

STATE OF MICHIGAN
DEPARTMENT OF MANAGEMENT AND BUDGET
ACQUISITION SERVICES
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

May 6, 2008

CHANGE NOTICE NO. 1
TO
CONTRACT NO. 071B5200396
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR Electronic Date Systems 13600 EDS Drive Herndon, VA 20171	TELEPHONE (517) 272-5939 Gary LaRoy
	VENDOR NUMBER/MAIL CODE (000)
	BUYER/CA (517) 241-0239 Jacque Kuch
Contract Compliance Inspector: Rose Jarois BAM Project – Phase 3 – DIT/DOS	
CONTRACT PERIOD: From: September 13, 2005 To: September 30, 2010	
TERMS N/A	SHIPMENT N/A
F.O.B. N/A	SHIPPED FROM N/A
MINIMUM DELIVERY REQUIREMENTS	
N/A	

NATURE OF CHANGE(S):

Due to a change in vendor name and FEIN number, this contract is hereby **CANCELLED** and replaced by 071B8200173.

AUTHORITY/REASON(S):

Per agency and vendor agreement.

Total Revised Estimated Contract Value: **\$0.00**

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October 7, 2005

NOTICE
OF
CONTRACT NO. 071B5200396
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NAME & ADDRESS OF VENDOR		TELEPHONE (517) 272-5939
Electronic Date Systems		Gary LaRoy
13600 EDS Drive		VENDOR NUMBER/MAIL CODE
Herndon, VA 20171		(000)
		BUYER/CA (517) 383-1080
		Melissa Castro, CPPB
Contract Compliance Inspector: Rose Jarois		
BAM Project – Phase 3 – DIT/DOS		
CONTRACT PERIOD: From: September 13, 2005 To: September 30, 2010		
TERMS	N/A	SHIPMENT
		N/A
F.O.B.	N/A	SHIPPED FROM
		N/A
MINIMUM DELIVERY REQUIREMENTS		
N/A		

Estimated Contract Value: \$49,395,584.65

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MISCELLANEOUS INFORMATION: Estimated Contract Value: \$49,395,584.65		

FOR THE VENDOR:

Electronic Data Systems
Firm Name

Authorized Agent Signature

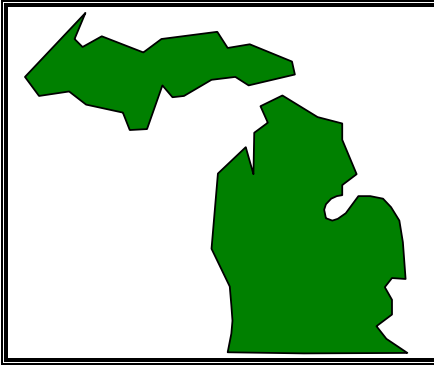
Authorized Agent (Print or Type)

Date

FOR THE STATE:

Signature
Sean L. Carlson
Name
Director, Acquisition Services
Title

Date



**STATE OF MICHIGAN
Department of Management and Budget
Acquisition Services**

**Contract #071B5200396
BAM – Phase 3 – Department of Information Technology – Department of State**

BAM Project – Phase 3
Department of Information Technology
Department of State

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Article 1 – Statement of Work (SOW)

1.0 Project Identification

1.001 PROJECT REQUEST

The Michigan Department of State (DOS) in coordination with the Michigan Department of Information Technology (DIT) is contracting for an application development and implementation contractor for the Business Application Modernization (BAM) project, Phase 3, to validate, design, build and implement an enterprise application for the Department of State's business processes. BAM Phase 3 includes four sub phases named 3A, 3B, 3C and 3D.

1.002 BACKGROUND

The DOS mission is..."to continually improve customer service using innovation and technology. The Department will serve the citizens of Michigan with programs designed to enhance driver safety, protect automotive consumers, and ensure integrity of the motor vehicle administration system and the statewide election process."

In order for DOS to better prepare for meeting current and future business demands, a re-engineering of business processes and the accompanying business application support systems were in order.

To begin the business-driven IT evolution, DOS defined and prioritized business objectives in order to frame and ensure business applications are in alignment with business goals. To initiate the process of capturing the business vision and objectives, DOS completed several visioning sessions with the executive leadership team and a skilled facilitator. This session completed Phase I of the BAM project – creating the vision and project objectives.

Through the facilitated sessions, the vision and strategic focus areas for the agency and this project were developed. The primary vision for DOS is articulated and captured with the following statement – "**optimize service delivery**". Within the overarching theme of optimizing service delivery, four main focus areas were defined. They include:

- Fiscal resource optimization
- Customer satisfaction enhancement
- Employee satisfaction and fulfillment
- Election administration optimization

Each of the focus areas was detailed out by the leadership team and is included in attachment titled, *BAM Vision and Focus Areas*. This is the final product from the visioning sessions that detail the focus areas and includes a description of focus areas.

After the leadership visioning exercise was completed, background and details from the sessions were provided to all bureaus within DOS. Each business area submitted objectives that aligned to the overall arching theme and focus areas. Business objectives were collected and synthesized with similar objectives combined. The leadership team, using a weighted scoring method, then ranked objectives. To further define objectives for purposes of the Phase 2 bid, the remaining nineteen objectives were categorized as mandatory, desirable or optional. Included in the attachment titled, *Business Objectives*, is the final objectives ranked by the three categories above (mandatory, desirable or optional).

Once the vision and project objectives were completed, Phase 2 was initiated. In July 2004, the DOS and the Department of Information Technology (DIT) entered into a contract with EDS to perform Phase 2 of the BAM project, which consisted of the following requirements:

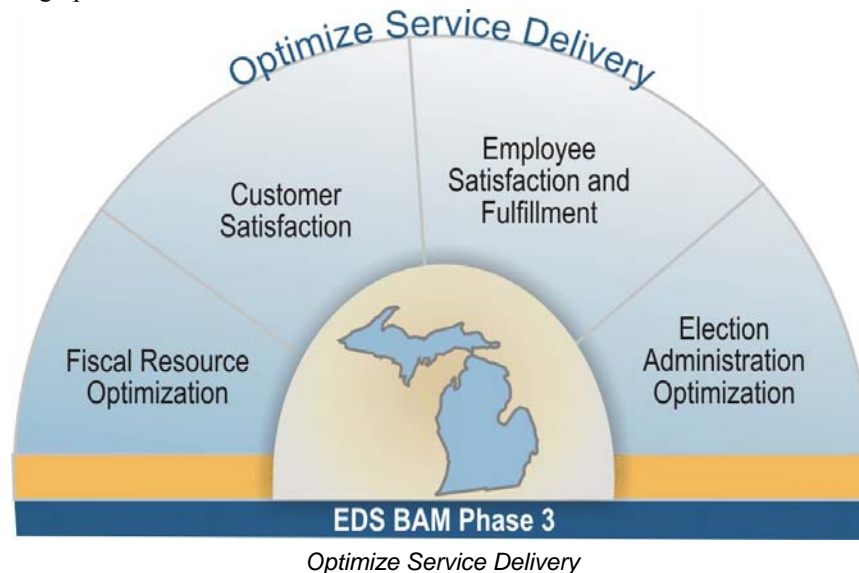
- Develop future business processes (business process reengineering (BPR))
- Develop business requirements and technical environment, including a technical build plan
- Assess human resource change management requirements
- Develop change management processes and requirements



Phase 2 of BAM was completed in April 2005 with above requirements incorporated into this Phase 3 – Build and Implement BAM Request for Proposal (RFP). DOS and DIT are now ready to move forward with the recommended technical solution and business requirements completed during Phase 2 and to begin the process of building BAM.

Contractor Response:

EDS fully comprehends that the State of Michigan's vision for the BAM System is to "*optimize service delivery*" to the customer. This is an opportunity for the Michigan Department of State to modernize and re-architect its business and the supporting technology. Within that vision, there are four main objectives that define the BAM direction as shown below and described in the paragraphs below:



Fiscal Resource Optimization

"Optimization" means maximizing the agency's fiscal solvency to enable the delivery of other critical functions in tough budgetary circumstances. Optimizing is characterized by maximizing monetary return on investment, high benefit/cost ratios, and dollar savings. Three areas of fiscal resources will be addressed in the BAM Phase 3 solution: Processes, Information Systems, and People.

EDS completed Phase 2 of BAM in April of 2005, with the fulfillment of the following requirements:

- Develop future business processes (BPR)
- Develop business requirements and technical environment
- Develop change management processes
- Assess human resource change management

EDS' solution for BAM Phase 3 is built upon the knowledge we gained by the fulfillment of the Phase 2 requirements. Our Phase 3 solution addresses the reengineered business processes as delivered in Phase 2, and it addresses additional processes for Phases B, C, and D. The technical environment and build plan delivered by EDS is the foundation for an improved information system that is flexible, scalable, reliable, and secure. Moreover, the completed work in human resource change management will provide the right tools and training to the individuals responsible for ongoing operations.

Customer Satisfaction

Enhancing customer satisfaction is a primary concern for the implementation of Phase 3. Customer satisfaction is based upon system responsiveness and accessibility. EDS' solution provides a quality system that ensures accurate information via intuitive applications that are designed for reengineered business processes; also, these applications are modular so that future business processes are easily included. Our proposed technical architecture meets the requirements laid out in the Technical Architecture Specifications and Technical Requirements documents. Ease of use, system response time, and connectivity issues are integral to our solution.

Employee Satisfaction and Fulfillment

A system that provides the proper access to the data and intuitive and easy-to-use tools on which employees have been thoroughly trained is key to employee job satisfaction. EDS understands the security requirements of Phase 3 and provides user level access to the data that employees need. Our training plan will provide employees the necessary knowledge required to understand and utilize the functions provided to meet the Phase 2 re-engineered business processes.



Election Administration Optimization

EDS gives high priority to maintaining the best balance of cost and quality in carrying out the Secretary's role in administering the State's elections process. We understand the data connections of the Qualified Voter File and driver information, and we will work with the State to store this critical data in a secure environment.

BAM Business Objectives

EDS understands that the following nine mandatory business objectives for the BAM project were developed around the Michigan Department of State (DOS) objectives, and we have built a solution around these business objectives:

- Single Customer Focus
- Real-time Data
- Access and Data Sharing
- Rapid Response
- Electronic Records
- Expanded Self-Service
- User Interface
- Call Center Coordination
- Reliable Computers

Each of these business objectives is examined below.

Single Customer Focus

The ability to have accurate data for a customer is essential to the success of BAM. The EDS' solution for Phase 3 is created around the single customer record. The EDS solution will allow secure access to all client information on-line, using the same business logic, computer logic and rules.

Real-time Data

The EDS technical solution will allow real-time update, processing, confirmation, and correction of driver and vehicle records and of transactions with uniform business rules, 24x7. The technical architecture will allow accurate updates to data for all users of the BAM data.

Access and Data Sharing

The EDS solution uses a message-oriented architecture that provides secure electronic access and sharing of information with external customers and business partners. It allows for ease of access for both sending and receiving information.

Rapid Response

The design proposed by EDS (separating the business logic, data access, and control flow) will allow the BAM System to respond rapidly to changes such as legislation (e.g., fee changes, new plates), with minimal effort for Michigan Department of Information Technology (DIT) and Department of State (DOS).

Electronic Records

The EDS solution, with the use of Microsoft SQL Server, will allow retention of electronic records of required transactions, updates, and access points. It will provide secure access to source documents.

Expanded Self-Service

The Web-based interface proposed by EDS will allow internal and external customers to access information and will optimize and expand self-service opportunities securely and easily. Customers can conduct their business 24x7.

User Interface

Help field edits and help screens provided in the EDS solution will assist both internal and external customers in completing their tasks. EDS will design a system that is standard throughout and intuitive for all users.

Call Center Coordination

The message-oriented architecture (MOA) proposed by EDS will use pre-built business application objects that are related to the tools selected for call center consolidation. Using the MOA will align and link BAM to the DOS' effort to consolidate customer contact (phone) centers.

Reliable Computers

The high-availability architecture proposed by EDS and the system design will enable high availability and rapid recovery from planned or unplanned service outages.

EDS understands and accepts the scope of the BAM Phase 2 requirements as stated above. The deliverables created by EDS during the BAM Phase 2 project were developed in collaboration with Subject Matter Experts (SMEs) from DOS and DIT. EDS employed facilitated sessions to model the current business processes (As-Is) and to develop the future business processes (To-Be). The facilitated sessions also included the gathering of functional requirements, non-functional requirements, and business rules for each of the future business processes. The information gathered at the facilitated sessions also provided input to the creation of Scenario Diagrams. The Scenario Diagrams provide a graphical representation of the future business processes.



Each Scenario Diagram was documented in detail to describe the primary success, and possible exceptions to, of the business process.

EDS also created Technical Architecture Specifications, which detail the architecture that will be used for BAM Phase 3. The EDS staff worked with DIT and DOS to recommend a technical architecture that provides high availability, considers “Best in Class” technology trends, and follows the State of Michigan’s current and strategic technology direction. In partnership with DOS, the EDS team created a BAM Implementation Strategy that consists of four phases; Phase 3A, Phase 3B, Phase 3C, and Phase 3D. With a phased approach, the selected business process can be transitioned to the BAM System in a logical, measured, and manageable sequence. In addition, any problems identified during a phased implementation of one series of business processes can be corrected prior to the transition to the next series of business processes in a subsequent phase.

A final activity completed by EDS during the BAM Phase 2 project was the assessment of the current environment and the development of change management processes and requirements. The purposes of the current environment assessment were to develop an understanding of the current environments of DOS and DIT work areas and to identify factors that can be leveraged to facilitate change as well as factors that may be obstacles to successful change. Based on the assessment results, EDS developed a Change Management Plan that outlines, per phase, the activities used in target DOS and DIT work areas to improve the success of the BAM implementation.

EDS is prepared to continue working in partnership with DOS and DIT on BAM Phase 3, using the same techniques employed during Phase 2. The deliverables produced during the BAM Phase 2 project are the foundation for BAM Phase 3. EDS will use the knowledge and experience gained during the BAM Phase 2 project to kickoff BAM Phase 3 smoothly and to keep Phase 3 dedicated to the direction set in Phase 2.

1.1 Scope of Work and Deliverables

1.101 IN SCOPE

Generally speaking, all business transactions conducted by the DOS branch offices are within scope of BAM, as well as activities related to the driving record (i.e., hearings, convictions, suspensions, etc.). Included in all the transactions and activities, is the complete end-to-end processing. End to end processing includes the systems and business processes occurring at the branch offices and with in-house production staff, such as product delivery, record keeping, investigative, financial, and auditing functions related to the business transaction. Also included is the record keeping functions that occur with external government agencies (i.e., Michigan State Police, Courts, etc.) and private industry (i.e., insurance companies, dealers, etc.).

EDS understands that all business transactions conducted by the DOS branch offices are within the scope of BAM, as are activities related to the driving record (i.e., hearings, convictions, suspensions). Included in all the transactions and activities is the complete end-to-end processing of the business occurring at the branch offices and by in-house production staff. These business processes include product delivery, record keeping, investigative, financial, and auditing functions related to the business transaction. Also included are the record keeping functions that occur with external government agencies (i.e., Michigan State Police, Courts) and private industry (i.e., insurance companies, automobile dealers). EDS will adhere to all the requirements and attachments defined during BAM Phase 2 and control the scope of BAM Phase 3 through our Project Control Office team. EDS understands that the State will own the software and source code for the BAM solution.

EDS understands that because BAM Phase 3A requirements are much more seasoned, the design and construction can begin on the majority of these requirements. Because not all requirements were defined in Phase 2, e.g. reports, EDS believes that an iteration refining and analyzing these Phase 3A requirements will further confirm the requirements for development. EDS understands that for the later phases of BAM (Phases 3B, 3C, and 3D), EDS will require that the high level requirements defined in the Invitation to Bid (ITB) be further refined so that the true scope of these phases is defined. Once the scope of BAM Phase 3B is defined, the project plan will be confirmed, and development will be initiated. The same will occur for BAM Phase 3C and BAM Phase 3D.

1.102 OUT OF SCOPE

The specific business processes that are out of scope for BAM include:

- Uniform Commercial Code (UCC) application
- Qualified Voter File application as it relates to county clerks (Note: The new class model will change the information stored within the QVF application but the services/application provided by QVF will not be part of BAM.)



- International Registration Plan (IRP) application (Note: BAM will interface with Coversnet for registration data, fees, etc., but the actual application itself remains with Coversnet.)
- Assigned Claims application

Technical items out of scope include:

- Existing branch equipment (workstations, cameras, etc.) upgrades (if required)
- Network infrastructure changes (if required)

EDS understands and accepts the specific business processes that are out of scope for BAM include:

- Uniform Commercial Code (UCC) application
- Qualified Voter File (QVF) application as it relates to county clerks (Note: The new class model will change the information stored within the QVF application but the services/application provided by QVF will not be part of BAM.)
- International Registration Plan (IRP) application (Note: BAM will interface with Coversnet for registration data, fees, etc., but the actual application itself remains with Coversnet.)
- Assigned Claims application

EDS understands the Technical items out of scope include:

- Existing branch equipment (workstations, cameras, etc.) upgrades (if required)
- Network infrastructure changes (if required)

EDS understands the Change Management items out of scope include:

- Organizational Change Management - Based on the Organizational Change Management plan, it is clear that the State is responsible for Organizational Change Management and all activities specific to these activities. EDS is responsible for Business Training, Technical Training, and Technical Documentation

1.103 TECHNICAL ENVIRONMENT

The current environment evolved over time, in the beginning the master files for Driver and Vehicle were maintained on magnetic tape with weekly updates. In 1992 DOS started to utilize the UNISYS proprietary hierarchical database engine called DMSII and converted the Driver master file.

In 1995, DOS migrated from their Unisys A-17 mainframe to the Unisys A-18 at the Michigan Information Processing Center (MIPC) a Consolidated Data Center for the State of Michigan. At this same time all mainframe printing was consolidated to the Consolidated Print Center (CPC) under the direction of the Department of Management and Budget (DMB). The WAN infrastructure is provided/supported by DIT Infrastructure Services, Telecom and Network Management Division and the LAN infrastructure is provided/supported by DIT Infrastructure Services, Technical Services Division.

The mainframe applications consist of 1200 programs or libraries written in COBOL74, XGEN or ALGOL and 1566 batch jobs written in Unisys WFL. In addition, the Branch Office System (BOS) including Dealer Direct is written in Visual Basic 6.0. For background information see attachment titled, *IT Systems Overview*.

While the branch offices have historically been the core service delivery medium, DOS has deployed new self-service channels to improve customer service and create a portfolio of service delivery options for the Michigan consumer. For example, DOS recently deployed Self Service Stations in the Plus offices and SUPER centers.

The Renewal by Mail and Touch-tone (renewal by phone) were developed as stand-alone systems, there is little integration or consistent service offerings among them. These additional channels only offer limited transactional capability. Each channel provides a file of transactions, at the end of the day, for batch processing along with the branch office transactions. Since each of these is a stand-alone system, expanded service offerings require a significant amount of effort to update. The Web renewal system was recently rewritten to be integrated with the legacy system. The Touch-tone and Web renewal systems were enabled by the implementation of Electronic Insurance Verification (EIV).



The different Bureau's within DOS, including IT, have developed/procured applications to support their business needs without necessarily having an enterprise view. Included in these solutions, but not limited to, are Driver and Vehicle Information Center (Siebel), Document Management and Imaging (FileNet), Computer On-Line Data (Synergy), International Registration Plan, Uniform Commercial Code, Qualified Voter File, Saleable Inventory (Oracle Manufacturing), mechanic and dealer licensing (License 2000), Case Management Control, and Accounts Receivable. Numerous MS Access database applications have been developed as well.

Data and information are scattered across organizations and applications, and there is no central source of information or processes to support enterprise-wide decision-making. Solutions are inconsistently applied across DOS. Business needs that cross-organizational boundaries are resolved in isolation with limited knowledge transfer between the user groups. For example: various parts of the organization are studying or implementing document imaging and case management applications.

The existing data structure has evolved from iterative changes in business practices. The current technology and applications architecture provides limited flexibility and is unable to quickly respond to increasing demands of changing technology and other environmental and legislative pressures. Long-standing business requirements go unmet until major application upgrades are completed.

From a technical perspective, the data layer is not independent from the application layers making component-based architecture difficult to achieve. It is nearly impossible to migrate data and business rules to new platforms or channels due to the current method of retaining data within applications. The Contractor will need to build upon the enterprise-wide data model developed in Phase 2 so as to improve the accessibility of data with centrally controlled access that can be readily monitored, and also determine on-line transaction capabilities within BAM.

The current DOS technology and applications architecture consists of disparate, incompatible technologies. Processes built around this infrastructure conform to the limitations of the technology, rather than to business needs. Integration of these applications, data and technology increases the time and effort required to implement business changes.

Contractor Response:

DOS has a valuable asset in the data that it obtains, stores, maintains, and retrieves. The data is currently focused on operational data and performing transactions. DOS and DIT do not have an operational data model that is enterprise and strategic. Data is stored in multiple platforms with varying definitions and business rules, there is no validity of data across channels, platforms, or even within platforms (i.e., driver and vehicle databases), and security is not centrally administered or uniformly applied across platforms on data. Data ownership and accountability is inconsistent to non-existent in most cases. Customer information cannot be viewed across the various applications. Applications apply different business rules and logic depending on the application not enterprise rules.

