP, ED will need to ensure contractor support up to and including the date that CDS shuts down. A decision must be made whether to extend or re compete the CDS contract. ED will need to evaluate the available options, considering the same factors mentioned above for FFELP.

Alternative Implementation Options

Two alternative implementation options were considered for the Aid Application subsystem. These were:

- **Outsourcing of almost all repayment processing, with custom development providing the small amount of functionality that could not be outsourced.** In comparing timeframes with the reuse option presented in the schedule, this alternative may take slightly more time to frame the appropriate acquisition since great care would need to be given to performance measures and other aspects of shaping the deal. Assuming that ED outsources to an organization already performing this type of business, start up time to "implement" a subsystem should be less. However, if the organization to which they outsource has to substantially modify their business systems or processes or has to establish a new center or substantial additional staff, this time frame might be longer.
- **Outsourcing of loan consolidation and servicing, with debt collection being implemented through COTS.** Splitting the Aid Repayment subsystem between COTS and outsourcing was estimated to take almost 8 months longer than the reuse-based option, due to the size of the COTS implementation involved.

A more detailed description of the alternative implementation scenarios and the timeframes associated with them is provided in Appendix E, Section 3.2, Other Implementation Options Analysis.

PHASE III INTEGRATION AND TESTING

Project Number: III-003

Project Purpose: The purpose of this project is: (1) to integrate the Origination and Disbursement subsystem and the Repayment subsystem with one another and with the EASI/ED enterprise database, user interface, and previously implemented subsystems; and (2) to perform integration testing of the resulting system.

Project Duration: Implementation 3 months

Key Dates:

Activity	Start Date	End Date
Phase 2 Integration and Testing	Dec 2, 2002	Mar 4, 2003

Assumptions:

Key Relationships:

1. Successful completion of system test for Origination and Disbursement subsystem.
2. Successful completion of system test for Repayment subsystem.

Major Activities:

Activity 1:

Name: Plan and Execute Phase III Integration and Testing

Description:

1. Plan the schedule, resources, and activities required to integrate the Aid Origination and Disbursement and Aid Repayment subsystems with the production environment and operational Title IV systems.
2. Execute integration activities in accordance with the plan.
3. In accordance with system-wide test strategy, plan and execute integration testing to ensure that the production system provides uninterrupted service delivery.

Responsible Organization(s):

Integrator

Supporting Organization(s):

Band 1 Contractor

Origination/Disbursement Implementation Contractor

Aid Repayment Implementation Contractor

Web Development Contractor

IVRU Contractor

Current Title IV Contractors for Affected Systems

4.2.6 Phase IV

Phase IV comprises implementation of the Decision Support Subsystem (DSS). This phase is represented through a single DSS project, which includes acquisition planning, COTS product selection, acquisition process, development and implementation of the technical infrastructure, and development and implementation of the data warehouse and of the DSS.

Phase IV Business Value

Phase IV software provides new functionality, beyond that currently reflected in current Title IV systems, to enhance some of the current capabilities, and to eliminate deficiencies associated with the current systems. The following list itemizes the Phase IV business value from Project EASI/ED.

- **Exploration** Project EASI/ED will allow users (e.g., auditors and program reviewers) to access, analyze and explore transaction histories by school, student and program. Users will have the ability to view the business information from different angles and analyze the effect of key performance indicators by progressing from one level of detail to the next.
- **Trend Analysis and Exception Reporting** Project EASI/ED will allow users to analyze the evolution of data patterns over time, determine trends and identify values that fall outside a specified range. As such, school and aid organization (e.g., lender, guaranty agency) performance data will be monitored, and the system will automatically flag exception cases - performance factors that do not statistically conform to a data pattern.
- **Statistical Sampling** For data repositories containing large amounts of data, such as the transaction histories for all schools, students and programs, Project EASI/ED will allow the users to perform statistical sampling, using statistical and mathematical techniques, in order to identify useful patterns in the data.

DECISION SUPPORT SUBSYSTEM

Project Number: IV-001

Project Purpose: The purpose of this project is to acquire contractor support and to develop, implement, and test the EASI/ED data warehouse; develop and implement the technical infrastructure required by the Decision Support subsystem; develop and implement the Decision Support subsystem applications; and test the performance of the Decision Support subsystem.

Project Duration:

Acquisition	11 months
Data Warehouse	18 months
Decision Support	14 months
Software	

Key Dates:

Activity	Start Date	End Date
Decision Support Contractor Acquisition	Sept 6, 2000	Sept 10, 2001
Data Warehouse Requirements	Oct 8, 2001	Jan 8, 2002
Technical Environment Design for Warehouse	Feb 20, 2002	Apr 19, 2002
Warehouse Hardware and Software Acquisition and Installation	Apr 22, 2002	July 22, 2002
Data Warehouse Data Extraction	Dec 31, 2001	Nov 28, 2002
Data Warehouse Data Transformation	Nov 25, 2002	Jan 22, 2003
Review and Update Documentation and Database for DSS	July 8, 2002	Aug 8, 2002
Review and Update DSS Requirements	July 8, 2002	Aug 8, 2002
DSS COTS Selection	Aug 9, 2002	Oct 9, 2002
Technical Environment Design for DSS	Oct 10, 2002	Dec 10, 2002
DSS Hardware and Software Acquisition and Installation	Dec 11, 2002	Mar 11, 2003
End User Access Requirements	Oct 10, 2002	Dec 10, 2002
COTS Analysis and Tailoring	Dec 11, 2002	Aug 4, 2003
System Test Plan and Execution	July 18, 2003	Sept 18, 2003
Subsystem Integration Test Plan and Execution	Aug 29, 2003	Oct 30, 2003
User Acceptance Test Plan and Execution	Oct 31, 2003	Nov 20, 2003

Assumptions:

Key Relationships: Dependent on the completion of data conversion to the enterprise database

Major Activities:

Activity 1:

Name: Acquire Decision Support Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work (based on EASI/ED BARD) for decision support implementation contractor.
2. Perform cost benefit analysis.
3. Execute competitive acquisition process and award contract.

Responsible Organization(s): ED

Supporting Organization(s): Integrator

Activity 2:

Name: Define Data Warehouse Requirements

Description:

1. Develop the business requirements and performance targets and measures for developing the Project EASI/ED data warehouse.
2. Develop the Logical Data Model (LDM) for the Project EASI/ED data warehouse.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): ED
Integrator

Activity 3:

Name: Design Technical Environment for Data Warehouse

Description:

Identify specific hardware and system software required for the Data Warehouse, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to the *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): Integrator
Band 1 Contractor

Activity 4:

Name: Acquire and Install Data Warehouse Hardware and Software

Description:

Procure selected hardware and system software specific to the Data Warehouse. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments. Evaluate and select database and supporting tools for the Data Warehouse.

Responsible Organization(s): Band 1 Contractor

Supporting Organization(s): Integrator

Decision Support Implementation Contractor

Activity 5:

Name: Data Warehouse Data Extraction

Description:

1. Perform mapping of the data elements in the EASI/ED enterprise database to the data elements in the proposed EASI/ED data warehouse.
2. Develop the Project EASI/ED enterprise data extraction and transformation processes rules and specifications. The data extraction and transformation processes are automated, modular, repeatable components for extracting, transforming and formatting data from the EASI/ED enterprise database to ensure that an appropriate, well defined level of consistent and quality data is provided to the EASI/ED data warehouse.
3. Develop the Physical Data Model (PDM) by transforming the LDM into corresponding database constructs required by the supporting DBMS including optimal physical partitioning schemas, determining storage space configurations, and constructing the physical database schema.
4. Design, code and test the set of data extraction and transformation execution programs that perform the procedures, processes and common routines. These execution programs obtain data from the EASI/ED enterprise database and create segments and summarized data for the EASI/ED data warehouse.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): Database and Bridges Contractor

Activity 6:

Name: Data Warehouse Transformation

Description:

3. Create the EASI/ED data warehouse.
4. Execute the data warehouse data extraction and transformation routines to obtain data from the archival database and populate the EASI/ED data warehouse.