EDS understands and accepts the Technical Environment as laid out in the Technical Architecture Specifications and Technical Requirements documents. The BAM architecture is based on the Microsoft .NET architecture, using the Microsoft SQL Server and Microsoft operating systems. BAM contains many interfaces that use different methods to communicate such as: Websphere MQ, Unified Network Interface (UNI), FTP, and COM Communication Wrappers (CCW). There are four environments to maintain for the BAM environment: Development, Quality Assurance Testing, User Acceptance Testing, and Production. The Production environment is a high availability environment with load balanced servers and clustered servers. The User Acceptance environment will also serve as the Disaster Recovery environment.

Confirmation of Technical Environment – Hardware

EDS will perform an Object Component Engineering (OCE) task to “Evolve Technical Environment and Infrastructure.” In this task, EDS will create a proof of concept (POC) environment. The POC will validate hardware, operating systems, fit to Data Center Operations (DCO) standards, and application framework. That is, performance, scalability, availability, and fit into the DCO environment will all be validated with this task.



EDS recommends that the hardware selected for BAM comply with State of Michigan standards. Choosing non-standard hardware for BAM creates variability in the Data Center Operation (DCO) environment; variability creates waste. For example, server parts inventory for repairs and spares can be shared. As a result, inventory levels can be kept lower than in a non-standard hardware configuration. Service technicians become familiar with the hardware, and experience is the best predictor of success in repair. As a result, EDS recommends establishing a BAM hardware environment that meets the State of Michigan standards and is a common environment for DCO. We note that the Dell PowerEdge 7250 Servers meet this standard.

1.104 WORK AND DELIVERABLE

High Level Approach of BAM Phase 2:

The Michigan Department of State (DOS) enjoys a long record of focusing on delivering the highest levels of customer service; DOS has developed and employed a variety of mechanisms for operating within budget, facilities, and system constraints. Over the last forty years, significant changes have been made to accommodate evolving DOS processes, procedures and computer systems. These changes have resulted in a "patchwork" of solutions that have frequently proven to be both inefficient and difficult to maintain. Further, layer upon layer of modification has resulted in a system that has become increasingly inflexible to the efforts of systems personnel to integrate the steady flow of new functional requirements.

The Business Application Modernization (BAM) project is a unique opportunity for DOS to modernize and re-architect its business and technical processes to adapt to current and future requirements. The primary DOS focus is to optimize service delivery to customers. As such, the four main objectives designed to accomplish the primary focus are as follows:

- Fiscal Resource Optimization
- Enhanced Customer Satisfaction
- Enhanced Employee Satisfaction and Fulfillment
- Election Optimization

Consistent with the primary DOS focus, the following nine mandatory objectives for the BAM project were developed:

- Single Customer Focus
- Real-time Data
- Access and Data Sharing
- Rapid Response
- Electronic Records
- Expanded Self-Service
- User Interface
- Call Center Coordination
- Reliable Computers

BAM Phase 2 commenced in July 2004 and completed at the end of April 2005. The Phase 2 BAM team consisted of members from DOS, DIT, and EDS. The BAM project has focused efforts in three main areas: People, Process, and Technology. Throughout Phase 2, the BAM team was careful to ensure the appropriate integration of each of the three components in its proposed solution and implementation planning efforts for Phase 3.

People: To plan for the changes that will result from business process improvements and implementation of the BAM Technical Architecture, training needs and organizational change readiness activities were identified. Phase 3 activities and deliverables within this contract will focus on the technical training required by DIT, and process and application training for DOS. DOS and DIT will perform other change readiness activities utilizing their own resources.

Process: Numerous facilitated Business Process Reengineering (BPR) sessions attended by the BAM team and other DOS/DIT Subject Matter Experts (SME) were conducted. The purpose of each facilitated BPR session was to identify and document business and technology improvement opportunities. Additionally, numerous Detailed Functional Requirements gathering sessions have been conducted. Afterwards, review sessions were conducted to validate the Detailed Functional Requirements and the numerous Scenario Diagrams, associated Elaborations, Sequence Diagrams, Traceability Matrices, and Class Model developed by the EDS Team and State BAM participants.



Technology: A task in Phase 2 was to identify the best overall technology infrastructure taking into consideration the “Best in Class”, the State of Michigan current technology and the nine-mandatory BAM objectives. A justification was provided why each particular technology and product was chosen.

Requirements Documentation

The *Requirements* documentation has several deliverables included that detail the business requirements for a contractor to build Phases 3A through 3D. (Note: Products from Phase 2 are not included in the Phase 3 contract. They are referenced only as they become the cornerstone for building BAM.) Seven types of highly integrated tools were developed to provide a complete view of the steps necessary to both design and implement the BAM future state. The products included in the *Requirements* documentation include:

1. **Process Diagrams:** Process diagrams show how each DOS business process will be performed following BAM implementation (known as the *To-Be* state).
2. **Detailed Functional Requirements:** Detailed Functional Requirements are a collection of statements defining what functions DOS needs the BAM system to perform.
3. **Scenario Diagrams:** Scenario diagrams translate and integrate Process Diagrams and Detailed Functional Requirements into designs that can be used to develop the BAM system.
4. **Associated Elaborations:** Elaborations are written, step-by-step descriptions of the *To-Be* business process.
5. **Sequence Diagrams:** Sequence Diagrams are two-dimensional diagrams that depict the sequence of actions that occur within a specific Scenario.
6. **Traceability Matrices:** Traceability Matrices trace Detailed Functional Requirements to the various Scenarios they impact.
7. **Class Model:** The Class Model describes the people, places and things in the BAM System and the relationships that exist among them. The Model includes many classes. A class is defined by its name, its attributes, and its procedures/methods.

Phase 3A requirements are in greater detail than the remaining phases. There will be a “refine and analyze” requirements task for each of the four phases of BAM. Phase 3A will require additional refinement as well, but the amount of time should be less than later phases.

Contractor Response:

Confirmation of Requirements Documentation / Repository

EDS has a complete understanding of and accepts the Requirements Documentation as defined with the Phase 2 deliverables. EDS recognizes that the Phase 2 deliverables were developed using the Unified Modeling Language (UML). EDS’ approach to developing and implementing Phase 3 will continue to have Michigan DOS and DIT engaged throughout the development process, as we did in Phase 2 of BAM. Working with DOS/DIT, EDS will evolve the BAM Model-Driven Architecture (MDA). At the core of this model are UML and Capability Maturity Model Integration (CMMi) Level 5 processes. Utilizing UML methodology with proven EDS CMMi Level 5 Object Component Engineering (OCE) processes, the BAM team will focus on the creation and realization of the business domains assigned to each BAM phase. Specifically, the UML output will evolve into the technical environment required to support the Michigan DOS’ requirements.

Review of Phase 2 Deliverables

EDS has reviewed the deliverables provided with Phase 2 and understands the scenarios to be included in each phase of the BAM project. The table categorizes each scenario with the phase in which it is included. EDS understands that, even after a Phase is delivered, some of the scenarios will evolve when the subsequent Phase is developed. This evolution will be efficiently supported with the EDS BAM Application Architecture.

With scenarios, class models and sequences developed, reviewed and approved, the BAM team will work within the BAM technology framework to create these models. Web screens, Touch-tone Phone Channels, Interfaces, XML, MQ messages, Unisys transactions, and .NET common language runtimes will be created to enable the DOS enterprise business process that serve the BAM project goals.

***Logical Data View documents:***

The Logical Data View documents provide an enterprise view of the data supporting the business processes for the proposed BAM System. Included is the Logical Class Model, the Entity Relationship Diagrams for each of the phases, high level Data Dictionary, Data Mapping Model, and a Data Dictionary cross reference document. The Enterprise Logical Data View was developed to support a single customer focus allowing all customer information to be easily and readily retrieved by authorized and authenticated persons. In order to understand the BAM logical data view, the data dictionary and the class model need to be read together.

The Logical Class Model describes the objects in a system and the relationships that exist among these objects. The class model includes the class name, attributes of each class and the methods involved in the class. The Logical Class Model uses object-oriented concepts:

The Logical Class Model is a logical depiction, not physical. The physical design will be developed in each Phase.

Technical Architecture Specification:

As defined in the Technical Architecture Specification the .Net solution was selected as the technical solution for the BAM system. The proposed BAM system architecture provides a solution that is flexible enough to meet today's requirements, while preparing for the future DOS application needs. This solution will be built in four distinct phases to address the most pressing needs of the overall project while simultaneously creating a practical path for future phases. The cornerstone of this solution is Microsoft .Net architecture providing for integrated development, management, and security services. Based on the .Net architecture, the BAM solution optimizes the distribution of hardware, software, data and control, making appropriate information available to the affected users and application across all phases of the project. Recognizing that constantly current (real-time) customer data is the common thread among all project phases BAM addresses this need first. Later solution phases distribute the application needs (Vehicle, Finance, Fraud & Investigation, and Driver Activity) in a logical sequence each building upon each other around the central hub of common customer data.

.Net Architecture

To date, many of the DOS applications have been built with batch interfaces that consume and update data over time schedules. In contrast, the BAM system will be built to handle event-based interfaces, providing for updates to be applied in real-time; a critical component enabling business process efficiency.

To provide this level of service the production infrastructure is designed to be a High Availability environment. Redundancy has been designed into the system to handle failure situations and make system maintenance possible without experiencing downtime. Existing services provided by the State of Michigan will be used where possible. This environment is depicted in the *Technical Architecture Specification* in the attachments. Servers that exist today will be leveraged by the BAM application.

BAM provides the framework to allow the functional areas of Customer, Driver, Vehicle, Finance, Business Licenses, and List Sales to be integrated as a series of well partitioned applications. Each application is assigned distinct responsibilities rather than a series of direct and intermixed applications that are difficult to maintain. Further, the BAM system services are integrated to provide separation of enabling technologies from application logic. This separation provides for:

- High Availability through Secure SQL server database services in computers, 99.999 (often called "five 9s") refers to a desired percentage of availability of a given computer system. This high availability creates a real-time, authoritative, electronic record of DOS Customer data.
- Networked and distributed access from geographically distributed locations – Creating convenient, intuitive user interfaces to BAM services. In addition, creating secure access through multiple channels (i.e., Web, Self-Service Stations, Phone, Mail)
- Access to the Public through the Internet – Externalized access through public-facing channels delivering customer convenience and expanding self-service.



- Linear Expandability – Connecting future growth through incremental and convenient expansion of technology to meet business needs while simultaneously creating a reliable BAM system environment.
- Data Integrity and Privacy – Enabling a Single Customer Focus where communications and Customer Services are visible and accurate in real-time.
- Rapid Development for enhancements and future business needs – Designing a development model that encapsulates software services (e.g., providing the ability to enhance services as new business needs arise).

Component Architecture

The BAM System Architecture provides components that conform to the State of Michigan standards or leverages existing capabilities.

All BAM System data will be stored in the Microsoft SQL Server Database Management System. The Microsoft SQL Server engine will run on two servers while the data will be stored on the State of Michigan Storage Area Network. These two servers will have active SQL engines each processing BAM transactions, while providing a failover capability should one server fail. The SQL Servers will be clustered for failover situations. Backup of BAM System data will use existing services on the Storage Area Network.

The BAM system will have the need to interface with other applications to retrieve data and deliver data. IBM WebSphere MQ series will be used to route messages to and from other applications. It will provide a common place for the majority of interfaces to get data to and from the BAM system.

The security specified for the BAM system will use the State of Michigan's Active Directory (AD) to maintain User ID's for access control, as well as Microsoft's Active Directory to manage application security through integrated logon with the Database Management System (DBMS). Active Directory will control data and application access by user role (e.g., Branch Manager, Service Agent, Customer). The State's Identity Management solution will be utilized for public customers; this will require a Lightweight Directory Access Protocol (LDAP) to establish User ID's for access to BAM services over the public internet. These ID's will contain the attributes of an Active Directory public access user role; providing the same high degree of integrated SQL server application security used for all other users of the BAM system.

The BAM system will be hosted on Microsoft Internet Information Service (IIS) servers using the Microsoft .NET Framework. The Microsoft IIS servers will be load balanced within the DMZ (Public Internet) as well as within the State of Michigan intranet. All .NET objects, along with client-facing Web pages, will be stored on the Microsoft IIS servers.

The proposed BAM System Architecture provides a solution that reduces risk across the BAM system phased development. It improves productivity for the aggressive development of these phases and reduces cost through the use of commonly available components and technologies.

Contractor Response included above.

Implementation Strategy

The *Implementation Strategy* explains in detail the proposed phasing of BAM in four distinct releases referenced as Phase 3A, Phase 3B, Phase 3C, and Phase 3D. Within each phase, business functions and interfaces to the existing legacy environment will be required to be designed, built, tested, and implemented. Additionally, a Data Alignment phase will precede Phase 3A as necessary data preparations are commenced. The *Implementation Strategy* details the specific business functions and interfaces that will be required to be built within each BAM phase.

Each BAM implementation phase includes data conversion activities that will convert data from existing DOS databases into new databases to be used by the BAM system. Consequently, with the exception of Phase 3D, transaction "bridges" will be designed and implemented, coupling the BAM system and the various Legacy Systems.

Phase 3 will be decomposed as follows:



- Phase 3A
 - Driver Issuance
 - Manage Customer Information
 - Manage Documents & Communications
 - Information Security Design & Deployment
 - Data Matching / Data Scrubbing / Data Conversion
 - Legacy Interfaces
 - Hardware & Software Design / Development
 - Training
- Phase 3B
 - Vehicle Services
 - Voter Services (not to include a rewrite of the QVF application)
 - Sales Services
 - Manage Documents & Communications
 - Data Matching / Data Scrubbing / Data Conversion
 - Legacy Interfaces
 - Hardware & Software Design / Development
 - Training
- Phase 3C
 - Manage Finance
 - Manage Inventory
 - Customer Contact Center Integration
 - Manage Investigation & Audit
 - Manage Documents & Communications
 - Data Matching / Data Scrubbing / Data Conversion
 - Legacy Interfaces
 - Hardware & Software Design / Development
 - Training
- Phase 3D
 - Manage Driver Activity
 - Business & Professional Licensing
 - Manage Documents & Communications
 - Data Conversion
 - Hardware & Software Design / Development
 - Training

Contractor Response:

Confirmation of Phased Implementation Approach

EDS understands and accepts the four-phased implementation approach as described in the Implementation Strategy document. Each phase includes a portion of the total functionality migrated to the new environment. The size of the system and total number of business processes dictated a multi-phased approach to better manage the degree of change and risk associated with implementing such a large system.

EDS understands that each phase will add increasing functionality to the new BAM environment, especially in terms of improved business processes and computer system capability. Each phase also includes a number of interfaces that will be needed to communicate with legacy applications as well as external systems. Some of these interfaces will be temporary to allow communication to parts of the legacy application that have not yet been implemented in BAM.

Each BAM implementation phase includes data conversion activities that will convert data from existing DOS databases into databases to be used by the BAM System. Consequently, with the exception of Phase 3D, transaction “bridges” will be designed and implemented, coupling the BAM System and the various legacy systems. These bridges are documented as interfaces that will need to be created for each phase. For phase 3A, to reduce the number of interfaces needed, all transactions involving customer information will be duplicated to the legacy DOS database. (Interfaces will not have to be created for legacy applications that use customer data.) Once Phase 3B is implemented, all customer data will be in the BAM database and will be removed from the DOS databases. Any legacy applications or external applications that need customer or vehicle data will need to interface with the BAM System. EDS understands that the BAM System will be implemented in four Phases over a five-year period. Each phase will be a distinct project. The phases will overlap to make sure there is a smooth transition from the implementation of one phase to the gathering of requirements for the next phase.

**Work and Deliverables:**

Contractor shall provide Services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below. The activities listed below are considered requirements of each BAM Phase (3A-3D), only the level of effort (some tasks may not be required for a phase) for each activity may either increase or decrease depending upon the Phase.

Activity 1 – Project Start-Up, Planning, Execution, and Closedown

- Task 1.1 – Perform project and contract management functions
- Task 1.2 – Participation in Organizational Readiness and Integration Activities
- Task 1.3 – Manage project /contract management activities/staff

Activity 2 – Technical Planning and Support

- Task 2.1 – Design and Define Application Infrastructure
- Task 2.2 – Procure Hardware and Software
- Task 2.3 – Install, Configure, Test, and Maintain Technical Environments
- Task 2.4 – Manage Contractor Technical Activities / Staff
- Task 2.5 – Develop Disaster Recovery and Business Continuity plans
- Task 2.6 – Perform technical planning and support knowledge transfer
- Task 2.7 – Perform COBIT review

Activity 3 – Application Development

- Task 3.1 – Application Development Approach Plan
- Task 3.2 – Perform Analysis, Refine and Requirements Definition
- Task 3.3 – Design, Build, Unit Test System Including all Interfaces
- Task 3.4 – Integration Testing
- Task 3.5 – Develop Technical Documentation
- Task 3.6 – Manage Application Development Activities / Staff
- Task 3.7 – Perform Application Development Training / Knowledge Transfer

Activity 4 – Data Conversion

- Task 4.1 – Plan for Data Conversions
- Task 4.2 – Inventory of Legacy Data
- Task 4.3 – Conversion Requirements Document
- Task 4.4 – Detailed Data Mapping Document
- Task 4.5 – Data Cleansing or Scrubbing
- Task 4.6 – Data Extraction, Transformation, Loading
- Task 4.7 – Conversion Testing and Cutover to Production
- Task 4.8 – Manage Data Conversion Activities / Staff
- Task 4.9 – Decommissioning of Legacy Systems

Activity 5 - Testing and Software Implementation

- Task 5.1 – Develop test plans
- Task 5.2 – Perform quality assurance and performance testing
- Task 5.3 – Conduct user acceptance testing
- Task 5.4 – Perform Software Implementation
- Task 5.5 – Manage Testing and Software Implementation Activities/Staff

Activity 6 – Implementation Support

- Task 6.1 – Prepare and perform Technical Training
- Task 6.2 – Develop Online User Aids
- Task 6.3 – Prepare and perform Business Training
- Task 6.4 – Perform Implementation Support
- Task 6.5 – Provide Help Desk Services
- Task 6.6 – Transition Help Desk Services to State
- Task 6.7 – Conduct Statewide User Acceptance Test
- Task 6.8 – Manage Implementation Support Activities / Staff

**Activity 7 – Ongoing Production Support**

Task 7.1 – Maintain and Support Application

Task 7.2 – Manage Ongoing Production Support Activities/Staff

Task 7.3 – Perform Ongoing Production Support Knowledge Transfer

Activity 8 – Miscellaneous

Task 8.1 – Provide System/Service Enhancements

Task 8.2 – Transition Support/Application to State

Each activity is described in more detail later in this section, including the specific requirements (i.e., tasks and deliverables) for the activity. The Contractor is not constrained from organizing their team in any manner they deem appropriate provided the requirements of the RFP are met. Suggested roles for the contractor are included in the Contractor Staff, Roles and Responsibilities (section 1.2) of this RFP.

To the extent known, requirements for the deliverables have been documented in this RFP. However, prior to the creation and submission of each deliverable, the Contractor will work with the State staff to determine and agree upon the final format, content, acceptance criteria, and review process for the deliverable.

The Contractor shall propose a format for each deliverable and gain State approval prior to preparation of the deliverable. The purpose of the approval process is to ensure that a common understanding exists between the State and the Contractor regarding the scope and content (depth and breadth) of the deliverable prior to the Contractor beginning work on the deliverable.

Following is a high-level description of each activity:

Activity 1 – Project Start-Up, Planning, Execution, and Closedown addresses the requirements related to managing all of the teams / sub-teams, as well as the contractor resources necessary to build BAM. Other activities include team building exercises (coordinated by the State), setting up work areas, etc. Typical project management tasks such as Scope Management, Communications Management, Financial Management, and Risk/Issues Management are identified here, as well as all required Contract Management tasks and functions.

Activity 2 – Technical Planning and Support covers the procurement, setup, and maintenance of the application infrastructure necessary for the BAM project. Requirements for tasks such as configuration management, technical environment setup and support, and disaster recovery and business continuity are included in this section. Requirements related to the management of the people and processes necessary to perform technical planning and support tasks are also documented here. Included in the attachment, titled, *Technical Requirements*, is the system requirements specified by the State for the BAM system.

Activity 3 – Application Development addresses the Contractor's responsibilities in terms of developing the business application(s), from Analysis (Requirements Definition) through Construction (Build) and Unit and Integration Test of the system in the test and development environment. Requirements related to the management of the people and processes necessary to perform the associated tasks are also included here.

Activity 4 – Data Conversion addresses the Contractor's responsibilities in terms of an inventory of legacy data, conversion requirements definition, detailed data mapping, data cleansing and scrubbing, data extraction and transformation, data loading, conversion testing, and decommissioning legacy system(s).

Activity 5 – Testing and Software Implementation covers the requirements related to the testing of the application software for each phase after it leaves the development environment. The Contractor will be responsible for performing Quality Assurance Testing of each release prior to the commencement of User Acceptance Testing (UAT), as well as plans for building and promoting software from environment to environment. Requirements for conducting Quality Assurance and User Acceptance Testing are documented in this section, as are requirements related to the management of the people and processes necessary to perform all of the tasks within this activity.



Activity 6 – Implementation Support includes all of the requirements for successfully implementing (deploying) the system in the branch office and all business unit locations. Tasks include management of communications to and from each office, application training, technical training, initial business process training (State will utilize a “train the trainer” concept), and site support during implementation. Requirements related to the management of the people and processes necessary to effectively support each phase (deployment) are also included here.