5. Execute the data warehouse data extraction and transformation routines to obtain data from the EASI/ED enterprise database and populate the EASI/ED data warehouse.

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): Database and Bridges Contractor

Activity 7:

Name: Review and Update Documentation and Database for DSS
Description:

Review and update system-wide design documentation, strategies, and standards to reflect any changes that occurred between the time when the acquisition started and contract award. Review and update the mapping between the current Title IV system data and EASI/ED enterprise database attributes, and update the enterprise database if necessary.

Responsible Organization(s): Integrator
Supporting Organization(s): Not Applicable

Activity 8:

Name: Review and Update Decision Support Requirements
Description:

Review and update requirements for Decision Support software that were defined at time of acquisition.

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): Integrator

Activity 9:

Name: Select DSS COTS packages
Description:

Select the COTS packages to form the core of the Decision Support subsystem. Submit requests for exceptions to the *EASI/ED COE* to review panel for approval

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): Integrator

Activity 10:

Name: Design Technical Environment for DSS

Description:

Identify specific hardware and system software required for the DSS, and design the environment. Analyze information technology infrastructure requirements, strategies, and standards. Submit requests for exceptions to the *EASI/ED COE* to review panel for approval.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): Band 1 Contractor

Integrator

Activity 11:

Name: Acquire and Install DSS Hardware and Software

Description:

Procure selected hardware and system software specific to the Decision Support subsystem. Install, configure, test, and implement the components to create development, test, training, and production environments that are integrated with other EASI/ED environments.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): Band 1 Contractor

Integrator

Activity 12:

Name: Develop End User Access Requirements

Description:

Define detailed requirements for end-user viewing and manipulation of the Decision Support subsystem data.

Responsible Organization(s): Decision Support Implementation Contractor

Supporting Organization(s): ED

Activity 13:

Name: Analyze and Tailor COTS

Description:

Define detailed requirements for the Decision Support subsystem COTS packages, install the packages, and tailor them to meet the requirements.

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): ED
Band 1 Contractor

Activity 14:

Name: Plan and Execute COTS System Test
Description:

Plan and execute a system test of the DSS subsystem COTS software to ensure that it fully implements the defined requirements.

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): Band 1 Contractor

Activity 15:

Name: Plan and Execute Subsystem Testing
Description:

Plan and execute a subsystem integration test to ensure that the Decision Support subsystem is error-free. The test will verify that interfaces between the application software and bridges to the enterprise database operate correctly, that the subsystem is able to handle required volumes, and that the subsystem meets established performance requirements.

Responsible Organization(s): Decision Support Implementation Contractor
Supporting Organization(s): Database and Bridges Contractor
Band 1 Contractor
Integrator

Activity 16:

Name: Plan and Execute User Acceptance Test
Description:

In accordance with the system-wide test strategy, plan and execute user acceptance testing of the Decision Support subsystem.

Responsible Organization(s): ED
Supporting Organization(s): Integrator
Band 1 Contractor
Decision Support Implementation Contractor

Decision Factors:

Alternative Implementation Options

Taking all reasonable implementation alternatives into consideration, COTS implementation was seen as the only viable implementation option for the Decision Support subsystem.

4.2.7 Prototypes, Pilots, and Interim Improvements

Pilots and prototypes provide ED the opportunity to evaluate the technical feasibility and implementation approach of selected functionality early in the life cycle, with comparatively little risk or investment. Pilots and prototypes also provide an avenue for obtaining early feedback from users regarding system look and feel, and can help obtain support for more complex system implementation activities. Interim improvements provide ED an opportunity to provide early value to users while working on the longer-term aspects of EASI/ED implementation. The appropriate use of pilots, prototypes, and interim improvements is key to EASI/ED success.

This section presents four candidate projects in this category. Additional opportunities for pilots, prototypes, and interim improvements undoubtedly will be identified as work on EASI/ED proceeds. The four projects presented in this subsection are listed below.