Activity 7 – Ongoing Production Support addresses the requirements related to supporting the BAM system and the user community after initial release of each phase of the BAM system. Ongoing Production support shall end six months after the implementation of Phase 3D. Tasks include all typical ongoing production support activities such as corrective maintenance (i.e., “bug fixes”) and adaptive maintenance (i.e., modification of the system to keep up with necessary technical upgrades). Requirements related to the management of the people and processes necessary to perform the associated tasks are also identified.

Activity 8 – Miscellaneous covers the handling of enhancement requests as well as integrating State staff with Contractor staff.

Following are the detailed task requirements and deliverables for each activity. Contractors should note that all the timeframes specified in ALL activities are estimates only. The State and the selected Contractor will re-determine timeframes at contract start. The timeframes should be utilized as references and Contractors can modify timeframes within their draft project plan with appropriate justification. Typically, when the State and Contractor begin the process of integrating their combined knowledge, the project timeline will be modified to accommodate both the State and Contractor’s understanding of their respective knowledge base. It is anticipated that the Contractor and State will integrate timelines and establish a single project plan for BAM. Activities 1 through 8 are detailed below.

Contractors should realize that Activities 1 through 8 are activities that will happen with ALL phases of BAM (Phase 3A, 3B, 3C, and 3D), although there may be different emphasis and timeframes associated with each phase.

Contractor Response:

The EDS methodologies included in the EDS BAM process framework will work together seamlessly to accomplish BAM Phase 3 objectives. The EDS approach not only addresses immediate development needs but also builds toward the DOS vision for BAM. The EDS approach ties together the many facets of Project Management, technology planning, development and implementation, and communications to construct a solid base for launching BAM with the support of committed employees, knowledgeable citizens, reengineered technology, reengineered processes, and a visionary partnership.

Application of Methodologies

EDS will apply the methodologies that compose the EDS BAM transformation framework to manage the activities and complete the tasks for BAM Phase 3. While there is significant crossover and integration, Table 4.4-4 below identifies which EDS methodology will guide the majority of the work in each area:



DOS High-Level Activity	DOS Required Task(s)	EDS Methodology
Activity 1 - Project Startup, Planning, Execution, and Closedown	Perform Project and Contract Management Functions Participation in Organizational Readiness and Integration Activities Manage Project and Contract Management Activities and Staff	PM2
Activity 2 - Technical Planning and Support	Design And Define Application Infrastructure Procure Hardware and Software Install, Configure, Test, And Maintain Technical Environments Manage Contractor Technical Activities and Staff Develop Disaster recovery and Business Continuity plans Perform Technical Planning and Support Knowledge Transfer Perform COBIT Review	SLC3
Activity 3 – Application Development	Application Development Approach Plan Perform Analysis, Refine and Requirements Definition Design, Build, Unit Test System Including all Interfaces Integration Testing Develop Technical Documentation Manage Application Development Activities and Staff Perform Application Development Training and Knowledge Transfer	SLC3
Activity 4 – Data Conversion	Plan for Data Conversions Inventory of Legacy Systems Conversion Requirement Document Detailed Data Mapping Document Data Cleansing or Scrubbing Data Extraction, Transformation, Loading Conversion Testing and Cutover to Production Manage Data Conversion Activities/Staff Decommissioning of Legacy Systems	SLC3
Activity 5 – Testing and Software Implementation	Develop Test Plans Perform Quality Assurance and Performance Testing Conduct User Acceptance Testing (UAT) Perform Software Implantation Manage Testing and Software Implementation Activities and Staff	SLC3
Activity 6 – Implementation Support	Prepare and Perform Technical Training Develop Online User Aids Prepare and Perform Business training Perform Implementation Support Provide Client Service Center Services Transition Client Service Center Services to State Conduct Statewide User Acceptance Test Manage Implementation Support Activities and Staff	SLC3
Activity 7 – Ongoing Production Support	Maintain and Support Application Manage Ongoing Production Support Activities and Staff Perform Ongoing Production Support Knowledge Transfer	SLC3
Activity 8 – Miscellaneous	Provide System/Service Enhancements Transition Support/Application to State	SLC3

EDS' BAM 3 Transformation Methodologies

EDS will fulfill the requirements of this ITB and understands the entire set of BAM Phase 2 deliverables. The EDS solution governed by our methodologies will fulfill the requirements of BAM Phase 3. These methodologies have greater value for BAM Phase 3 due to the fact that EDS has incorporated detailed BAM Phase 2 business and technical understanding within the methodologies. Using this knowledge, EDS plans to incorporate a BAM past, present, and future set of checks and balances to ensure that our methodologies stay connected to the goals and objectives clearly stated in the BAM Phase 3 ITB. Specifically:

- **Past** – Is our solution for BAM Phase 3 designed based on the direction set through the work performed in BAM Phases 1 and 2?



- **Present** – Does our implementation of each activity within BAM Phase 3 meet the expectations outlined in the ITB and our proposal in the eyes of the key stakeholders?
- **Future** – Does the design and implementation of the BAM Phase 3 solution assist the knowledge transfer activities which are critical for the long term goals of the State?

The EDS team is ready to meet the challenges of transforming DOS into the State government service delivery leader. The EDS team will provide seasoned leadership, project management specialists, the technical architects, and developers necessary to transform the BAM vision into reality.

NOTE: All Activities and contractor responses are included as separate documents.

1.2 Roles and Responsibilities

1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES

Detailed Contractor roles and responsibilities have been documented in the specific activities and tasks of section **1.104 – Work and Deliverables**. However, the following overview may provide some additional clarification on State vs. Contractor roles and responsibilities:

1. The **Contractor** is accountable to the State of Michigan DOS Program Manager. Their primary responsibility is to plan, design, develop, and implement BAM to meet the requirements of this RFP, implement it statewide, and support it for a period of time thereafter.
2. The **State** maintains overall authority and control over the BAM effort. This is primarily manifested in the BAM Executive Steering Committee, comprised of DOS and DIT representatives, which will meet to review overall plans – and progress against those plans – on a regular basis. The Steering Committee will rely on the BAM Program Manager and the DIT Technical Project Manager for the day-to-day operational oversight necessary to maintain control of the effort.

The following contractor staff roles are identified as “Key Personnel” for this project. Required, as well as desired, qualifications for these persons can be found in specific activities and tasks of section **1.104 – Work and Deliverables**.

Role	Section 1.104 reference	Key By Project/Phase
Contractor Project Manager	Activity 1, Task 1.3	Project
Technical Support Engineer	Activity 2, Task 2.4	Project
Business Requirements Manager	Activity 3, Task 3.6	Phase
Development Manager	Activity 3, Task 3.6	Phase
Data Architect	Activity 3, Task 3.6	Project
Enterprise Integration Architect	Activity 3, Task 3.6	Project
Conversion Coordinator	Activity 4, Task 4.8	Phase
Testing Coordinator	Activity 5, Task 5.5	Phase
Training Coordinator	Activity 6, Task 6.8	Phase
Implementation Coordinator	Activity 6, Task 6.8	Project

Minimum Experience Requirements of Key Personnel:

Contractor Project Manager:

- Ten years experience in managing large application development and implementation projects
- Two years experience in utilizing project management software, preferably Microsoft project.
- Five years experience with phased migration of Legacy Systems
- Preferred candidate (not mandatory) will have driver and/or motor vehicle agency experience

Technical Support Engineer:

- Three years experience in providing technical planning and support services
- Three years experience configuring 64-bit Intel servers and Microsoft enterprise products
- Ability to coordinate and communicate with DIT Infrastructure Services

**Business Requirements Manager:**

- Shall be comfortable working with all levels of business and technical subject matter experts in the elicitation of business and system requirements
- Posses a degree in Computer Science, Business, Engineering or equivalent experience
- Posses excellent knowledge of the Software Development Life Cycle and specifically Software Engineering and Structured Systems Analysis and Design methodologies
- Know and utilize best practices for enterprise architecture development and have experience facilitating JAD-like end-user requirements sessions
- Communicate (written and verbally) clearly and effectively with end-users, senior business managers and other team members
- Prior work in a variety of industries on many different type of systems and have above average proficiency in data modeling

Development Manager:

- Ten years experience in all aspects of application development
- Five years experience managing projects using the development and methodologies proposed by the contractor
- Seven years experience in application development management
- Five years experience in leadership roles overall
- Two years experience in managing .NET projects

Data Architect:

- Ten years experience developing enterprise databases
- Five years experience developing enterprise class models
- Five years experience utilizing MS SQL Server Enterprise edition

Enterprise Integration Architect:

- Five years experience designing, developing and implementing MQ Series enterprise solutions
- Two years experience designing, developing and implementing Message Orientated Middleware in a Microsoft environment

Conversion Coordinator:

- Five years experience in data conversion activities, specifically data from Legacy Systems including mainframes

Testing Coordinator:

- Five years experience in quality assurance testing of enterprise applications
- Two years experience in the tools and testing methodologies proposed by the Contractor
- Two years experience in managing testing teams for enterprise application projects

Training Coordinator:

- Two years experience in coordinating training services

Implementation Coordinator:

- Three years experience in enterprise application implementations
- Three years experience in managing implementation teams for enterprise application projects
- Two years experience in data conversion activities
- One year experience with Client Service Center and site support services

Minimum Experience Requirements of Other Staff:**Senior Developer**

- Five years experience developing applications in the required environments

Junior Developer

- Two years experience developing applications in the required environments



Contractors may utilize staff for multiple functions, if they explain how tasks will be completed. It is important that the Contractor designate the role, how they fill the need is up to the Contractor. The State is looking to the Contractor to provide adequate staffing and roles to meet project objectives.

Work Products shall be considered works made by the Contractor for hire by the State and shall belong exclusively to the State and its designees, unless specifically provided otherwise by mutual agreement of the Contractor and the State. If by operation of law any of the Work Product, including all related intellectual property rights, is not owned in its entirety by the State automatically upon creation thereof, the Contractor agrees to assign, and hereby assigns to the State and its designees the ownership of such Work Product, including all related intellectual property rights. The Contractor agrees to provide, at no additional charge, any assistance and to execute any action reasonably required for the State to perfect its intellectual property rights with respect to the aforementioned Work Product.

The State expects to have ownership of all software and source codes used in development of deliverables as created.

Notwithstanding any provision of this Contract to the contrary, any preexisting work or materials including, but not limited to, any routines, libraries, tools, methodologies, processes or technologies (collectively, the "Development Tools") created, adapted or used by the Contractor in its business generally, including any and all associated intellectual property rights, shall be and remain the sole property of the Contractor, and the State shall have no interest in or claim to such preexisting work, materials or Development Tools, except as necessary to exercise its rights in the Work Product. Such rights belonging to the State shall include, but not be limited to, the right to use, execute, reproduce, display, perform and distribute copies of and prepare derivative works based upon the Work Product, and the right to authorize others to do any of the foregoing, irrespective of the existence therein of preexisting work, materials and Development Tools, except as specifically limited herein.

The Contractor and its subcontractors shall be free to use and employ their general skills, knowledge and expertise, and to use, disclose, and employ any generalized ideas, concepts, knowledge, methods, techniques or skills gained or learned during the course of performing the services under this Contract, so long as the Contractor or its subcontractors acquire and apply such information without disclosure of any confidential or proprietary information of the State, and without any unauthorized use or disclosure of any Work Product resulting from this Contract.

The Contractor shall not remove or reassign, without the State's prior written approval any of the Key Personnel until such time as the Key Personnel have completed all of their planned and assigned responsibilities in connection with performance of the Contractor's obligations under this Contract. The Contractor agrees that the continuity of Key Personnel is critical and agrees to the continuity of Key Personnel. Removal of Key Personnel without the written consent of the State may be considered by the State to be a material breach of this Contract. The prohibition against removal or reassignment shall not apply where Key Personnel must be replaced for reasons beyond the reasonable control of the Contractor including but not limited to illness, disability, resignation or termination of the Key Personnel's employment.

Key Personnel by project are those staff that should remain with the BAM project for the entire contract. Key Personnel designated by phase are those staff that should remain during an individual phase (3A, 3B, 3C, or 3D) and include all activities for that particular key personnel.

Contractors should also understand that given the duration of BAM and the required tasks, working with other State contractors will be required. Other contractors and the BAM contractor will have tasks such as integration of systems (i.e., touchtone system, renewal by mail, etc.), and other tasks including organizational change readiness activities. It is the responsibility of the BAM contractor to work with and identify any associated issues with ongoing and new work (related to BAM) as it relates to other State contracts and contractors. It is also assumed that the BAM contractor will work with other state agencies that will interface with BAM, such as Michigan State Police, the courts, and other state/local government units.



Contractor Response:

3. Qualified Personnel/Staffing

The EDS State and Local Government group is responsible for performing the services requested in the BAM Phase 3 ITB. For more than 35 years, EDS has helped State, Local, and Provincial governments use IT to meet new and evolving challenges. We leverage this experience today to help our clients address the issues they face to connect, protect, and serve citizens better than ever before. The unique combination of EDS' large corporate sponsorship and the customer dedication provided by EDS' local account team provides the BAM project with all the advantages typically associated with both large and small companies. Our local BAM team includes key resources and support staff with years of DOS, DIT, and BAM experience.

The BAM Phase 3 team will be led by John Dullock, EDS Project Manager. John has the direct support of EDS' State of Michigan Account team to ensure that he has all of the support necessary to successfully deliver BAM Phase 3. As shown in Figure 3-1, our local State of Michigan account team is led by Gary LaRoy, who is responsible for customer relationships and customer satisfaction. Mr. LaRoy will be the point of escalation for the EDS BAM Project Manager, John Dullock. As a member of the BAM 2 Executive Committee, Mr. LaRoy has established relationships and will work closely with DOS to ensure their vision and strategic goals are achieved. As a value-added service to DOS, the State will incur no expense for this executive-level involvement with the delivery of this project. In addition to Mr. LaRoy, DOS will have the support and experience of the entire EDS team who currently support the State of Michigan, including the following management staff: Mike Kapuscinski who is responsible for contractual compliance and the delivery of services to the State of Michigan; Randy Simon, who is also located in our Lansing office and is responsible for all internal processes and continuity of service for BAM 3; and Noel Clark, whose most recent assignment was the lead technologist for BAM Phase 2 where he supported analysis and design activities for the object-oriented systems analysis task.

3.1 Staffing Approach

The EDS team recognizes that the success of any project ultimately depends on the quality of the professionals who lead the project and provide the services. Success also depends on the soundness of the project management strategy, development methodology, and the implementation plan. To undertake a project as large and complex as BAM Phase 3, the project team must rely on a track record of previous projects, expertise in the proposed technology, sufficient qualified personnel, and a commitment to the short- and long-term success of the project.

EDS has a strong local presence with a statewide workforce of approximately 9,000 highly qualified information technology (IT) professionals, including 450 in our Lansing office. EDS' Lansing Solution Center (LSC) supports 81 clients and has been assessed at a Software Engineering Institute (SEI) Capability Maturity Model Integration (CMMi) Level 5 – the highest level attainable. The primary staffing for the BAM Phase 3 project will come from the LSC.

EDS and the LSC have highly-qualified IT professionals that provide application development and implementation support worldwide. The EDS BAM Phase 3 team can leverage these resources as needed. EDS understands the level of effort required in BAM Phase 3. For this reason, we have selected John Dullock as our Project Manager. John is very familiar with the State's needs, processes, and agencies, as well as the BAM project. The EDS team poses the lowest implementation risk and requires fewer transition expenditures because many of the staff already has in-depth experience in the DOS environment.

To assign the best personnel to the State for the BAM project, EDS will be providing resources from Analysts International (AI) and PTD Technology (PTD). These firms have been involved in many successful projects for the State of Michigan. EDS is proud to lead our integrated team of experienced and dedicated firms to work with the State on the successful implementation of BAM Phase 3.

For BAM, EDS is proposing some of the talented and highly qualified key personnel who have previously provided services to DOS. Each of these skilled professionals is ready to furnish superior customer service and will display outstanding levels of project commitment.

3.2 Key Personnel

EDS has assembled a team of key personnel who will help the State achieve its objectives for BAM Phase 3. Each team member contributes valuable expertise and experiences in support of the State's overall requirements.

Figure 3-2 displays our proposed BAM Phase 3 team organization chart, including key personnel and other staff members. Other organization charts in this section display individually and separately the Activity Level teams for Activities 1 – 8.

Project Control Office

The Project Control Office will provide the leadership, oversight, monitoring, and reporting for activities and metrics critical for on-time delivery of the technology services that satisfy the needs of the BAM Phase 3 development and implementation. The Project Control Office team is structured to provide support by applying the State's Project Management Methodology (PMM) and CMMi Level 5 processes and by optimizing the successful delivery of all activities associated with this project.

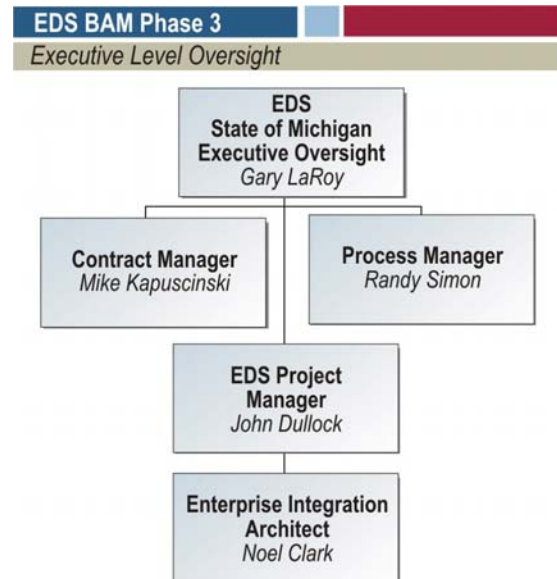


Figure 3-1, Executive Level Oversight

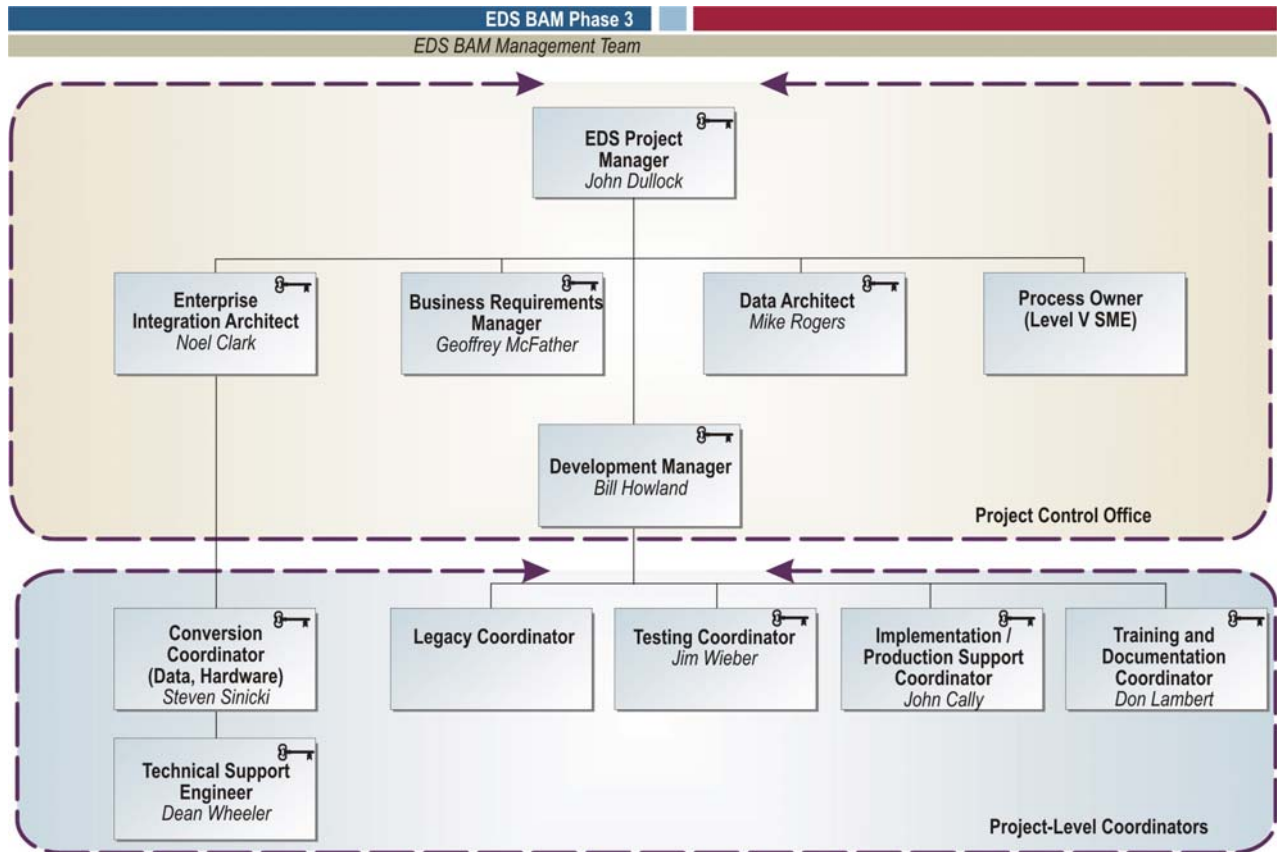


Figure 3-2, EDS BAM 3 Team Organization Chart

EDS Project Manager – John Dullock, PMP. Mr. Dullock will serve as the overall project manager for the EDS BAM team. John's key focus will be providing leadership for the EDS team by orchestrating strategic planning, process management, relationship management, and coordination with the other key project leaders both within EDS and the State. John will be the single point of accountability to DOS. John will facilitate the delivery of project responsibilities, including schedule control, schedule management, resource management, issue management, communication management, risk management, performance monitoring, time tracking, and technical control for each of the activities. He will also manage the enterprise view and the interdependencies between project activities to achieve business objectives; he will focus on interaction at multiple levels and with partners.

John is a certified PMP professional who has more than 20 years of IT experience. He has extensive program and project management experience encompassing program management implementation; design, development, and implementation of custom business applications; IT-related business needs analysis; development of methodology to build custom applications using Capability Maturity Model Integration (CMMi) Level 5 processes; business and technical detail design requirements gathering; design; implementation and management of complex enterprise solutions; business process improvement; and project and staffing coordination. John will be in constant contact with the DOS and EDS BAM teams to ensure that the development and implementation of BAM Phase 3 will be delivered on time and within budget.

Enterprise Integration Architect - Noel Clark. Mr. Clark has spent more than 23 years in various information technology roles. His career has provided him a solid foundation on which to base his current Chief Technologist role at EDS. Noel brings experience in implementing large-scale solutions. His most recent assignment was the lead technologist for BAM Phase 2 where he supported analysis and design activities for the object-oriented systems analysis task. This included modeling for Customer, Driver, Vehicle and Financial processes. He was also the architect for a .Net Framework that will provide high availability of the system in a production state.

Prior to BAM, Noel was the Chief Technologist for various projects including the DOW Operations Team. His responsibilities included defining and overseeing technical direction and delivery capabilities. Noel has managed large development projects and team sizes of up to 40 professionals in efforts that included estimating manpower requirements and selecting hardware, network, and software approaches.

Noel draws on his proven technical leadership experience which includes designing and implementing the Telematics architecture for BMW 2005 model year vehicles. He has also designed and developed a Navigation solution with Siemens Automotive and established a service-oriented architecture for General Motors' MGO project. Noel has a patent pending for Computer Systems Architecture Transformation methods. The patent defines a process and system for analysis of systems "as is" and "to be" states through static (code) and dynamic (user interaction) analysis.



This information is then used to drive a service-oriented architecture, partitioning application responsibilities along well-defined systems boundaries. The result is a flexible architecture that meets current business needs and future change requirements. His distinctive skill set brings a dependable and consistent approach to providing services to DOS.

Noel brings to the State of Michigan not only a leadership perspective but also intimate knowledge of the user environment, user needs, and the impact technology has on users' daily tasks.

Business Requirements Manager - Geoffrey McFather. Mr. McFather has over 25 years of experience that includes leadership, administration, project management, technical training, contract litigation, organizational, operational and process review, documentation, and analysis and remediation efforts. Geoff has extensive training and practical experience that he will bring to the BAM Phase 3 project. He has utilized his skills in business process engineering, and, as a licensed attorney, he brings unique value to DOS when modifying business processes as a part of BAM Phase 2.

Geoff has extensive experience in all areas related to business process re-engineering and management. In his current position and previous assignments, he routinely employed exceptional interviewing, facilitation, and listening skills when conducting Joint Application Development (JAD) sessions with all levels of business and technical subject matter experts. He has exercised knowledge and utilized all of the five phases of Software Development Life Cycle (SDLC) to ensure proper liaison and feedback from impacted parties. SDLC efforts consistently resulted in necessary, informative and appropriate deliverables focused on employment of Unified Modeling Language (UML) and Software System Analysis and Design (SSAD) methodologies.

His experiences as an organizational and business process consultant have included both public and private organizations. His expertise includes the assessment of existing policies and procedures, development of business process models, quantifying complex business process rules, workflows and methodologies, and the generation of strategies and solutions designed to streamline, modify, expedite, and strengthen organizational operations to achieve the desired "to be" objective. On the basis of his vast experience Mr. McFather is qualified to fill the role of BAM Phase 3 Business Requirements Manager.

Data Architect - Mike Rogers. Mr. Rogers demonstrates consistent success in developing enterprise-level information technology solutions within Web, distributed computing, and legacy environments. His project roles have included lead architect, database architect, technical leadership, design and development, consulting, proposal development, project management, employee management, systems analysis, modeling, integration, and system support.

He possesses a rare balance of technical, business, and people management skills which enable him to efficiently resolve complex issues in a variety of roles.

Mike is currently the Technical and Data Architect of a legacy system transformation project consisting of 600+ data tables, involving 27 automotive plants throughout the United States and Mexico. The data transformation architecture is based on .Net and SQL Server.

His previous assignment was that of Data Architect and key member of the Design and Architecture team of a global CRM application suite consisting of 1,500 physical tables with application and data servers in five geographical regions. Mike's depth and breadth of experience make him an excellent candidate for the role of Data Architect.

Development Manager – Bill Howland. Mr. Howland has over 13 years of application development experience including 10 years of managing application development projects using EDS' Systems Life Cycle. His most recent assignment was with the EDS Applications Delivery Project Control Office as a project manager subject matter expert in deployment and institutionalization of SEI CMMi Level 5 compliant processes. Mr. Howland specializes in establishing project control offices for major EDS clients. He will bring strong leadership to the position of Development Manager.

Conversion Coordinator (Data, Hardware) – Steven Sinicki. Mr. Sinicki has over 20 years of varied experience in all phases of business application projects and many development and operating environments. He demonstrates a commitment to personal development by keeping current with emerging technologies. He has full life cycle application development experience from sales to delivery of a variety of technologies.

Steve was selected for his conversion expertise on the Pennsylvania Medicaid system project. He utilized his skills as the technical lead for the Encounter claims conversion area. His responsibilities included leading the technical design and construction efforts for this conversion.

Testing Coordinator – Jim Wieber. Mr. Wieber has over four years of experience on several State of Michigan projects including BAM Phase 2, MEAP, SWAD, SafeStat, and MiCSES. Jim has experience in a variety of roles including implementing Web-based applications, database administration, designing, coding and testing programs written in Visual Basic, Oracle, JAVA, HTML, JavaScript and JSP, system administration for Sun Solaris servers, and PowerBuilder Developer. He has utilized his skills as a technical leader experienced with Java, JSP, Visual Basic, Oracle SQL Loader, Oracle Import/Export, UNIX Korn Shell Scripts, C, and IBM Mainframe JCL.

Implementation and Production Support Coordinator – John Cally. Mr. Cally's resume showcases the exceptional talent our team brings to the position of Implementation/Production Support Coordinator. He has over 24 years of experience in the data processing industry including 15 years with the Unisys Government Services, where he directed computer hardware and software technical staff supporting government systems. Further, he designed, developed, documented, implemented, and managed a new, world-wide financial system for the Unisys Corporation.

John is extremely knowledgeable about the workings of the Michigan State government agencies and the way systems are utilized. His proven expertise in the DOS environment, managing business processes and integrating Unisys into the agency's working environment, will enable John to successfully complete this project.



Training and Documentation Coordinator – Donald Lambert. Mr. Lambert has over ten years of experience and demonstrated superior knowledge, skills, and abilities in the IT field. Specifically, he has four years of experience as a Training Coordinator. His areas of specialty include training coordination and management, systems analysis, project supervision, personnel supervision, process oversight, documentation, IT media development, and technical support. Specific areas of knowledge in training include project oversight and management, requirements gathering, client skills assessment, training plan development, training course development (to include documentation such as manuals and on-line help, exercise development, and media aids), training data management, training assessment, and classroom training and mentoring.

Don brings a variety of skills to the position of Training and Documentation Coordinator:

- Documentation experience including implementation of online user aids as well as high-level, multi-media presentations to clients.
- Help desk knowledge including implementation of proprietary systems, as well as off the shelf software and hardware support.
- Project management, coordination, oversight (including quality oversight), and supervision including experience with employee mentoring and train the trainer activities.
- Evaluation of people and processes, management and coordination of projects including reporting requirements, workflow, facilitation, liaison activities as well as detailed plan implementation.

Don's extensive background as a trainer in the classroom facilitates his current skill set as Customer Service Coordinator for the State of Michigan's Michigan Master Information Technology Training (MMITT) process, which includes training coordination, contract management, IT consulting and multi-level reporting to the client. This contract provides for the delivery of desktop and technical training and the oversight of providing Technical Learning paths for all employees in the State of Michigan.

Technical Support Engineer – Dean Wheeler. Mr. Wheeler is a MCSE/CNE with over nine years of computer experience, including working as a LAN / WAN engineer and hardware technician. He has over three years of experience configuring 64 bit Intel-based server hardware and Microsoft Enterprise Products. His skills are exemplary as a Windows 2000 and Windows NT technical resource.

Resumes for our key personnel are provided in Staffing Appendix A, Key Personnel Resumes.

3.3 Staffing for Activities 1-8

The work performed in BAM Phase 1, coupled with the BAM Phase 2 deliverables, forms a solid foundation for launching the BAM Phase 3 project effort. EDS will utilize this foundational work and drive the BAM project to even greater success in Phase 3. From working in partnership with the State in BAM Phase 2, EDS understands all of the BAM Phase 2 deliverables and the activities and resources needed to make BAM Phase 3 successful.

The EDS team not only includes quality resources from EDS but also the most experienced resources from Analysts International and PTD Technology. The BAM Phase 3 Activity organizational charts below highlight the primary staff allocated for each BAM Phase 3 Activity. The key resources will be indicated in the organizational charts to reflect the reporting structure and the continuity of the Activity.



Activity 1

EDS U.S. Government Solutions (USGS) operating unit supports a wide array of Federal, State, and Local government agencies. John Dullock will serve as the EDS Project Manager and will report to the local EDS USGS office in Lansing, which will be responsible for administering this contract, including all subcontractor management and scope. The staff at this office currently supports multiple Michigan contracts and therefore is very familiar with State organization, business operations, and technologies.

The local EDS USGS office participates in EDS financial and technical solution reviews, which are conducted to validate the consistency of deliverables, schedules, and risks with established solutions criteria, as specified in the ITB. Scope management is also a main agenda item in these reviews. Once EDS receives a signed contract or purchase order, our local USGS office is authorized to begin governance and administration of the project. The financial management of BAM will be determined prior to signing the contract to ensure EDS adheres to any specific financial management requirements regarding billing and invoicing.

Reporting directly to the EDS Project Manager will be the following roles: The Development Manager, Bill Howland, will be the lead project manager for all BAM development activities. The Enterprise Integration Architect, Noel Clark, will define and coordinate all technical activities including the implementation of the development and testing hardware and software environments. The Business Requirements Manager, Geoff McFather, will be responsible for the over-arching control of all BAM business requirements. The Data Architect, Mike Rogers, will be the lead DBA monitoring and controlling all data related activities. The Process Owner (Level V SME) will be responsible for strict adherence to all defined processes. The Process Scheduler will maintain the updates to the various project schedules and ensure proper time tracking is taking place. Other PCO support roles will include the maintenance of the PCO toolset and administrative assistance.

As part of the overall management of this contract, John Dullock will produce and maintain a Project/ Contract management team staffing plan as well as all other staffing plans. John will also generate the Weekly Status Report containing all the major accomplishments, major upcoming work, significant issues and concerns for the overall project; he will also maintain updates to risks and other project documentation.

Please see Section 4.4.1, Appendix C – Contractor Staffing Plan, for a complete list of staff assigned to BAM Phase 3.

Activity 2

Steve Sinicki will serve as the BAM Conversion Coordinator reporting to the BAM Enterprise Integration Architect Noel Clark. Steve will be responsible for administering the day to day task associated with the Technical Planning and Support Activity, including all reporting and staffing requirements input to the Project Control Office.

The Technical Engineers and Hardware and Software Engineers will also provide support for this activity. These resources as depicted in Figure 3-4 will be dedicated to the specific tasks of Activity 2.

Activity 3

Activity 3 will be lead by Bill Howland, the Development Manager. His team will consist of the Legacy Coordinator, Development SQL Database Administrator (DBA), Object Developers, Core .NET Developers, Interface MQ Series Senior Developers and Enhancement Unisys Junior Developers as depicted in figure 3-5.

EDS will produce and maintain the Application Development Team staffing plan as well as all other staffing plans. Specific to Activity 3, Application Development, EDS will assign a Development Manager reporting to the Project Control Office (PCO). The Development Manager will lead the EDS Development team and provide oversight and coordination of all development activities, including working with the State to develop appropriate processes and procedures to control the flow of development work; development work control will include the identification of project schedule tasks, task assignments, database change request processes, requirements, design, and construction reviews, builds, and promotions.

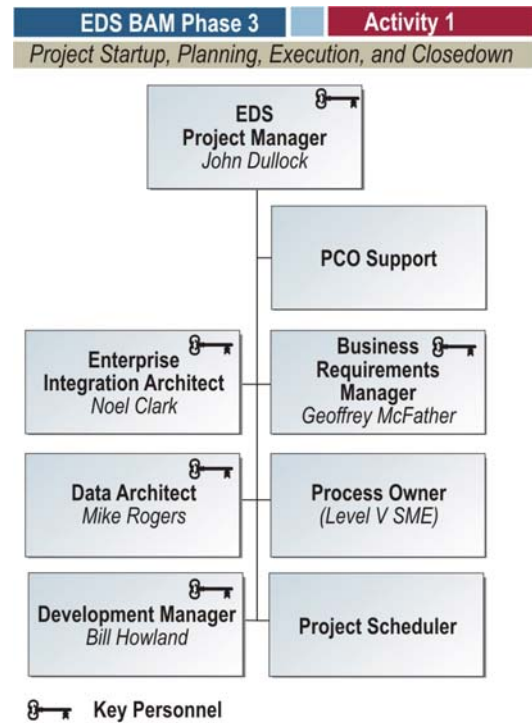


Figure 3-3, Activity 1 Team Leadership

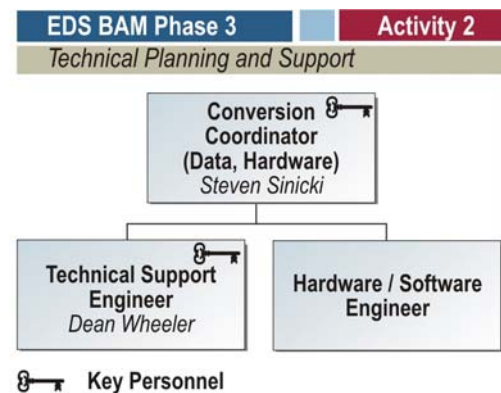


Figure 3-4, Activity 2 Team Leadership



A final responsibility of the Development Manager will be to generate the Weekly Status Report containing all the major tasks accomplished, progress to schedule including hours spent on tasks in-progress and an updated estimate of hours remaining for the task, identification of areas of risk of not meeting the schedule, additional issues affecting productivity or efficiency, and any other issues the Development Manager identifies as needing to be communicated.

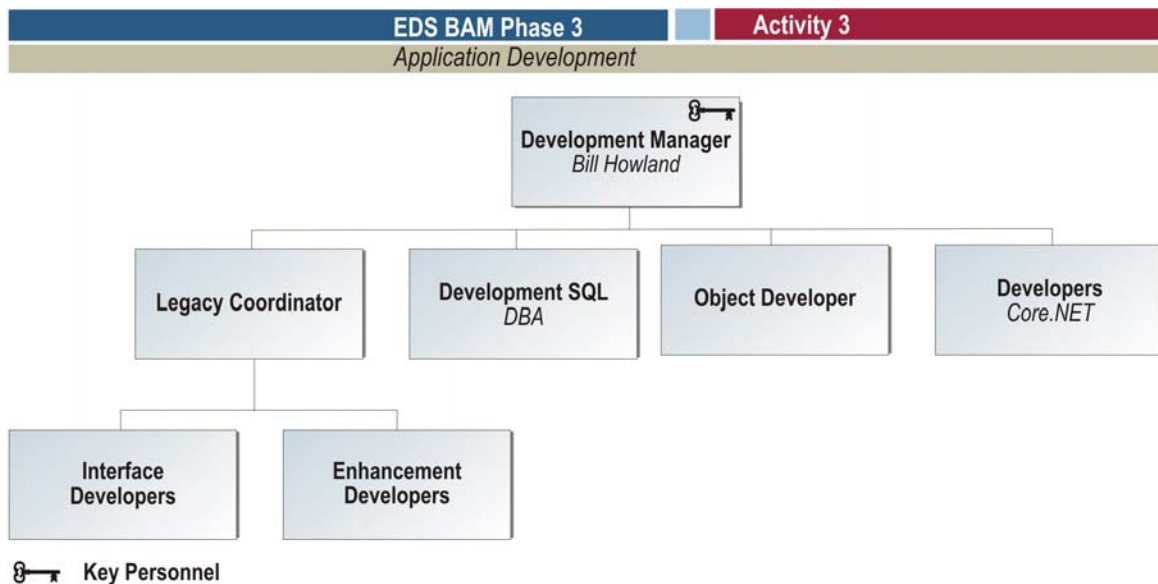


Figure 3-5, Activity 3 Team Leadership

Activity 4

The role of the Conversion Coordinator will be performed by Steve Sinicki. The Conversion Coordinator will also generate the Weekly Status Report containing all the major accomplishments, major upcoming work, significant issues, and concerns for the Conversion Team, as well as maintaining updates to risks and other project documentation.

As depicted in figure 3-6, a portion of Activity 4 will also be staffed by Conversion DBAs, one of whom is Sue Williams. Sue has 20 years of experience in the information technology industry with major emphasis as a solution provider and developer in a team environment. Her skill set encompasses the entire Systems Life Cycle from analysis through production support for various platforms ranging from mainframe to client server to intranet web applications.

Ms. Williams' experience with the State of Michigan includes acting as a MS/SQL server Database Administrator for the Department of Education, Oracle Database Administrator, and data modeler for the Department of Transportation and Department of Agriculture. Her certifications include Microsoft Certified Professional and Oracle Certified Database Administrator.

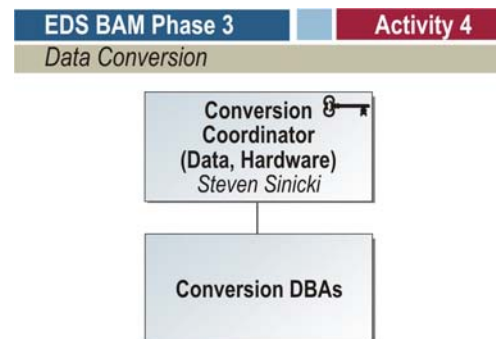


Figure 3-6, Activity 4 Team Leadership



Activity 5

The Development Manager, Bill Howland, and the Testing Coordinator, Jim Wieber are the 2 key positions for this activity. The team will also consist of a subset of Activity 3 personnel and a select group of testers. Activity 5 team leadership is depicted in Figure 3-7.

EDS will provide a Quality Assurance Test Plan for each scheduled production release of the BAM System, which is a very complex integrated system. Testing the integration of all the interfaces and components will be crucial to the success of the BAM Project.

Activity 6

Activity 6 will be led by two key resources dedicated to Implementation Support within each BAM Phase. John Cally will serve as Implementation and Production Support Coordinator. Mr. Cally will report directly to the Development Manager Bill Howland and be responsible for the success of the implementation activities within BAM Phase 3. John will manage and monitor the implementation activity progress of each BAM Phase as it is released ensuring that each task is completed in a timely and accurate manner. Mr. Cally will also be responsible for providing oversight and coordination of all branch office related implementation support activities of the BAM System from pre-implementation to post implementation site support.

Business and technical training, training coordination, and technical writing are key tasks within Activity 6. To ensure success of these activities, PTD's Donald Lambert will serve as Training and Documentation Coordinator. Don will lead a team of Technical and Business Trainers and Technical Writers to complete the tasks/deliverables associated with Activity 6. Mr. Lambert will report to Mr. Howland to report status of all Training Activities. Donald will ensure that both private and State agency partners receive appropriate communications, documentation, and training regarding standard reports and online query access. For the Activity 6 tasks that are associated with both Implementation Support and Training, Mr. Lambert will communicate status to both Mr. Cally and Mr. Howland.

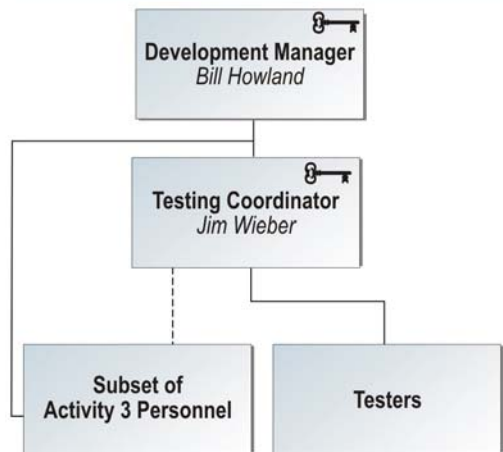
Activity 7

Activity 7 will be led by key resource John Cally as the Implementation and Production Support Coordinator assisted by developers and database administrators.

The Implementation and Production Support Coordinator will work with the State to develop all processes and procedures necessary to record and track ongoing production support requests (i.e., production "tickets").

Another responsibility of the Implementation and Production Support Coordinator will be to generate the Weekly Status Report containing the major tasks accomplished, work in progress, upcoming work (i.e., patch releases), new support requests created since the last status report (by category), support requests completed since the last status report (by category), total number of outstanding support requests (by category), issues affecting productivity or efficiency, and other issues which require communication. He will also maintain updates to risks and other project documentation.