- Consolidated Reporting Database Using NSLDS, LSS, and CPS
- Prototype EASI/ED Web-Based User Interface and Provide Web Access to Consolidated Data from NSLDS, LSS, and CPS
- Provision of User Access to Data Through the Internet and Interactive Voice Response Unit
- Data Mart for Program Management Information

The systems developed through these projects are intended to run for a specific period of time and then be retired when the appropriate EASI/ED functionality is implemented. During the period when these systems are in production use (e.g., by students over the Internet) they will need to be operated and maintained as production systems. The tasks necessary to operate and maintain these prototype and interim improvement projects are not shown within the transition schedule.

**CONSOLIDATED REPORTING DATABASE
USING NSLDS, LSS, AND CPS**

Project Number: PPI-001

Project Purpose: The purpose of this project is to acquire contractor support; to design, construct, test, and implement a consolidated reporting database using data from NSLDS, LSS, and CPS; and to design, construct, and implement reports to extract needed data from the resulting database.

Project Duration: Acquisition 4 months
Implementation 5 months

Key Dates:

Activity	Start Date	End Date
Database Contractor Acquisition	Dec 9, 1998	July 12, 1999
Reporting Database Development	Aug 9, 1999	Feb 9, 2000

Assumptions:

Key Relationships: This project is dependent on the following projects and/or major activities:

1. Completion of the EASI/ED data conversion strategy

Major Activities:

Activity 1:

Name: Acquire Database Implementation Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work for a consolidated reporting database implementation contractor.
2. Develop task order and award contract through limited competition.

Responsible Organization(s): ED

Supporting Organization(s): Integrator (once retained)

Activity 2:

Name: Develop Reporting Database

Description:

1. Define the reporting requirements for developing the consolidated database.

2. Develop the LDM for the consolidated reporting database.
3. Develop the PDM by transforming the LDM into corresponding database constructs required by the supporting DBMS including establishing optimal physical partitioning schemas, determining storage space configurations, and constructing the physical database schema.
4. Design the technical environment required to support the consolidated reporting database and applications. This includes an analysis of the technical infrastructure requirements, strategies and standards. Design the required technical infrastructure.
5. Create the consolidated reporting database.
6. Design, construct and test data conversion programs. These programs obtain data from NSLDS, LSS and CPS and populate the consolidated reporting database.
7. Design, construct and test the reporting programs for the consolidated reporting database.
8. Execute the data conversion to obtain data from NSLDS, LSS and CPS and populate the consolidated reporting database.
9. Plan and execute a system test to ensure that the database and report programs fully implement the reporting requirements.

Responsible Organization(s):	Reporting Database Implementation Contractor
Supporting Organization(s):	ED Integrator

Decision Factors:

One of the benefits that EASI/ED will provide to ED and the community is access to consolidated information that is currently spread across a number of Title IV systems. This interim improvement project would create a consolidated database populated with information from NSLDS, LSS, and CPS. These three systems together maintain the majority of the information envisioned for the Project EASI/ED “student account.”

A major reason for creating the database as an interim improvement project, beyond any benefits that the database might provide, is that it would investigate a number of the technical issues surrounding the creation of an enterprise database. These issues include the mapping of current system database data elements to EASI/ED data elements, the creation of conversion rules, and the periodic refreshment of data from multiple databases, each of which is being updated continually. This project could also act as a pilot of the Project EASI/ED data conversion strategy, providing insight into the results of populating a consolidated database with selected data from independent current systems.

**PROTOTYPE EASI/ED WEB-BASED USER INTERFACE
AND PROVIDE WEB ACCESS TO
CONSOLIDATED DATA FROM NSLDS, LSS, AND CPS**

Project Number: PPI-002

Project Purpose: The purpose of this project is to acquire contractor support; to develop and implement a prototype Web-based user interface for EASI/ED; and to use this Web-based application to provide user access to consolidated data from NSLDS, LSS, and CPS.

Project Duration: Acquisition 4 months
Implementation 7 months

Key Dates:

Activity	Start Date	End Date
Web Development Contractor Acquisition	Dec 31, 1998	Aug 4, 1999
Web Access Development	Sept 1, 1999	Feb 1, 2000

Assumptions:

1. Web development contractor support for this short-term project would be obtained independently of the acquisition for an EASI/ED Web development contractor so that work can proceed as early as possible.