EDS BAM Phase 3 Activity 5 Testing and Software Implementation



EDS BAM Phase 3 Activity 6 Implementation Support

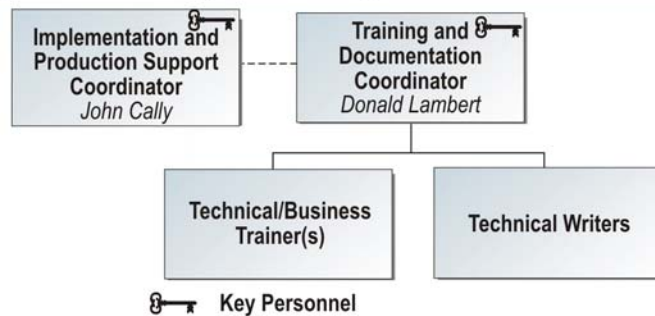


Figure 3-8, Activity 6 Team Leadership

EDS BAM Phase 3 Activity 7 Ongoing Production Support

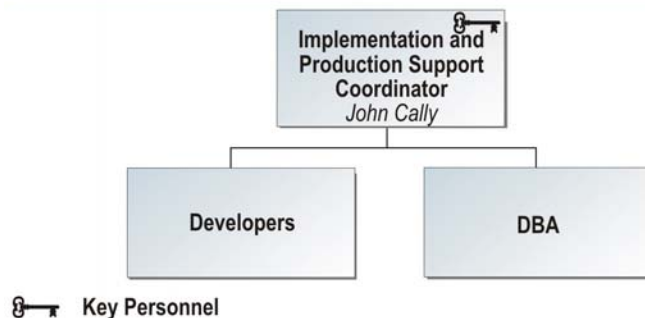


Figure 3-9, Activity 7 Team Leadership



Activity 8

An Enhancement Team will be put in place for the support of Activity 8. Developers will be the primary support staff for the development of this activity.

Representative resumes for staff that will assist our key personnel for Activities 1 through 7 are provided in Staffing Appendix B, Representative Resumes.

3.4 EDS Team Subcontractors

The EDS team has experience working across multilevel government organizations. Our first-hand knowledge of the Michigan IT environment has been achieved through current and past project partnerships, successfully managing teams of subcontractors, giving the team the right understanding and combination of skills and experience to provide a low-risk, high-value solutions.

EDS has selected Analysts International (AI) and PTD Technology as its partners for the BAM 3 Project. Both bring high-quality resources and years of experience working with the State of Michigan. Table 3-1 includes each company's name, address, and contract person.

Company	Michigan Office	Point of Contact	Role on BAM 3 Project
Analysts International Federal ID: 41-0905408	3101 Technology Blvd, Suite A Lansing, Michigan 48910	Mr. Rick Kursik Director of New Business Development Telephone: 517.336.1002 Fax: 517.336.1100 E-mail: rkursik@analysts.com	Provide development staff augmentation for .NET; Implementation Coordinator; and application developers
PTD Technology Federal ID: 38-2222345	3001 Coolidge Road, Suite 403 East Lansing, Michigan 48823	Karl Meier President – PTD Technologies Telephone: 517.333.9363 FAX: 517.332.3024 E-mail: Karl.Meier@PTDtechnology.com	Provide Training Coordinator and other training staff required to train State personnel on the new BAM system; design, coordination, and delivery of technical and business training services; design, development, and support of online user aids and the Electronic Performance Support System; development and maintenance of all technical and training documentation; help desk support after implementation

Table 3-1, Subcontractor Contact Information

3.4.1 Analysts International Corporation (AI)

Established in 1966 and headquartered in Minneapolis, Minnesota, AI is a diversified IT services company with proven experience accumulated over a 40-year history of providing technical consulting services. AI's lines of business include technology integration services for applications and hardware; advisory services for optimizing IT investments; outsourcing services with local, national, and international capabilities; and technical staffing services. AI has demonstrated strength and leadership in the IT industry, has a record of success in supporting the State of Michigan, and has demonstrated financial stability. In 2000, AI acquired SequoiaNET.com, a Michigan-based Internet and network infrastructure professional services organization. Sequoia NET.com was recognized by Microsoft Corporation in 2001 as one of five worldwide finalists for Infrastructure Solution of the Year.

As a Microsoft Gold Certified partner and "Go-To" partner for infrastructure, messaging, collaboration, portal, and workflow projects, AI has access to the most up-to-date training and technology, as well as access to 24x7 support from Microsoft, to deliver premium service to the State. In addition, AI was selected in February 2005 to receive a Microsoft's Field Partner Award in the Compete category. The award is given for continued dedication and excellence in providing customers with Microsoft solutions and technologies. Recognized at Microsoft's quarterly partner briefing in the three-state Great Lakes District, AI will move on to Microsoft's 18-state Central Region Competition. AI was recognized for upgrading and migrating a large Michigan-based enterprise customer to Microsoft solutions.

3.4.1.1 Corporate Organization and Structure

AI has more than 3,000 employees located at 35 offices around the world. Figure 3-10 shows AI's corporate organization.

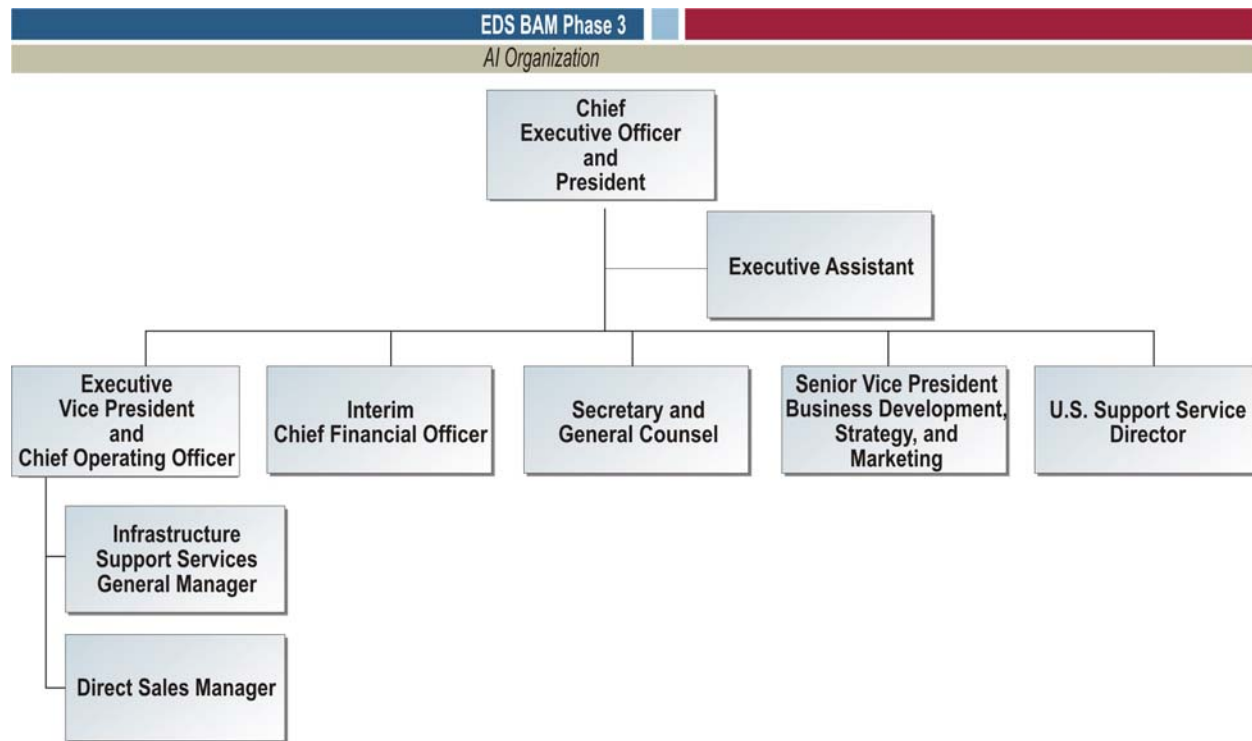


Figure 3-10, AI Organization Chart

3.4.1.2 Presence in the State of Michigan

AI has client relationships with both public and private sector organizations throughout the State. AI has three permanent offices in Auburn Hills, Grand Rapids, and Lansing. Currently, these offices employ more than 400 Michigan-based employees.

AI has operated in Michigan for 20 years and worked with the State since 1988, successfully serving the legislative, judicial, and 17 executive branch agencies. AI has been instrumental in the successes at the MDOT, conducting business and technical facilitated sessions for more than 30 major transportation projects. The primary location for BAM service delivery will be the Lansing office, which employs more than 70 AI personnel who are skilled and experienced in serving Michigan State and local government markets.

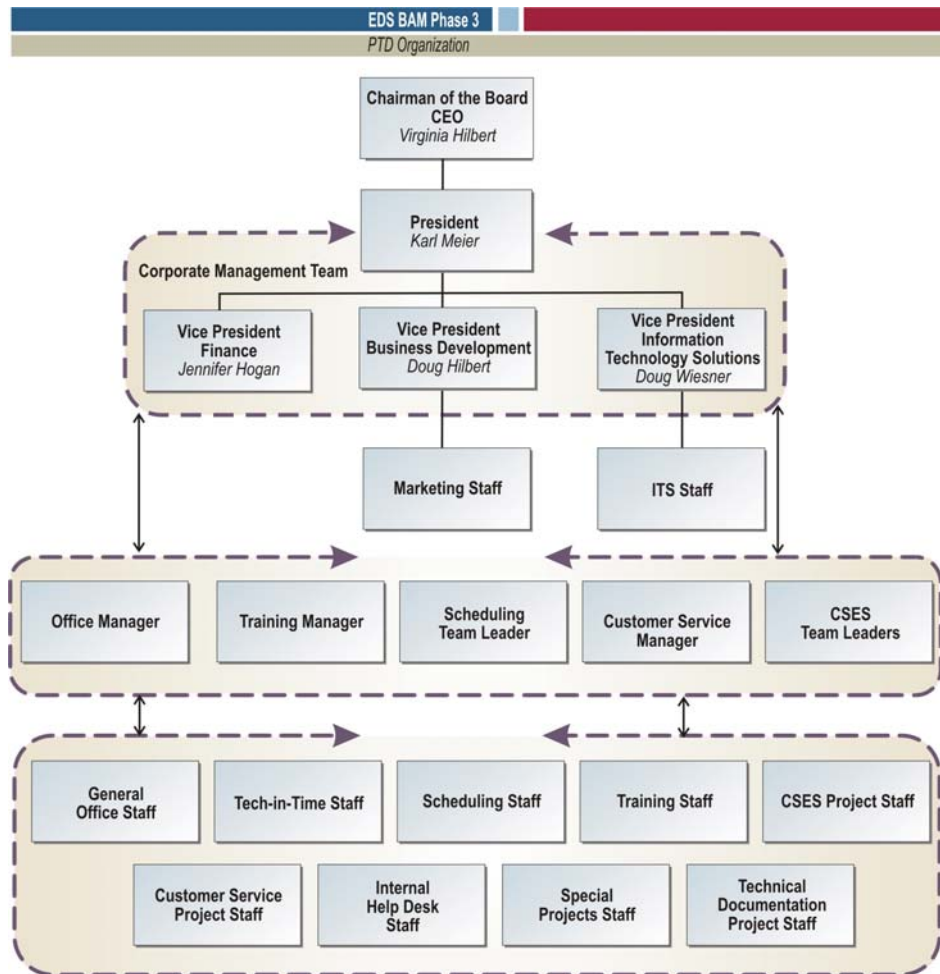
In addition, AI is involved with the Detroit Country Day School program, a Microsoft technology platform project whereby school administrators work to integrate technology into all aspects of the school's curriculum and educational process. AI is responsible for the school's technology plan and subsequent rollouts of technology and upgrades to students and the day-to-day support of the school's networks and desktops.

3.4.2 PTD Technology

Established as a Michigan small business in 1978, PTD Technology is located in Lansing, Michigan, and has grown to become among the Midwest's premier providers of technical services, providing the technology, personnel, and resources to keep clients productive. PTD Technology works with corporations and nonprofits of all sizes and types, as well as local, state, and federal government agencies. The company currently offers more than 150 seminars for business, government, and non-profit professionals throughout the U.S. PTD has experience developing and delivering customized training programs that will enable the State to accomplish a smooth learning migration to new IT environments.

3.4.2.1 Corporate Organization and Structure

PTD has more than 29 employees and several consultants. Figure 3-11 shows PTD's corporate organization.





1.203 OTHER ROLES AND RESPONSIBILITIES

Other staff from both DIT and DOS will be brought in as needed. For Phases 3A and 3B, branch staff will be critical resources and will be made available. In later phases, internal staff will be key and will be made available. Staffing for train-the-trainers activities will be available at appropriate times for implementation activities/training/post implementation activities. Train-the-trainers will consist of branch staff, internal staff, as well as DIT resources such as Client Service Center staff.

DIT staff will also assist with processing invoices and any appropriate reviews.

1.3 Project Plan

1.301 PROJECT PLAN MANAGEMENT

The project plan encompasses the key project deliverables, documenting how the project will be successfully completed. The project plan includes the following elements:

- Project Scope
- High-level requirements
- Schedule
- Assumptions and Risks
- Communication Plan
- Staffing Plan

Each major phase will be managed as a unique project, and a project plan will be created for each phase. All stakeholders will sign the project plan, signifying agreement to the plan and their willingness to do their part to ensure the plan is successfully executed.

The prospective contractor shall propose an overall schedule that encompasses all activities and tasks in the Work and Deliverables section while meeting the requirements in the *Requirements* documentation and the *Technical Architecture Specification*. Contractors are invited to improve upon suggested timeframes given their experience; however, objectives and requirements must be met in each phase. If an improved schedule is proposed, contractors are requested to provide rationale for their estimates. Likewise, if the phase schedule proposed appears to be unattainable given the functionality requested in each phase, contractors may offer alternative implementation plans and their rationale for the schedule. Again, all requirements and objectives of each phase must be met.

Contractor Response:

5. Work Plan

The overall project plan will encompass the following elements, many of which have been provided in draft form with EDS' proposal:

- Project Scope
- High-level Requirements
- Schedule
- Assumptions and Risks
- Communication Plan
- Staffing Plan

EDS will manage each BAM phase (3A, 3B, 3C, 3D) as a "project," with its unique scope, schedule, risks, assumptions, costs, and issues controlled through the PCO. EDS will use its PM2 methodology to apply effective project management to plan, execute, and control each project to achieve the desired outcome. EDS' role in each phase will be to provide the business and system knowledge and experience to develop and complete an aggressive, yet attainable, plan. EDS will take full responsibility to execute and control the entire BAM project in cooperation with the State of Michigan, including each phase from initiation to closeout, and the requisite tasks associated with startup, planning, execution, and controlling the BAM project.

5.1 Project Plan/Timeline

The development of every project plan includes the identification of included tasks, assumptions, constraints, and risks. The EDS team will analyze the scope of work, applying our expertise to develop an estimate that subsequently can be translated into a final schedule with task durations and specified dependencies.



EDS will employ a robust estimating process and procedures that accurately predict needed development effort. This estimating process includes the following major components:

- Metrics repository containing historical metrics from all EDS projects
- Easily quantifiable size component
- Estimating algorithms for all platforms based on historical metrics
- Automated estimating worksheets to be completed for a bottom-up estimate
- Estimate reviews

To gain a complete representation of the time required to deliver project work, the EDS team will perform individual task estimation, considering resource-leveling techniques, task interdependency, and other constraint information.

Please refer to Activity 1 Appendix A – Project Plans for a detailed draft project plan for each BAM phase (3A, 3B, 3C, 3D).

1.302 REPORTS

Project Related: The State will establish a number of weekly status meetings to monitor and control the project plan. The intent of these meetings will be to identify the status of the project and where progress is not in line with original plans, put corrective actions plans in place to bring the project back on track. These meetings will serve to keep all levels of management informed of project status, highlighting major issues and roadblocks requiring management involvement and/or decisions.

Specific status reporting requirements for various teams are identified in various activities in the Work and Deliverables section. These status reports will be utilized in weekly meetings.

Contractor should respond to the requirements for reporting in the Work and Deliverables section.

Requirements within each Phase: In addition to project reports, in each BAM phase, there are standard reports required that are specified in the *Requirements* documents located in the attachments. Also, Contractors should assume an additional thirty (30) reports that will be required to be programmed in each phase. Details of those reports will be finalized in the *Perform Analysis, Refine and Requirements Definition* (see Activity 3, Task 3.2) for each phase.

Contractor Response:

5.2 Reports

EDS will provide status reporting according to the ITB Work and Deliverables requirements. A monthly status report that tracks project performance will be used to show the current status of the BAM project. A weekly status report containing all the major accomplishments, major upcoming work, significant issues and concerns for the overall project, as well as maintaining updates to risks and other project documentation will also be produced. Please refer to section 4.4.1 Activity 1, Task 1.2 for more detail on the weekly project status reports.

EDS will estimate time for the creation of all reports as defined in the Requirements document. EDS will also provide in the estimate for each phase, time for the development of 30 reports outside the current defined reports in the requirements. EDS will provide time to gather requirements, analyze, design, produce, test, and implement the reports. EDS will develop the reports using Report Designer in Visual Studio. The developed reports will be delivered in the Report Definition Language (RDL) format. The RDL gives the ability to deliver the output in HTML, XML, Microsoft Excel, PDF and more formats. After we create the various reports for the BAM application we will deploy them to the report server. During deployment, the report definition is uploaded to the server and stored in the Report Server database. The Report Server database will be a separate database from the BAM System database but will reside on the same physical server. Using the Microsoft Reporting Services Web Services interface, the BAM System will not only render reports, but do it asynchronously, allowing users to save them as local files, and then view them in a number of ways (including using a Web browser control). Using the Microsoft Reporting Services will allow the BAM project to use an integrated tool in Microsoft SQL 2005 and does not rely on a third party tool.

1.4 Project Management

Contractor Response:

Project Management

EDS recognizes the importance of using excellent project management methods and processes to assure the successful completion of projects. EDS has developed our own Project Management Methodology (PM2), which is based on practices developed by Carnegie-Mellon University's Software Engineering Institute (SEI) and on the nine areas of project management developed by the



Project Management Institute (PMI) and defined in the Project Management Body of Knowledge (PMBok). As the Michigan Project Management methodology (PMM) also is based on PMBoK, the two methodologies are highly compatible. As we have done on previous projects with the State, EDS will follow the Michigan PMM for the BAM project and leverage the best practices of PM2.

EDS PM2 is a repeatable project management process that enables consistent and effective engineering and control of projects to fulfill State requirements. PM2 constitutes a key component of EDS' Capability Maturity Model Integration (CMMI) Level 5 practices, which the State and EDS have applied while working closely over the last 15 years to deliver many highly successful projects—most recently the Crash Process Redesign project, which earned an award for software excellence from *Computer World*. EDS also recently completed major enhancements to a problematic software system which was used to manage and report student assessment results for the Michigan Department of Education. During these engagements, EDS employed CMMI Level 5 practices to stabilize and modify a mission-critical software application.

1.401 ISSUE MANAGEMENT

The Contractor is responsible for establishing an issues management process, including the creation of an issues log; meetings to prioritize, review, and resolve issues; and the development and execution of an issues escalation procedure. The Contractor can provide the tool to track the project issues or the State can provide if preferred.

The contractor is responsible for the identification of issues impacting the quality and/or timing of their deliverables, as well as the timely resolution of assigned issues. The State will assume the same responsibilities for issues assigned to them.

Contractor Response:

6.1 Issue Management

We can expect problems to occur during the course of any project. When the problem threatens the progress or outcome of the project, it becomes an “issue.” An issue is also any point of controversy, debate, or concern that will adversely affect the success of the project. Anyone from any level of the organization, including Executive Sponsorship or Program Office, can identify an issue. Issue resolution is the responsibility of the project manager, and she or he should resolve the issue at the lowest possible organizational level. When an issue cannot be resolved at one level, the project manager must escalate the issue, ensuring it is brought to the attention of appropriate parties and successfully resolved.

Often, team leaders identify as issues those problems associated with delivery of a specific work package or function; these issues are captured in our Web-enabled issue tracking tool, evaluated, and assigned for resolution by the project manager.

6.1.1 Approach

EDS employs an aggressive approach to issue identification and resolution. A key responsibility of the EDS Project Manager is to detect issues that may not have been clearly articulated but clearly need to be captured, tracked and resolved. As meeting and communication facilitator, as well as performance monitor, the EDS managers have unique access to a wide array of independent data sources for identifying issues that may otherwise go undetected. Possible sources of issues in this category are:

- Recurring problems between project teams
- Articulated problems for which no one claims ownership
- Discrepancies between verbal status, metrics analysis, or configuration management repository status
- Changes in work patterns around a project deliverable
- Reports during meetings that may impact other teams or deliverables.

Instead of waiting for a problem to become critical, we analyze input from these independent data sources, identifying trends and anomalies which we then review with the appropriate managers to determine if there is indeed an issue.

Once we have determined there is an issue, EDS follows a formal issue management process. The issue is entered into the EDS-developed Issue Tracker tool which automates tracking and communication to facilitate issue resolution. We exercise issue management at weekly staff meetings by assigning responsibility and accountability to appropriate personnel, who are tasked with resolving the issue at the lowest common denominator. When issue resolution requires changes to the approved baselined project plan, we convert the issue to a change control item and follow the change process to final approval.

The issue tracking tool is Web-based and can be readily accessed by all project participants. This tool generates a number of reports in various formats, including reports on the following:

- Open issues
- Closed issues
- Issues still outstanding after 30 days, 60 days, and 90 days



- Issue details
- Escalated issues

The issue tracking tool also facilitates communication by offering automated notifications which staff can tailor to meet their individual needs.

The State and EDS have collaborated on past projects, such as BAM Phase 2, MiCSES and CRASH, to establish an issue escalation process defined for risk management and issue management. In that process, project managers assign unresolved issues to an escalation level that generates a review at the regularly scheduled leadership meeting. Items that require the involvement of a leader to remove roadblocks are assigned to that leader, who assumes ownership of the issue and assists in its swift resolution.

6.1.2 Escalation Process

EDS uses a combination of formalized processes and sound professional judgment so that data driven decisions are directed to appropriate decision makers. Often, project leadership can make decisions that resolve project level issues. In some instances, however, project leadership must escalate issues for resolution to the Program Office and Executive Sponsorship. Additionally, even when the project team can resolve the issue, they will escalate to the executive leadership because they have decided visibility at that level is appropriate.

EDS recommends the following guidelines for issue escalation. EDS uses our best professional judgment so that, regardless of categorization, an issue is appropriately communicated and resolved.

Escalation Category	Escalation Response
General	
Aged or more than 2 weeks late	Issue is escalated to immediate manager. Issue will not be escalated further unless it fulfills one of the subsequent requirements.
Cross organizational issue can not be resolved	Issue is escalated to the management level immediately above the roadblock
Schedule Implications	
Major Milestone is threatened	Issue is escalated to BAM Program Management
Release is threatened	Issue is escalated to the BAM Executive Steering Committee and DOS and DIT management
Scope Implications	
1 or more minor functions within major deliverable are threatened	Issue is escalated to Agency owner
1 or more significant functions within major deliverable are threatened	Issue is escalated to BAM Program Management
1 or more major deliverables are threatened	Issue is escalated to BAM Executive Steering Committee and DOS and DIT management
Budgetary Implications	
Minor budgetary impact	Issue is escalated to Program Management
Major budgetary impact	Issue is escalated to Executive Agency and DIT management
External Visibility Implications	
Visible external to the project but still within the agency	Issue is escalated to Agency owner
Visible external to the agency but still within the State	Issue is escalated to BAM Program Management
Visible external to the State	Issue is escalated to BAM Executive Steering Committee and DOS and DIT management



Figure 6.1-1, Issue Management Process Flow, depicts the issue management process including issue escalation.

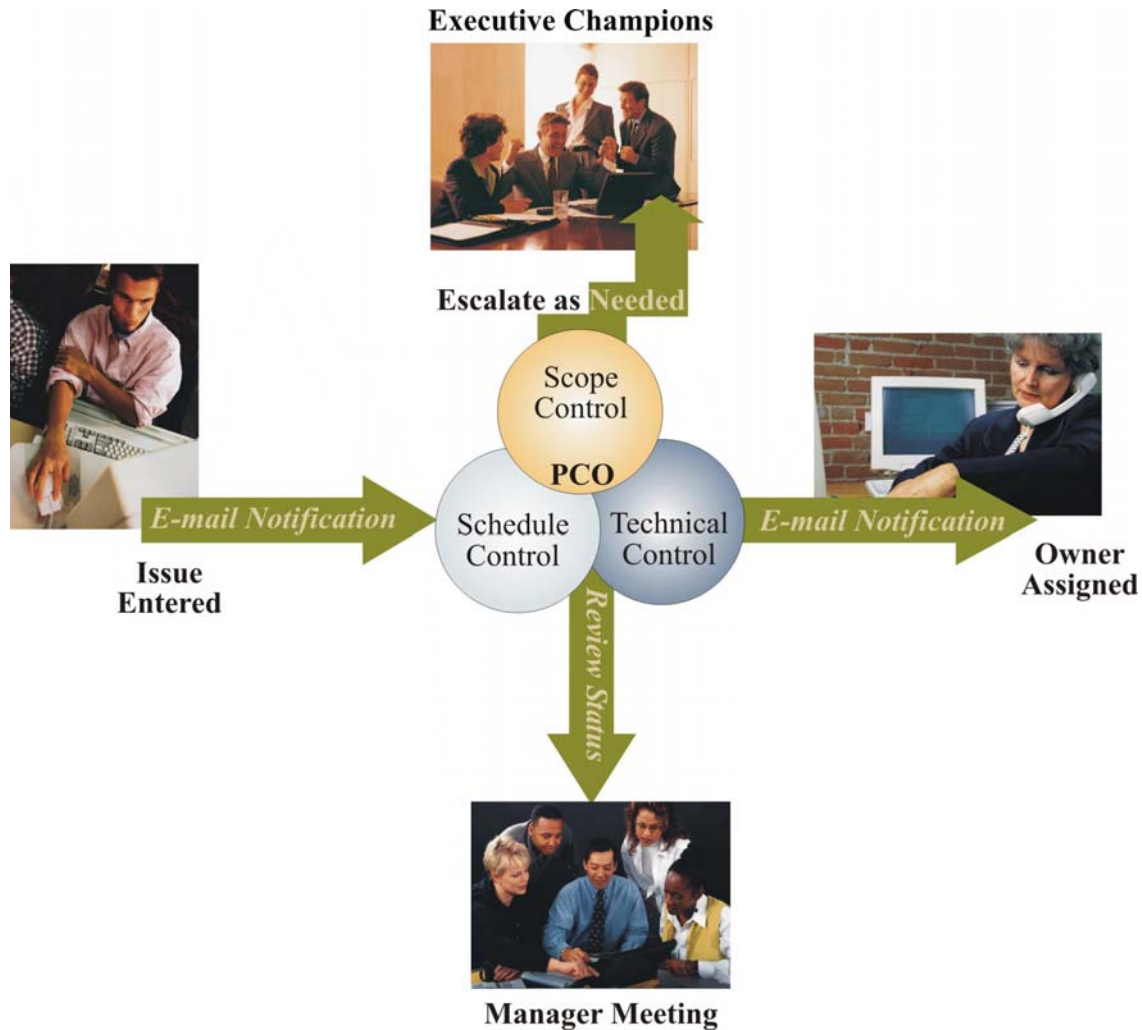


Figure 6.1-1, Issue Management Process Flow

1.402 RISK MANAGEMENT

The Contractor is responsible for establishing a risk management process, including the identification and recording of risk items, prioritization of risks, definition of mitigation strategies, monitoring of risk items, and periodic risk assessment reviews with the State. The Contractor can provide the tool to track risks, or the State can provide the tools if preferred. The Contractor will work with the State and allow input into the prioritization of risks.

The Contractor is responsible for identification of risks for each phase of BAM and the overall program. Mitigating and/or eliminating assigned risks will be the responsibility of the Contractor. The State will assume the same responsibility for risks assigned to them.

Contractor Response:

6.2 Risk Management

Risk is defined as an uncertain event that, should it occur, would adversely affect attainment of project objectives. Successful operation and maintenance of the BAM project will depend on diligent management of any and all threats to the delivery of services to users, clients, and project support staff. Risk management constitutes an integral task of the project control office (PCO); it is enabled and automated by the Issues Tracker tool. EDS includes identification, assessment, and elimination of risk as part of each project planning effort undertaken by the PCO. Section 4.4.1, Project Start-Up, Planning, Execution, and Closedown, describes how risk identification is also a critical component in our approach to project initiation.

Risk management includes the following elements:



- Forward-looking approach to problems and strategies for dealing with them
- Expedited communication to encourage personnel at all levels to interact
- No-blame culture that brings problems and concerns into the open so that responses can be taken, plans can be put in place, and risks can be reduced across the enterprise.

EDS and our consulting partner A.T. Kearney have developed the ABCD Project Risk Management methodology, which is very effective in identifying risks throughout the project life cycle.

6.2.1 Overview of ABCD Risk Management Process

Figure 6.2-1, ABCD Risk Management Methodology, depicts the ABCD process, which consists of an integrated closed-loop method that logically progresses through the following actions:

- Project prioritization for multiple project environments
- Risk assessment, including assumption analysis, strategic cost analysis, and work plan analysis as appropriate
- Risk prioritization to decide on the order of attack
- Risk control to agree on risk actions and risk plans, implement them, and monitor their effectiveness.

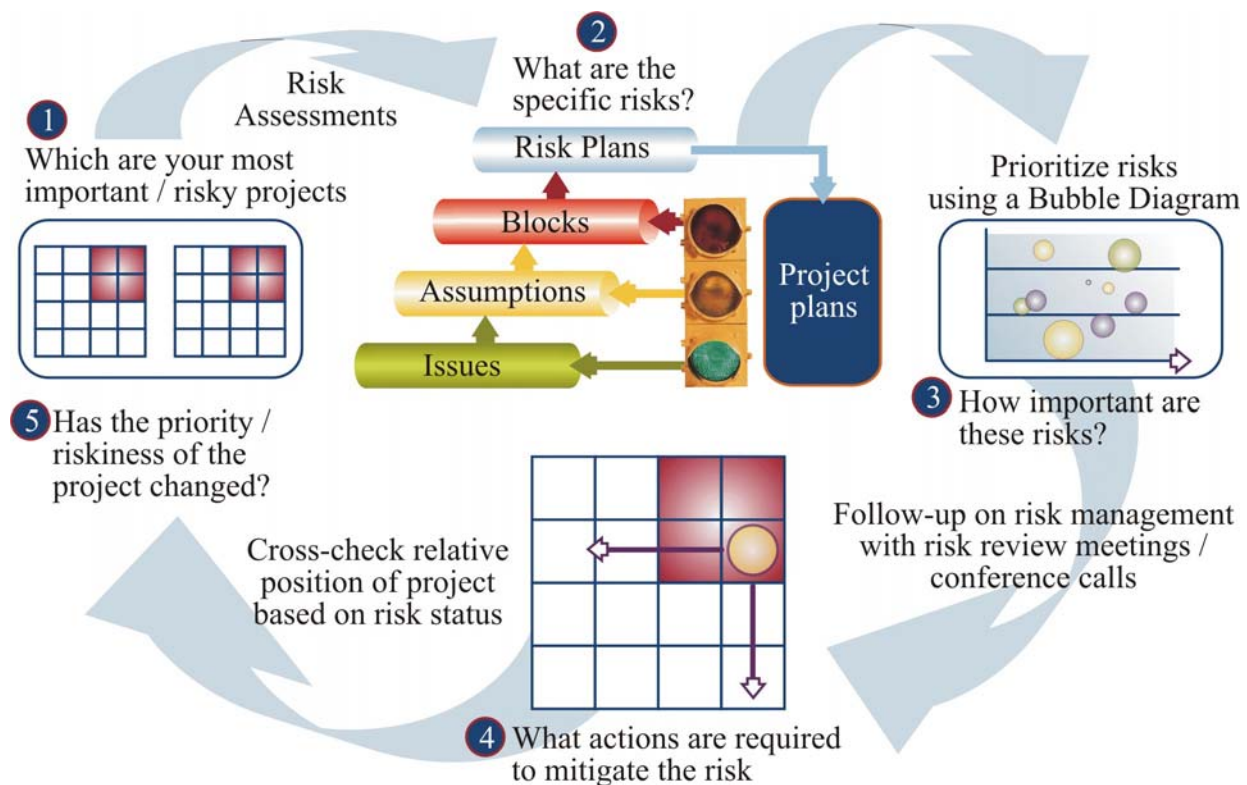


Figure 6.2-1: ABCD Risk Management Methodology

6.2.2 ABCD Interviewing Process in Context

The project manager must champion the process so that risk management can become a focal point of the communication plan's strategy. The project leadership must prioritize projects and project tasks to verify that the activities most critical to the success of the project are first in line for access to scarce personnel, funds, time, and risk management expertise. After projects and tasks are prioritized, the EDS team identifies key players in the organization and interviews them to elicit and capture any concerns that might jeopardize the success of the project. For BAM, project prioritization focuses on managing releases and assessing which releases are most vital to the State.

6.2.3 Risk Management Functions

The key features and benefits of the ABCD risk management approach are as follows:

- **Communication** – providing a simple, common language for communicating risk up, down, and laterally in the organization while avoiding the normal problems of political sensitivity and risk aversion
- **Control** – enhancing project control by performing exception management and developing an overview of risk at senior management levels



- **Information** – encouraging sharing of risk information and contributing to the establishment of common objectives, thus discouraging risk transfer and reducing overall risks for all involved parties
- **Flexibility** – providing an adaptable process that is rigorously applied so that all significant risks are identified and controlled at the appropriate time
- **Acceptability** – implementing a non-intrusive and non-bureaucratic management process that improves management discipline across the organization and is readily accepted by project teams.

6.2.4 Assumption Analysis

The core ABCD technique is assumption analysis, which uses structured techniques to analyze project plans and to identify the most sensitive and potentially unstable assumptions that constitute the source of risk.

The ABCD methodology captures assumptions by using a simple language in which “A” indicates high quality and “D” indicates low quality. This simple language generates an instantly understood assessment and offers guidance on how best to minimize the risk (that is, stabilize the assumption or desensitize the project to the assumption). An assumption with a score of CC, CD, DC, or DD is ranked as a risk that requires specific actions, a risk plan to limit effects or to eliminate the risk, or both.

The ABCD risk management methodology focuses on future problems. By applying assumption analysis, ABCD focuses on concerns that affect the project. This proactive methodology links project plans to risk management, thus enabling project managers to detect possible problems in sufficient time to make plans and take actions to mitigate or eliminate risks that might impede successful completion of the project.

1.403 CHANGE MANAGEMENT

The Contractor is responsible for establishing a change control process, including the recording of proposed change controls, impact assessments, change control reviews, and documentation of the final determination of the acceptance or denial of the proposed change. The State will make the acceptance or denial decision on changes utilizing input from the Contractor in the impact. This process will be utilized to suggest modifications to agreed upon phases, as well as enhancement requests above and beyond original scope of this RFP (reference *Requirements* documentation from Phase 2.)

The Contractor can provide the tools for managing the change control process or the State will provide the tools if preferred. The Contractor is responsible for the identification of potential change controls (along with State staff), impact assessment (including schedule, cost, and risk), and participation in the formal change control reviews.

CONTRACTOR NOTE: At the conclusion of Phase 2, the State exercised the Transition language in the contract with Electronic Data Systems to continue to document new requirements for BAM (so as to keep the Requirements repository refreshed and up to date with new projects and/or requirements. A change control process is being utilized for this and will be available to contractors mid-way through the bid process.

The State may choose to continue to utilize the Change Control process developed for Transition and would expect Contractors to assist and support that decision. Minor modifications will be allowed. The purpose for retaining the method initiated is to not lose any ground or momentum for Phase 3. The Transition period is critical to the success of BAM since keeping requirements current for the project will be necessary.

Contractor Response:

6.3 Change Management

One of the keys to the successful implementation of a large complex software project is the controlled management of scope or change management. EDS' experience with the change control process that was developed for Transition will ensure a smooth transition to Phase 3. It is inevitable that new requirements will surface as projects progress toward completion. In this context, change management refers to the

- Policy
- Rules
- Procedures
- Information
- Activities
- Roles



- Authorization levels

relating to the creation, updates, approvals, tracking, and archiving of items involved with the implementation of changes.

EDS utilizes a formal process, instituted once formal sign-off is received on the project plan. The process is supported by an EDS developed Web-enabled application for capturing information about proposed changes (change controls), updates, approvals, and reporting.

A change control is required when issues, problems, or external forces drive alterations to the approved project budget, staff levels, scope, major milestones, or release date. Typically, minor changes to the project schedule that do not impact major milestones and can be absorbed through normal contingencies (extended work day or work week, for example) do not require a change control. Change controls can arise from a variety of sources. Typical of these are:

- New interpretations of policy
- Legislatively mandated changes
- Determination in the design phase that software requirements were missed
- Scope problems discovered during testing.

Regardless of the source, we require a process to allow key leadership to evaluate proposed change controls and to determine if the risk, change in software function, or impact to schedule, resources, and funding are warranted. The change management process is a vital communications mechanism on large projects as well as an integral part of the requirements traceability process in mature software development organizations.

Change controls are evaluated based on the following set of criteria:

- Causes the schedule to exceed any release/ project delivery date
- Adds/ subtracts requirements from the project
- Causes the requirement of additional resources
- Creates medium or high risk activities in the project.



Figure 6.3-1 illustrates the change control management process.

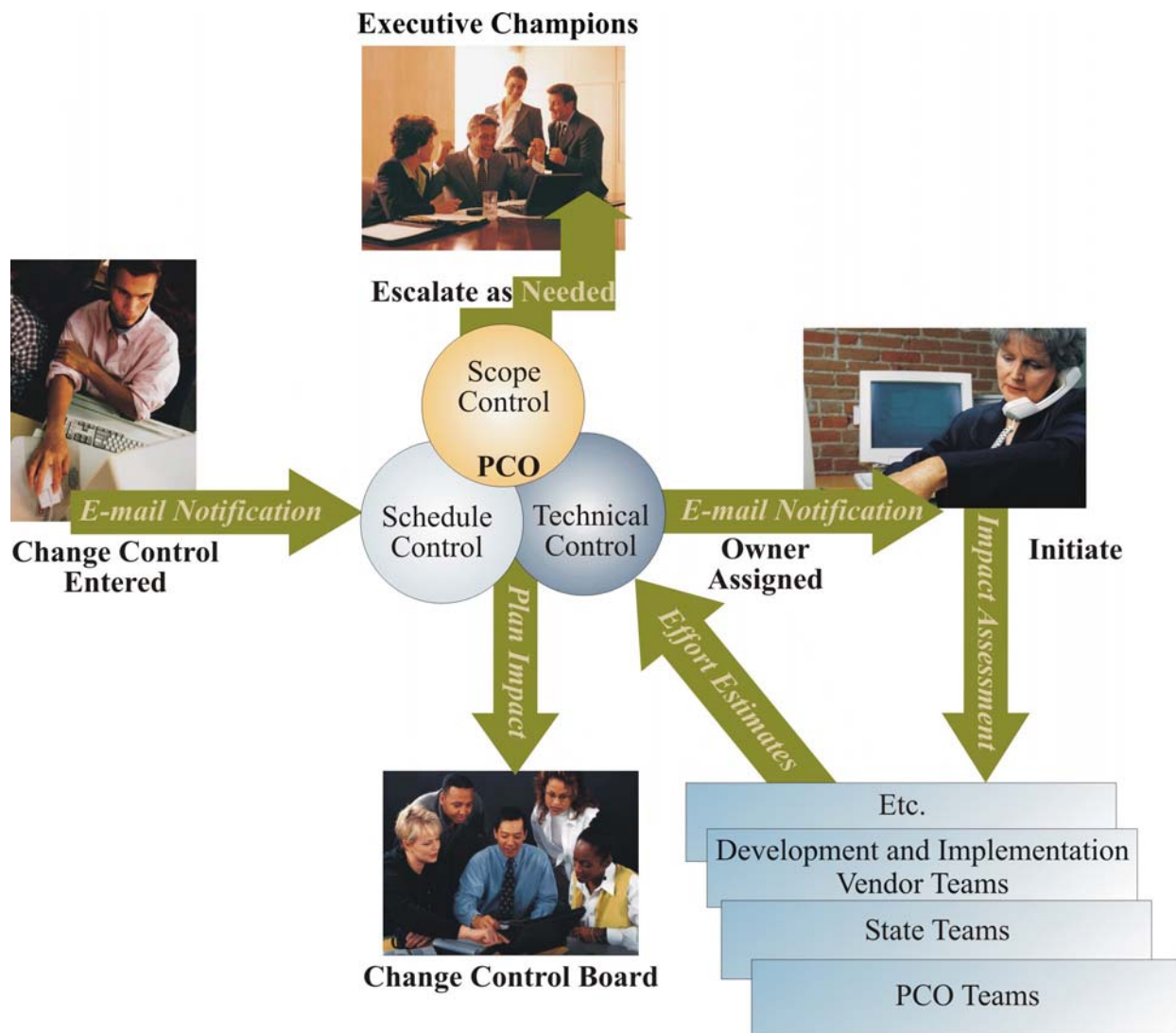


Figure 6.3-1, Change Control Issues Management

Priority also plays a role in the change management process. The following are priority classifications used on recent projects in which the State and EDS have collaborated in a Project Control Office setting:

- **Critical** – The change is unavoidable. The impact may only be minimized, unless action is taken.
- **High** – The change is necessary to support the business requirements.
- **Medium** – The change can be deferred, but offers significant business and technical advantage.
- **Low** – The change can easily be deferred and offers little business and technical advantage.



The key steps of the change management process are listed in the table below:

Step	Action	Responsibility / Agent
1.	Identify and Document Change Requests	Change Request Initiator
2.	Validate Change Requests – The Release Manager performs a key function such that requests are evaluated as they are entered and signaled by email notification.	Project Control Office
3.	Assign Change Request Owner - The Release Manager ensures that the initial information is correct, makes an assignment for evaluation, and may initiate additional communication, depending upon the urgency and criticality of the change control.	Project Control Office
4.	Collect Change Request Details – The owner of the request follows a tailored process to ensure that all impacted parties submit any estimates/impacts of the change control.	Change Request Owner
5.	Request Change Control Board (CCB) Review – Typically, a meeting is conducted two times per week but a meeting can be scheduled at critical junctures in the project.	Change Request Owner
6.	Convene Change Control Board (CCB) Review Tuesday – Thursday meeting	Project Control Office
7.	Communicate CCB Decision and Closure – In addition to the benefit of controlling scope and accommodating change in a controlled fashion, a key aspect of change controls is the communications value they bring. The Release Owner is responsible for issuing a listing of approved change controls and unapproved change controls.	Project Control Office
8.	Close Change Request – The change control is closed in the software tracking tool which captures a user id, date and time stamp, and initiates an email notification to team members.	Project Control Office

Superior project management is the key to consistently achieving project objectives. Applying the Michigan PMM and leveraging the best practices of EDS PM2 will ensure the State will achieve superior value.