Key Relationships: This project is dependent on the following projects and/or major activities:

1. Definition of EASI/ED user interface standards

Major Activities:

Activity 1:

Name: Acquire Web Development Contractor

Description:

1. Define performance requirements, skill requirements, and scope of work for a consolidated reporting database implementation contractor.
2. Develop task order and award contract through limited competition.

Responsible Organization(s): ED
Supporting Organization(s): Integrator

Activity 2:

Name: Develop Web Access to Consolidated Data from NSLDS, LSS, and CPS

Description:

1. Define detailed functional, technical, performance, and security requirements for implementing Web access to consolidated data from NSLDS, LSS, and CPS.
2. Evaluate and select prototype development technologies, standards, and development tools to implement Web access to the consolidated data. Design the system technical architecture.
3. Procure, install, and configure the hardware, network services, and software (e.g., Web server, application development tools, RDBMS).
4. Perform analysis, detailed design, and construction of data access interface between database and Web.
5. Design, construct and test the Web browser-based user interface.
6. Plan and execute system test of the application.

Responsible Organization(s): Web Development Contractor

Supporting Organization(s): Band 1 Contractor

Integrator

Decision Factors:

Providing students a single point of access to their Title IV financial information is one of the central Project EASI/ED objectives. The Internet is widely regarded as an ideal tool for providing this access. Students who had access to an integrated view of the data held on them in NSLDS, LSS, and CPS would see the majority of the information envisioned for the Project EASI/ED “student account.”

As well as providing early benefits to students, this project could be used to prototype the “look and feel” of the EASI/ED user interface, to find out exactly what sort of information and functionality students are really interested in, and also to research what Internet development technologies and products are most appropriate for Project EASI/ED. The web-enabled application created through this project could retrieve data directly from the appropriate current systems, or could take advantage of any consolidated database that may have been created

**PROVISION OF USER ACCESS TO DATA THROUGH
THE INTERNET AND THROUGH INTERACTIVE
VOICE RESPONSE UNIT**

Project Number: PPI-003

Project Purpose: This project explores the suitability of a “service oriented” architecture for implementing EASI/ED functionality. The project entails tasks to acquire contractor support; to develop, test, and implement Web-based access to existing data; and to develop, test, and implement IVRU access to existing data.

Project Duration: Acquisition 4 months
Implementation 7 months

Key Dates:

Activity	Start Date	End Date
Access Contractor Acquisition	Dec 30, 1998	Aug 4, 1999
Internet and IVRU Access Development	Sept 1, 1999	Mar 31, 2000

Assumptions:

Key Relationships: This project is dependent on the following projects and/or major activities:

1. Definition of EASI/ED user interface standards

Major Activities:

Activity 1:

Name: Acquire Contractor Support for Access Development

Description:

Define performance requirements, skill requirements, and scope of work for a development contractor to implement the Web-based and IVRU access to data. Develop a task order and award the work based upon a limited competition.

Responsible Organization(s): ED
Supporting Organization(s): Integrator

Activity 2:

Name: Provide User Access to Data Via Internet and IVRU

Description:

1. Define detailed functional, technological, performance, and security requirements for implementing user access to data through the Internet and IVRU technologies.
2. Perform feasibility analysis and detailed analysis for the applicability and practicality of a service-oriented architecture for Project EASI/ED. Service-oriented architectures enable common business logic to be developed just once and then called by the Internet or IVRU presentation interface mechanisms.
3. Evaluate and select prototype technologies (Internet, IVRU and Computer Telephony Integration (CTI)), standards, and development tools for implementing user access to Project EASI/ED data through the Internet and IVRU technologies. Design the system technical architecture.
4. Procure, install and configure the required hardware, network services, IVRU and CTI server, telephony server, public branch office (PBX) and software. Software required includes Web server, application development tools, RDBMS, IVR and CTI application server software and telephony server.
5. Perform analysis, detailed design and construct the common application services component containing business logic required to support the service-oriented architecture. Develop interfaces for enabling the Internet and IVRU presentation mechanisms to interact with the application services component.
6. Design, construct and test the Web browser-based user interface.
7. Integrate the telephone and management information system technologies by integrating the PBX, telephony server and IVRU and CTI application server with the system application services.
8. Plan and execute system tests of Web access to data to ensure that it fully implements requirements.
9. Plan and execute system tests of IVRU access to to ensure that it fully implements requirements.