1.5 Acceptance

1.501 CRITERIA

The following criteria will be used by the State to determine Acceptance of the Services and/or Deliverables provided under this SOW.

Activity 1: Project Start-up, Planning, Execution and Closedown

The State will have final approval of the project plan for each phase of BAM. The plan will include both Contractor and State resource requirements. Acceptance of the plan will be when the Plan has been executed with the State's involvement and presented (high level plan) to the Executive Steering Committee. The overall plan for all phases of BAM must be completed at the onset of the contract.

Activity 2: Technical Planning and Support

Task 2.3 – Install, Configure, Test, and Maintain Technical Environments

Upon acceptance of all required technical documentation as defined in the contract. The State will approve the technical set-up of each environment after fourteen (14) successive days of operation.

Task 2.5 – Develop Disaster Recovery and Business Continuity plans

Upon acceptance of all required Disaster Recovery and Business Continuity plans as defined in the contract. The State will provide final approval after a successfully documented test of the plan.

Task 2.7 – Perform COBIT review

All completed COBIT Audit Forms (i.e., COBIT reviews) must be accepted and approved by the State.

Final Acceptance of the technical environment will include the State's assessment and acceptance of State staff assuming responsibility of the servers and all environments at end of contract.

*Activity 3: Application Development**Task 3.2 – Perform Analysis, Refine and Requirements Definition*

The State will accept the final Business Requirements when the requirements are at the level of detail sufficient to begin coding. Business requirements not detailed enough for coding will not be accepted. The State will have a team of both DOS and DIT project staff make a final determination on the acceptance of the business requirements for each phase.

Task 3.3 – Design, Build, Unit Test System Including all Interfaces

The State will accept the Design, Build and Unit Test when the system conforms to the acceptance criteria developed during this phase. The Contractor will provide test results to the State when the test plans are completed satisfactorily and artifacts are marked for promotion.

Task 3.4 – Integration Testing

The State will accept the Integration Testing when ALL components for the BAM system are tested and correctly operating. The Contractor will provide Integration Test results to the State when the Integration Test plans are completed satisfactorily and artifacts are marked for promotion to the UAT environment.

Task 3.5 – Technical Documentation

The State will accept the technical documentation when a staff of two (2) DIT developers have reviewed and approved documentation for each phase. Contractors should allow time in their plan for technical documentation review by the State.

Final Acceptance of Application Development will include the State's assessment and acceptance of State's staff assuming responsibility of the application, all supporting source code and configurations as required at end of contract.

Activity 4: Data Conversion

The State will approve the Contractor to cutover data for production when a sampling of the data results in 100% verification of valid and reliable data, including new fields created for BAM.

Activity 5: Testing and Software Implementation

The BAM system shall be tested to verify the compliance of all business and technical requirements. Upon satisfactory completion of each test the Contractor should provide test results to the State with the appropriate artifact marked for promotion, including source code, configuration data, and meta data such as rules used by the rules engine. The State will review and approve all completed Test Plans before promoting all artifacts into the next environment.

*Activity 6: Implementation Support**Task 6.1 and Task 6.3 – Training*

The State will approve technical and business training plans and course work. The State will ask trainees to assess training provided and expects at least 85% approval rating for training performed in order for the task to be approved.

Task 6.4 – Perform Implementation Support

Successful statewide deployment of the phase meeting all mandatory functional requirements contained in the *Requirements* document and any addendums approved through the change control process, and any further refinements that were detailed in the requirements gathering stage for each phase. The system must be utilized in the production environment for a minimum of 10 business days without any critical abends or software bugs as defined by the State.

Task 6.6 – Transition Help Desk Services to State

Final Acceptance of the Help Desk Services will include the State's acceptance by the State Help Desk staff of full responsibility to perform appropriate Help Desk Services for BAM as defined by the DOS service levels.

Task 6.7 – Statewide User Acceptance Test

The State will approve the Statewide User Acceptance Test when there is 100% confidence level in the software as determined by the State BAM leaders including the program manager, technical project manager, business and technical integration managers, and phase business and technical leads.

**Activity 8: Miscellaneous**

See item below related to Transition Support.

Miscellaneous Tasks:

- In many tasks listed in Section 1.104 of this RFP, various plans (i.e., Plan for Data Conversion, Disaster Recovery and Business Continuity Plans, etc.) are to be submitted to the State. The approval process for all plans will be:
 - Contractor to submit draft plan for State approval of the format and content.
 - State to make modifications to the Contractor on draft within 10 days.
 - Contractor to submit final draft plan to State for approval.
 - State will submit modifications within 10 business days.
 - Final delivered to State with signature of appropriate project staff.This process may be modified upon agreement by the State and Contractor. Contractor should include the above timelines in their project plan and plan accordingly for proper sign-offs.
- Several activities for BAM include the transfer of Contractor skills and knowledge to the State. The State will accept the transfer of skills and knowledge are completed when the State staff can successfully perform tasks, without contractor assistance, for that specific activity.

To the extent known, the requirements for the deliverables have been documented in this RFP. However, prior to the creation and submission of each deliverable, the Contractor will work with the State to determine and agree upon the final format, content, acceptance criteria, and review process for each deliverable.

The Contractor shall propose a format for each deliverable and gain State approval prior to the preparation of the deliverable. This approval process shall include a sample deliverable with expected outcomes clearly articulated. The sample deliverable will ensure that a common understanding exists between the State and the Contractor prior to beginning work on the deliverable. No deliverables will be accepted or reviewed without having this prior sample deliverables reviewed and approved by the State.

1.502 FINAL ACCEPTANCE

Final acceptance for this contract will be based on the following:

1. Successful statewide deployment of the BAM system meeting all mandatory functional requirements contained in the *Requirements* document and any addendums approved through the change control process, and any further refinements that were detailed in the requirements gathering stage for each phase. The system must be utilized in the production environment for a minimum of three months.
2. Successful statewide deployment of the system meeting all mandatory system requirements contained in the *Technical Requirements* attachment, as well as new requirements completed during the requirements section of each phase.
3. Transition of system support to the State as outlined in Activity 8, Task 8.2.
4. Completion of training as outlined in Activity 6, Tasks 6.1 and 6.3.
5. Ability of the system to meet current standards of performance, including 400,000 inquiries per day, product turnaround times (i.e., 7-10 days to issue a driver license, 3-5 days to issue centralized titles, instant issuance of registrations and temporary documents, accurate notices to drivers including suspension orders, notices of hearings, etc.), instant access to inquiries by both DOS staff and other government agencies, and accurate financial information including accurate billings such as registration notices or driver license notices, other invoices, and "payment owed" on screens used by end users that advise customer what their total payment due to the State is.
6. Final acceptance will also be contingent upon accurate data which is reflected in correct status of all Michigan drivers, registered vehicles, titles, etc.

1.6 Compensation and Payment

Authorized Services and Price List as follows:

Compensation and payment for the commodities and services required by this contract include:



- Hardware and software – paid at quoted prices, with exceptions as follows: Prices quoted in the Contractor's price proposal are for comparison purposes as the State may purchase the equipment through DIT contracts. The State recognizes that IT pricing fluctuates rapidly, and will hold the prices within the contract for no more than six months from the due date of the RFP. The State will then pay fair market value price for the proposed hardware and/or software at the time of purchase, regardless of the price initially quoted with the Vendor's response to this RFP. The State reserves the right to purchase hardware and/or software from other Contracts or Vendors and does not commit to procuring required hardware/software from the awarded Contractor.
- Development and implementation –fixed prices quoted in Contractor's price proposal, with the exception of service enhancements (to be quoted at an hourly rate – see item below) and the optional six (6) month production support cost (for support at the END of phase 3D) that will be quoted separately.
- The State will pay for PHASE 3A as follows:
 - Fifty-five percent (55%) of total phase to be split into a monthly rate based on the total duration of the phase (on final Executive Steering approved project plan) and paid monthly beginning at the end of month 3 after Contract sign date (estimated date for the final project plan approval). If Contractor goes over initial timeline, monthly payments will terminate (since the monthly payments are calculated upon the original timeline). NOTE: Monthly payments are intended to allow contractor to have ongoing cash flow for BAM. Overlap payments of monthly phases will NOT be made UNLESS Contractor releases any scheduled phase earlier than final timeline estimated date.
 - Payment Criteria: made upon invoice from Contractor (normal State procedures).
 - Forty-five (45%) to be split as follows:
 - Fifteen (15%) of total phase paid upon approval of finalized Business Requirements for each phase. Payment Criteria: State will sign for payment when business and technical requirements are submitted to Development staff.
 - Ten percent (10%) of total phase paid upon successful (as defined by the State) Statewide User Acceptance Test. Payment Criteria: State will sign for payment when a successful Statewide User Acceptance Test is completed and the State agrees to Go Live with next release.
 - Ten percent (10%) of total phase paid upon successful (as defined by the State) implementation of phase. Payment Criteria: State will sign for payment when all branch and DOS work sites are fully operational with zero critical bugs or critical errors.
 - Ten percent (10%) of total phase paid upon successful transition to the State staff as required by each phase. Payment Criteria: The State will sign for payment based upon the following criteria:
 - The Contractor will complete training, mentoring, and other preparation for State staff in substantially the same manner using the checklist as the contractor uses to prepare contractor staff for production support roles. Details of the preparation and checklists will be mutually agreed upon by the State and contractor.
 - The State may delay sign-off for sixty (60) days after implementation in order to gauge the effectiveness of this preparation.
 - If the Contractor demonstrates a good faith effort to prepare the State to assume production support but the State team is not prepared to assume support functions for reasons beyond the control of the Contractor, the State will sign for payment no later than sixty (60) days after implementation.
- Ongoing Service Enhancements: – Up to 40,000 hours should be included for the duration of the project. The hours will be utilized at the State's discretion. The State will require Contractors to show this cost as included in the fixed amount as well as providing a hourly rate that the State can purchase additional services if desired. The Ongoing Service Enhancements hourly rate (as well as fixed costs) will not change over the life of the contract.
 - All service enhancements for A & B will be paid at the end of B, unless a decision is made and exception granted by the BAM Steering Committee. All service enhancements for C & D, will be paid at the end of D, unless a decision is made and exception granted by the BAM Steering Committee.
- Production Support (six months at the end of Phase 3D): - Contractor should separately price out the six (6) months additional support at the end of Phase 3D so the State has options with the support. Options the State may exercise the option to reduce the support time at the end of Phase 3D, allow DIT to support, or some combination of above. **Pricing for all phases should take into account the need to detail additional business requirements and Contractors should adjust fixed prices accordingly.



Article 2 – General Terms and Conditions

2.0 Introduction

2.001 GENERAL PURPOSE

The Contract is for Department of State for the State of Michigan. Orders will be issued directly to the Contractor by various State Agencies on the Purchase Order Contract Release Form. Bids are due and will be publicly identified at the time noted on the Invitation To Bid (ITB) Form.

2.002 ISSUING OFFICE AND CONTRACT ADMINISTRATOR

The Contract is issued by Acquisition Services, State of Michigan, Department of Management and Budget, hereinafter known as Acquisition Services, for the *Department of Information Technology* hereinafter known as (DIT) and the *Department of State*, hereinafter known as DOS. Where actions are a combination of those of Acquisition Services and the State agencies, the authority will be known as the State.

Acquisition Services is the sole point of contact in the State with regard to all procurement and contractual matters relating to the commodities and/or services described herein. Acquisition Services is the only office authorized to negotiate, change, modify, amend, alter, clarify, etc., the specifications, terms, and conditions of the Contract. Acquisition Services will remain the SOLE POINT OF CONTACT throughout the procurement process.

Contractor proceeds at its own risk if it takes negotiation, changes, modification, alterations, amendments, clarification, etc., of the specifications, terms, or conditions of the contract from any individual or office other than Acquisition Services and the listed contract administrator

All communications covering this procurement must be addressed to contract administrator indicated below:

Department of Management and Budget
Acquisition Services
Attn: **Melissa Castro**
2nd Floor, Mason Building
P.O. Box 30026
Lansing, Michigan 48909
(517) 373-1080
castrom@michigan.gov

2.003 NOTICE

Any notice given to a party under this Contract must be written and shall be deemed effective, if addressed to such party as addressed below upon (i) delivery, if hand delivered; (ii) receipt of a confirmed transmission by facsimile if a copy of the notice is sent by another means specified in this section; (iii) the third (3rd) Business Day after being sent by U.S. mail, postage pre-paid, return receipt requested; or (iv) the next Business Day after being sent by a nationally recognized overnight express courier with a reliable tracking system.

2.004 CONTRACT TERM

The term of this Contract will be for five (5) years and will commence with the issuance of a Contract. This will be approximately *September 13, 2005* through *September 30, 2010*.

Option. The State reserves the right to exercise two one-year options, at the sole option of the State. Contractor performance, quality of products, price, cost savings, and the contractor's ability to deliver on time are some of the criteria that will be used as a basis for any decision by Acquisition Services to exercise an option year.



Extension. At the sole option of the State, the contract may also be extended. Contractor performance, quality of products, price, cost savings, and the contractor's ability to deliver on time are some of the criteria that will be used as a basis for any decision by Acquisition Services to exercise an option year.

Written notice will be provided to the Contractor within 90 days provided that the State gives the Contractor a preliminary written notice of its intent to extend at least 60 days before the contract expires. The preliminary notice does not commit the Government to an extension. If the Government exercises this option, the extended contract shall be considered to include this option clause.

2.005 GOVERNING LAW

The Contract shall in all respects be governed by, and construed in accordance with, the laws of the State of Michigan. By signing this agreement, contractor consents to personal jurisdiction in the state of Michigan. Any dispute arising herein shall be resolved in the State of Michigan.

2.006 APPLICABLE STATUTES

The following statutes, rules, and laws are applicable to the performance of this contract; some statutes are reflected in the clauses of this contract. This list is NOT exhaustive.

MI Uniform Commercial Code (MIUCC) MCL 440. (All sections unless otherwise altered by agreement)

MI OSHA MCL §§ 408.1001 – 408.1094

Freedom of Information Act (FOIA) MCL §§ 15.231, et seq.

Natural Resources and Environmental Protection Act MCL §§ 324.101, et seq.

MI Consumer Protection Act MCL §§ 445.901 – 445.922

Laws relating to wages, payments of wages, and fringe benefits on state projects MCL §§ 408.551 – 408.558, 408.471 – 408.490, 1965 PA 390.

Department of Civil Service Rules and regulations

Elliot Larsen Civil Rights Act MCL §§ 37.2201, et seq.

Persons with disabilities Civil Rights Act MCL §§ 37.1101, et seq.

MCL §§ 423.321, et seq.

MCL § 18.1264 (law regarding debarment)

Davis-Bacon Act (DBA) 40 USCU §§ 276(a), et seq.

Contract Work Hours and Safety Standards Act (CWHSSA) 40 USCS § 327, et seq.

Business Opportunity Act for Persons with Disabilities MCL §§ 450.791 – 450.795

Rules and regulations of the Environmental Protection Agency

Internal Revenue Code

Rules and regulations of the Equal Employment Opportunity Commission (EEOC)

The Civil Rights Act of 1964, USCS Chapter 42

Title VII, 42 USCS §§ 2000e et seq.

The Americans with Disabilities Act (ADA), 42 USCS §§ 12101 et seq.

The Age Discrimination in Employment Act of 1967 (ADEA), 29 USCS §§ 621, 623 et seq.

The Old Workers Benefit and Protection Act of 1990 (OWBPA), 29 USCS §§ 626, et seq.

The Family Medical Leave Act of 1993 (FMLA), 29 USC §§ 651 et seq.

The Fair Labor Standards Act (FLSA), 29 USC §§ 201 et seq.

Pollution Prevention Act of 1990 (PPA) 42 U.S.C. §13106

Sherman Act, 15 U.S.C.S. § 1 et seq.

Robinson-Patman Act, 15 U.S.C.S. § 13 et. seq.

Clayton Act, 15 U.S.C.S. § 14 et seq.

2.007 RELATIONSHIP OF THE PARTIES

The relationship between the State and the Contractor is that of client and independent Contractor. No agent, employee, or servant of the Contractor or any of its subcontractors shall be or shall be deemed to be an employee, agent, or servant of the State for any reason. The Contractor will be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Contract.

**2.008 HEADINGS**

Captions and headings used in the Contract are for information and organization purposes. Captions and headings, including inaccurate references, do not, in any way, define or limit the requirements or terms and conditions of this Contract.

2.009 MERGER

This document constitutes the complete, final, and exclusive agreement between the parties. All other prior writings and negotiations are ineffective.

2.010 SEVERABILITY

Each provision of the Contract shall be deemed to be severable from all other provisions of the Contract and, if one or more of the provisions of the Contract shall be declared invalid, the remaining provisions of the Contract shall remain in full force and effect.

2.011 SURVIVORSHIP

Any provisions of the Contract that impose continuing obligations on the parties including, but not limited to the Contractor's indemnity and other obligations shall survive the expiration or cancellation of the Contract for any reason.

2.012 NO WAIVER OF DEFAULT

The failure of a party to insist upon strict adherence to any term of the Contract shall not be considered a waiver or deprive the party of the right thereafter to insist upon strict adherence to that term or any other term of the Contract.

2.013 PURCHASE ORDERS

Orders for delivery of commodities and/or services may be issued directly by the State Departments through the issuance of a Purchase Order Form referencing this Contract (Blanket Purchase Order) agreement and the terms and conditions contained herein. Contractor is asked to reference the Purchase Order Number on all invoices for payment.

2.1 Contractor Obligations**2.101 ACCOUNTING RECORDS**

The Contractor and all subcontractors shall maintain all pertinent financial and accounting records and evidence pertaining to the Contract in accordance with generally accepted principles of accounting and other procedures specified by the State of Michigan. Financial and accounting records shall be made available, upon request, to the State of Michigan, its designees, or the Michigan Auditor General at any time during the Contract period and any extension thereof, and for three years from expiration date and final payment on the Contract or extension thereof. Notwithstanding the foregoing, the parties agree that nothing in this Contract permits the State to access, nor shall Contractor provide access to, Contractor's internal cost records, including without limitation, profit and loss statements and other underlying costs of this nature.

2.102 NOTIFICATION OF OWNERSHIP

The Contractor shall make the following notifications in writing:

1. When the Contractor becomes aware that a change in its ownership or officers has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify Acquisition Services within 30 days.



2. The Contractor shall also notify the Acquisition Services within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership or officers.

The Contractor shall:

1. Maintain current, accurate, and complete inventory records of assets and their costs;
2. Provide Acquisition Services or designated representative ready access to the records upon request;
3. Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership or officer changes; and
4. Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership or officer change.

Notwithstanding the foregoing, Contractors that are publicly held corporations shall be deemed to have complied with the requirements of this Section 2.102 by delivering their annual and quarterly reports, as filed with the Securities and Exchange Commission ("SEC"), to the State.

2.103 SOFTWARE COMPLIANCE

The contractor warrants that all software for which the contractor either sells or licenses to the State of Michigan and used by the State prior to, during or after the calendar year 2000, includes or shall include, at no added cost to the State, design and performance so the State shall not experience software abnormality and/or the generation of incorrect results from the software, due to date oriented processing, in the operation of the business of the State of Michigan.

The software design, to insure year 2000 compatibility, shall include, but is not limited to: data structures (databases, data files, etc.) that provide 4-digit date century; stored data that contain date century recognition, including, but not limited to, data stored in databases and hardware device internal system dates; calculations and program logic (e.g., sort algorithms, calendar generation, event recognition, and all processing actions that use or produce date values) that accommodates same century and multi-century formulas and date values; interfaces that supply data to and receive data from other systems or organizations that prevent non-compliant dates and data from entering any State system; user interfaces (i.e., screens, reports, etc.) that accurately show 4 digit years; and assurance that the year 2000 shall be correctly treated as a leap year within all calculation and calendar logic.

2.104 IT STANDARDS

1. EXISTING TECHNOLOGY STANDARDS. The Contractor will adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at <http://www.michigan.gov/dit>.
2. PM METHODOLOGY STANDARDS. The State has adopted a standard documented Project Management Methodology (PMM) for use on all Information Technology (IT) based projects. This policy is referenced in the document titled "Project Management Methodology" – DMB Administrative Guide Procedure 1380.02 issued June 2000. Contractors may obtain a copy of this procedure, as well as the State of Michigan Project Management Methodology, from the Department of Information Technology's website at <http://www.michigan.gov/projectmanagement>.

The contractor shall use the State's PPM to manage State of Michigan Information Technology (IT) based projects. The Requesting agency will provide the applicable documentation and internal agency processes for the methodology. If the contractor requires training on the methodology, those costs shall be the responsibility of the contractor, unless otherwise stated.