Responsible Organization(s):

Access Development Contractor

Supporting Organization(s):

Integrator

Current Title IV Contractors for Affected Systems

Decision Factors:

Interactive Voice Recognition (IVR) technology has the potential to provide many of the information access benefits of Project EASI/ED to students without access to the Internet. It is expected that much of the information available to students using the Internet will need to be accessible to individuals with just telephone access.

The use of so-called “service-oriented architectures” enables common business logic to be written just once and then called by multiple types of presentation mechanisms. This means that an individual initiating a query of their data using the Internet, an IVR unit, or some other means would execute the same business logic. This project would investigate the applicability of a service-oriented architecture to Project EASI/ED by enabling students to access the same data via the Internet or telephone. The project would also assess the practicality of providing access to the wide variety of automated services envisioned for Project EASI/ED through the telephone.

DATA MART FOR PROGRAM MANAGEMENT INFORMATION

Project Number: PPI-004

Project Purpose: The purpose of this project is to acquire contractor support and to develop, test, and implement a data mart for program management information using data pulled from NSLDS and PEPS.

Project Duration: Acquisition 4 months
Implementation 10 months

Key Dates:

Activity	Start Date	End Date
Data Mart Contractor Acquisition	Dec 9, 1998	July 12, 1999
Data Mart Development	Aug 8, 1999	June 2, 2000

Assumptions:

Key Relationships: This project is dependent on the following projects and/or major activities:

1. Completion of the EASI/ED data conversion strategy

Major Activities:

Activity 1:

Name: Acquire Data Mart Development Contractor

Description:

Define performance requirements, skill requirements, and scope of work for a data mart development contractor. Develop task order and award work based upon limited competition.

Responsible Organization(s): ED

Supporting Organization(s): Integrator

Activity 2:

Name: Develop Data Mart

Description:

1. Define the reporting requirements for developing the data mart for program management information. A data mart is a stand alone mini-data warehouse developed for a particular purpose or focus of analysis.
2. Develop the Logical Data Model (LDM) for the data mart.

3. Design the technical environment required to support the data mart database and applications. This includes an analysis of the technical infrastructure requirements, strategies and standards, and evaluation and selection of technology infrastructure alternatives.
4. Map the data elements in NSLDS and PEPS to the data elements in the proposed program management information data mart.
5. Design, construct and test the set of data extraction and transformation execution programs that perform the procedures, processes and common routines. These execution programs obtain data from NSLDS and PEPS and create segments and summarized data for the program management information data mart.
6. Develop the Physical Data Model (PDM) by transforming the LDM into corresponding database constructs required by the supporting DBMS and implementing physical design issues for the data mart. It includes optimal physical partitioning schemas, determining storage space configurations, and constructing the physical database schema.
7. Create the program management information data mart.
8. Execute the data mart data extraction and transformation routines to obtain data from NSLDS and PEPS and populate the data mart database.
9. Select, install and tailor a COTS package to support the data mart reporting and On-Line Analytical Processing (OLAP) requirements.
10. Plan and execute a system test of the data mart to ensure that it fully implements the reporting requirements for program management information.

Responsible Organization(s):	Data Mart Development Contractor
Supporting Organization(s):	Current PEPS and NSLDS Contractors Integrator

Decision Factors:

This project would create a small-scale data warehouse, or “data mart,” based on the information contained within NSLDS and PEPS. Use of appropriate reporting and On-Line Analytical Processing (OLAP) applications with this data would provide ED with enhanced program management and decision support information. This project would also investigate issues surrounding mapping, transforming, and cleansing data from the current Title IV systems, and would provide insight into the ultimate requirements for the full scale Decision Support subsystem.