3. ADHERENCE TO PORTAL TECHNOLOGY TOOLS. The State of Michigan, Department of Information Technology, has adopted the following tools as its Portal Technology development efforts:
- Vignette Content Management and personalization Tool
 - Inktomi Search Engine
 - E-Pay Payment Processing Module
 - Websphere Commerce Suite for e-Store applications

Contractors must use the Portal Technology Tools to implement web content management and deployment efforts for agencies. Tools used for web-based application development must work in conjunction with Vignette and Inktomi. The interaction with Vignette and Inktomi must be coordinated with the Department of Information Technology, Enterprise Application Services Office, e-Michigan Web Development team.

Under special circumstances contractors that are compelled to use alternate tools must submit an exception request to the Department of Information Technology, Enterprise Application Services Office, e-Michigan Web Development team, for evaluation and approval of each alternate tool prior to proposal evaluation by the State.

2.105 RESERVED

2.106 RESERVED

2.107 RESERVED

2.108 COMPETITION IN SUB-CONTRACTING

The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the contract.

2.109 CALL CENTER DISCLOSURE

Contractor and/or all subcontractors involved in the performance of this contract providing call or contact center services to the State of Michigan must disclose the location of its call or contact center services to inbound callers. Failure to disclose this information shall be a material breach of this agreement.

2.2 Contract Performance

2.201 RESERVED

2.202 CONTRACT PAYMENT SCHEDULE

All invoices should reflect actual work done. Specific details of invoices and payments will be agreed upon between the Contract Administrator and the Contractor after the proposed Contract Agreement has been signed and accepted by both the Contractor and the Director of Acquisition Services, Department of Management & Budget. This activity will occur only upon the specific written direction from Acquisition Services.

The specific payment schedule for any Contract(s) entered into, as the State and the Contractor(s) will mutually agree upon the result of this RFP. The schedule should show payment amount and should reflect actual work done by the payment dates, less any penalty cost charges accrued by those dates. As a general policy statements shall be forwarded to the designated representative by the 15th day of the following month.

See Section 1.6, Compensation and Payment, regarding the contract payment schedule.

**2.203 POSSIBLE PROGRESS PAYMENTS**

The Government may make progress payments to the Contractor when requested as work progresses, but not more frequently than monthly, in amounts approved by the Contract Administrator, after negotiation. Contractor must show verification of measurable progress at the time of requesting progress payments.

2.204 RESERVED**2.205 ELECTRONIC PAYMENT AVAILABILITY**

Electronic transfer of funds is available to State contractors. Contractor is required register with the State of Michigan Office of Financial Management so the State can make payments related to this Contract electronically at www.cpexpress.state.mi.us.

2.206 PERFORMANCE OF WORK BY CONTRACTOR

The Contractor shall perform on the site, according to the statement of work of this contract, work equivalent to at least one hundred (100%) percent of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contract Administrator determines that the reduction would be to the advantage of the Government.

2.3 Contract Rights and Obligations**2.301 INCURRING COSTS**

The State of Michigan is not liable for any cost incurred by the Contractor prior to signing of the Contract. The State fiscal year is October 1st through September 30th. The Contractor(s) should realize that payments in any given fiscal year are contingent upon enactment of legislative appropriations. Total liability of the State is limited to terms and conditions of the Contract.

2.302 CONTRACTOR RESPONSIBILITIES

The Contractor will be required to assume responsibility for all contractual activities, whether or not that Contractor performs them. Further, the State will consider the Contractor to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the anticipated Contract. If any part of the work is to be subcontracted, the Contract must include a list of subcontractors, including firm name and address, contact person and a complete description of work to be subcontracted. The State reserves the right to approve subcontractors and to require the Contractor to replace subcontractors found to be unacceptable. The Contractor is totally responsible for performance of any subcontractor(s) it may utilize under this Contract. Any change in subcontractors must be approved by the State, in writing, prior to such change.

2.303 ASSIGNMENT AND DELEGATION

The Contractor shall not have the right to assign this Contract, to assign its rights under this contract, or delegate any of its duties or obligations under the Contract to any other party (whether by operation of law or otherwise), without the prior written consent of the State. Such consent will not be unreasonably withheld. Any purported assignment in violation of this Section shall be null and void. Further, the Contractor may not assign the right to receive money due under the Contract without the prior written consent of the Director of Acquisition Services. Such consent will not be unreasonably withheld.

The Contractor shall not delegate any duties or obligations under the Contract to a subcontractor other than a subcontractor named and approved in the bid unless the Director of Acquisition Services has given written consent to the delegation.

The Contractor must obtain the approval of the Director of Acquisition Services before using a place of performance that is different from the address that bidder provided in the bid.

**2.304 TAXES**

Sales Tax: For purchases made directly by the State of Michigan, the State is exempt from State and Local Sales Tax. Prices shall not include such taxes. Exemption Certificates for State Sales Tax will be furnished upon request.

Federal Excise Tax: The State of Michigan may be exempt for Federal Excise Tax, or such taxes may be reimbursable, if articles purchased under this Contract are used for the State's exclusive use. Certificates exclusive use for the purposes of substantiating a tax-free, or tax-reimbursable sale will be sent to the Contractor upon request. If a sale is tax exempt or tax reimbursable under the Internal Revenue Code, prices shall not include the Federal Excise Tax.

The State's Tax Exempt Certification is available for contractor viewing upon request to the Contract Administrator.

2.305 INDEMNIFICATIONGeneral Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State, its departments, divisions, agencies, sections, commissions, officers, employees and agents, from and against all losses, liabilities, penalties, fines, damages and claims (including taxes), and all related costs and expenses (including reasonable attorneys' fees and disbursements and costs of investigation, litigation, settlement, judgments, interest and penalties), arising from or in connection with any of the following:

1. Any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from (1) the product provided or (2) performance of the work, duties, responsibilities, actions or omissions of the Contractor or any of its subcontractors under this Contract.
2. Any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from a breach by the Contractor of any representation or warranty made by the Contractor in the Contract;
3. Any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or related to occurrences that the Contractor is required to insure against as provided for in this Contract;
4. Any claim, demand, action, citation or legal proceeding against the State, its employees and agents arising out of or resulting from the death or bodily injury of any person, or the damage, loss or destruction of any real or tangible personal property, in connection with the performance of services by the Contractor, by any of its subcontractors, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable; provided, however, that this indemnification obligation shall not apply to the extent, if any, that such death, bodily injury or property damage is caused solely by the negligence or reckless or intentional wrongful conduct of the State;
5. Any claim, demand, action, citation or legal proceeding against the State, its employees and agents which results from an act or omission of the Contractor or any of its subcontractors in its or their capacity as an employer of a person.

Patent/Copyright Infringement Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State, its employees and agents from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and disbursements and costs of investigation, litigation, settlement, judgments, interest and penalties)



incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of such equipment, software, commodity or service, or the use or reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States or foreign patent, copyright, trade secret or other proprietary right of any person or entity, which right is enforceable under the laws of the United States. In addition, should the equipment, software, commodity, or service, or the operation thereof, become or in the Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor shall at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Contractor, (ii) replace or modify the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Code Indemnification

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from any claim, loss, or expense arising from Contractor's breach of the No Surreptitious Code Warranty.

Indemnification Obligation Not Limited

In any and all claims against the State of Michigan, or any of its agents or employees, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefits acts, or other employee benefits acts. This indemnification clause is intended to be comprehensive. Any overlap in sub clauses, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other sub clause.

Continuation of Indemnification Obligation

The duty to indemnify will continue in full force and affect not withstanding the expiration or early termination of the Contract with respect to any claims based on facts or conditions, which occurred prior to termination.

Indemnification Procedures

The procedures set forth below shall apply to all indemnity obligations under this Contract.

- (a) After receipt by the State of notice of the action or proceeding involving a claim in respect of which it will seek indemnification, the State shall promptly notify Contractor of such claim in writing and take or assist Contractor in taking, as the case may be, any reasonable action to avoid the imposition of a default judgment against Contractor. No failure to so notify Contractor shall relieve Contractor of its indemnification obligations except to the extent that Contractor can demonstrate damages attributable to such failure. Within ten (10) days following receipt of written notice from the State relating to any claim, Contractor shall notify the State in writing whether Contractor agrees to assume control of the defense and settlement of that claim (a "Notice of Election"). After notifying Contractor of a claim and prior to the State receiving Contractor's Notice of Election, the State shall be entitled to defend against the claim, at Contractor's expense, and Contractor will be responsible for any reasonable costs incurred by the State in defending against the claim during such period.



- (b) If Contractor delivers a Notice of Election relating to any claim: (i) the State shall be entitled to participate in the defense of such claim and to employ counsel at its own expense to assist in the handling of such claim and to monitor and advise the State about the status and progress of the Defense; (ii) Contractor shall, at the request of the State, demonstrate to the reasonable satisfaction of the State, Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) Contractor shall periodically advise the State about the status and progress of the defense and shall obtain the prior written approval of the State before entering into any settlement of such claim or ceasing to defend against such claim and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State shall have the right, at its own expense, to control the defense of that portion of such claim involving the principles of Michigan governmental or public law. Notwithstanding the foregoing, the State may retain control of the defense and settlement of a claim by written notice to Contractor given within ten (10) days after the State's receipt of Contractor's information requested by the State pursuant to clause (ii) of this paragraph if the State determines that Contractor has failed to demonstrate to the reasonable satisfaction of the State Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State of Michigan, or any of its subdivisions pursuant to this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State pursuant to this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.
- (c) If Contractor does not deliver a Notice of Election relating to any claim of which it is notified by the State as provided above, the State shall have the right to defend the claim in such manner as it may deem appropriate, at the cost and expense of Contractor. If it is determined that the claim was one against which Contractor was required to indemnify the State, upon request of the State, Contractor shall promptly reimburse the State for all such reasonable costs and expenses.

2.306 LIMITATION OF LIABILITY

The Contractor's liability for damages to the State shall be limited to the value of the Contract or \$10,000,000 which ever is higher. Except as set forth herein, neither the Contractor nor the State shall be liable to the other party for indirect or consequential damages, even if such party has been advised of the possibility of such damages. Such limitation as to indirect or consequential damages shall not apply to claims for infringement of United States patent, copyright, trademarks or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor or the State; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

The State's liability for damages to the Contractor shall be limited to the value of the Contract.

2.307 CONTRACT DISTRIBUTION

Acquisition Services shall retain the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by Acquisition Services.

2.308 FORM, FUNCTION, AND UTILITY

If the Contract is for use of more than one State agency and if the good or service provided under this Contract do not meet the form, function, and utility required by a State agency, that agency may, subject to State purchasing policies, procure the good or service from another source.

2.309 ASSIGNMENT OF ANTITRUST CAUSE OF ACTION

For and in consideration of the opportunity to submit a quotation and other good and valuable consideration, the bidder hereby assigns, sells and transfers to the State of Michigan all rights, title and interest in and to all causes of action it may have under the antitrust laws of the United States or this State for price fixing,



which causes of action have accrued prior to the date of payment and which relate solely to the particular goods, commodities, or services purchased or procured by this State pursuant to this transaction.

2.310 RESERVED

2.311 TRANSITION ASSISTANCE

If this Contract is not renewed at the end of this term, or is canceled prior to its expiration, for any reason, the Contractor must provide for up to *1 year* after the expiration or cancellation of this Contract, all reasonable transition assistance requested by the State, to allow for the expired or canceled portion of the Services to continue without interruption or adverse effect, and to facilitate the orderly transfer of such services to the State or its designees. Such transition assistance will be deemed by the parties to be governed by the terms and conditions of this Contract, (notwithstanding this expiration or cancellation) except for those Contract terms or conditions that do not reasonably apply to such transition assistance. The State shall pay the Contractor for any resources utilized in performing such transition assistance at the most current rates provided by the Contract for Contract performance.

Key personnel, as outlined in Section 1.201, Contractor Staff, Roles and Responsibilities, will be part of any transition assistance, as well as other staff deemed necessary by the State.

2.312 WORK PRODUCT

Work Products shall be considered works made by the Contractor for hire by the State and shall belong exclusively to the State and its designees, unless specifically provided otherwise by mutual agreement of the Contractor and the State. If by operation of law any of the Work Product, including all related intellectual property rights, is not owned in its entirety by the State automatically upon creation thereof, the Contractor agrees to assign, and hereby assigns to the State and its designees the ownership of such Work Product, including all related intellectual property rights. The Contractor agrees to provide, at no additional charge, any assistance and to execute any action reasonably required for the State to perfect its intellectual property rights with respect to the aforementioned Work Product.

Notwithstanding any provision of this Contract to the contrary, any preexisting work or materials including, but not limited to, any routines, libraries, tools, methodologies, processes or technologies (collectively, the "Development Tools") created, adapted or used by the Contractor in its business generally, including any and all associated intellectual property rights, shall be and remain the sole property of the Contractor, and the State shall have no interest in or claim to such preexisting work, materials or Development Tools, except as necessary to exercise its rights in the Work Product. Such rights belonging to the State shall include, but not be limited to, the right to use, execute, reproduce, display, perform and distribute copies of and prepare derivative works based upon the Work Product, and the right to authorize others to do any of the foregoing, irrespective of the existence therein of preexisting work, materials and Development Tools, except as specifically limited herein.

The Contractor and its subcontractors shall be free to use and employ their general skills, knowledge and expertise, and to use, disclose, and employ any generalized ideas, concepts, knowledge, methods, techniques or skills gained or learned during the course of performing the services under this Contract, so long as the Contractor or its subcontractors acquire and apply such information without disclosure of any confidential or proprietary information of the State, and without any unauthorized use or disclosure of any Work Product resulting from this Contract.

Contractors should understand what compliance with the Driver Privacy Protection Act (DPPA) as it relates to working with all DOS data means to them, as well as understand that the Contractor shall comply with all sections of this law.



2.313 PROPRIETARY RIGHTS

A. Software Ownership

Ownership of Work Product by State.

All Deliverables shall be owned by the State and shall be considered works made for hire by the Contractor for the State upon payment in full therefor to the Contractor by the State. The State shall own all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

The State expects to have ownership of all software and source codes used in development of deliverables as created.

Vesting of Rights. With the sole exception of any preexisting licensed works identified in Appendix [X], the Contractor shall assign, and upon creation of each Deliverable automatically assigns, to the State, ownership of all United States and international copyrights, trademarks, patents, or other proprietary rights in each and every Deliverable, whether or not registered by the Contractor, insofar as any such Deliverable, by operation of law, may not be considered work made for hire by the Contractor for the State. From time to time upon State's request, the Contractor and/or its personnel shall confirm such assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State shall have the right to obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

2.314 WEBSITE INCORPORATION

State expressly states that it will not be bound by any content on the Contractor's website, even if the Contractor's documentation specifically referenced that content and attempts to incorporate it into any other communication, unless the State has actual knowledge of such content and has expressly agreed to be bound by it in a writing that has been manually signed by an authorized representation of the State.

2.4 Contract Review and Evaluation

2.401 CONTRACT COMPLIANCE INSPECTOR

Upon receipt at Acquisition Services of the properly executed Contract Agreement(s), the person named below will be allowed to oversee the Contract performance on a day-to-day basis during the term of the Contract. However, overseeing the Contract implies **no authority to negotiate, change, modify, clarify, amend, or otherwise alter the terms, conditions, and specifications of such Contract(s). That authority is retained by Acquisition Services.** The Contract Compliance Inspector for this project is:

Reid Sisson

Department of Information Technology
DIT Bureau of Strategic Policy
111 S. Capitol Ave
Romney Bldg, 4th floor
Lansing MI 48913
Phone: 517-241-1638
E-mail: sissonr@michigan.gov

2.402 PERFORMANCE REVIEWS

Acquisition Services in conjunction with the *Department of State and/or Department of Information Technology* may review with the Contractor their performance under the Contract. Performance reviews shall be conducted quarterly, semi-annually or annually depending on Contractor's past performance with the State.



Performance reviews shall include, but not limited to, quality of products/services being delivered and provided, timeliness of delivery, percentage of completion of orders, the amount of back orders, status of such orders, accuracy of billings, customer service, completion and submission of required paperwork, the number of substitutions and the reasons for substitutions, and other requirements of the Contract.

Upon a finding of poor performance, which has been documented by Acquisition Services, the Contractor shall be given an opportunity to respond and take corrective action. If corrective action is not taken in a reasonable amount of time as determined by Acquisition Services, the Contract may be canceled for default. Delivery by the Contractor of unsafe and/or adulterated or off-condition products to any State agency is considered a material breach of Contract subject to the cancellation provisions contained herein.

2.403 AUDIT OF CONTRACT COMPLIANCE/ RECORDS AND INSPECTIONS

- (a) **Inspection of Work Performed.** The State's authorized representatives shall at all reasonable times and with ten (10) days prior written request, have the right to enter Contractor's premises, or any other places, where the Services are being performed, and shall have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress. Upon ten (10) Days prior written notice and during business hours, the State's representatives shall be allowed to inspect, monitor, or otherwise evaluate the work being performed and to the extent that such access will not interfere or jeopardize the safety or operation of the systems or facilities. Contractor must provide all reasonable facilities and assistance for the State's representatives, so long as no security, labor relations policies and propriety information policies are violated.
- (b) **Examination of Records.** No more than once per year, Contractor agrees that the State, including its duly authorized representatives, until the expiration of seven (7) years following the creation of the material (collectively, the "Audit Period"), shall, upon twenty (20) days prior written notice, have access to and the right to examine and copy any of Contractor's books, records, documents and papers pertinent to establishing Contractor's compliance with the terms and conditions of the Contract and with applicable laws and rules, including the State's procurement rules, regulations and procedures, and actual performance of the Contract for the purpose of conducting an audit, examination, excerpt and/or transcription but the State shall not have access to any information deemed confidential to Contractor to the extent such access would require such confidential information to become publicly available. This provision also applies to the books, records, accounts, documents and papers, in print or electronic form, of any parent, affiliated or subsidiary organization of Contractor, or any Subcontractor of Contractor performing services in connection with the Contract.
- (c) **Retention of Records.** Contractor shall maintain at least until the end of the Audit Period all pertinent financial and accounting records (including time sheets and payroll records, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract in accordance with generally accepted accounting principles and other procedures specified in this Section. Financial and accounting records shall be made available, upon request, to the State at any time during the Audit Period. If an audit, litigation, or other action involving Contractor's records is initiated before the end of the Audit Period, the records must be retained until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.
- (d) **Audit Resolution.** If necessary, the Contractor and the State shall meet to review each audit report promptly after issuance. The Contractor will respond to each audit report in writing within thirty (30) days from receipt of such report, unless a shorter response time is specified in such report. The Contractor and the State shall develop and agree upon an action plan to promptly address and resolve any deficiencies, concerns, and/or recommendations in such audit report.
 - 1. **Errors.** If the audit demonstrates any errors in the statements provided to the State, then the amount in error shall be reflected as a credit or debit on the next invoice and in subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried for more than four (4) quarterly statements. If a balance remains after four (4) quarterly statements, then the remaining amount will be due as a payment or refund within forty-five (45) days of the last quarterly statement that the balance appeared on or termination of the contract, whichever is earlier.



2. In addition to other available remedies, the difference between the payment received and the correct payment amount is greater than ten (10%), then the Contractor shall pay all of the reasonable costs of the audit.

2.5 Quality and Warranties

2.501 PROHIBITED PRODUCTS

The State will not accept salvage, distressed, outdated or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Acquisition Services has approved a change.

2.502 RESERVED

2.503 RESERVED

2.504 RESERVED

2.505 CONTRACTOR WARRANTIES

The Contract will contain customary representations and warranties by the Contractor as follows:

1. The Contractor will perform all services in accordance with high professional standards in the industry;
2. The Contractor will use adequate numbers of qualified individuals with suitable training, education, experience and skill to perform the services;
3. The Contractor will use its best efforts to use efficiently any resources or services necessary to provide the services that are separately chargeable to the State;
4. The Contractor will use its best efforts to perform the services in the most cost effective manner consistent with the required level of quality and performance;
5. The Contractor will perform the services in a manner that does not infringe the proprietary rights of any third party;
6. The Contractor will perform the services in a manner that complies with all applicable laws and regulations;
7. The Contractor has duly authorized the execution, delivery and performance of the Contract;
8. The Contractor is capable in all respects of fulfilling and shall fulfill all of its obligations under this contract.
9. The contract appendices, attachments, and exhibits identify all equipment and software services necessary for the deliverable(s) to perform and operate in compliance with the contract's requirements.
10. The Contractor is the lawful owner or licensee of any Deliverable licensed or sold to the state by Contractor or developed by Contractor under this contract, and Contractor has all of the rights necessary to convey to the state the ownership rights or license use, as applicable, of any and all Deliverables.



11. If, under this Contract, Contractor procures any equipment, software or other Deliverable for the State (including equipment, software and other Deliverables manufactured, re-marketed or otherwise sold by Contractor under Contractor's name), then in addition to Contractor's other responsibilities with respect to such items as set forth in this Contract, Contractor shall assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.
12. The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter this contract, on behalf of Contractor.
13. The Contractor is qualified and registered to transact business in all locations where required.
14. Neither the Contractor nor any Affiliates, nor any employee of either, has, shall have, or shall acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of its duties and responsibilities to the State under this Contract or otherwise create an appearance of impropriety with respect to the award or performance of this Agreement. Contractor shall notify the State within two (2) days of any such interest that may be incompatible with the interests of the State.
15. All financial statements, reports, and other information furnished by Contractor to the State as part of its response to the ITB or otherwise in connection with the award of this Contract fairly and accurately represent the business, properties, financial condition, and results of operations of Contractor as of the respective dates, or for the respective periods, covered by such financial statements, reports, other information. Since the respective dates or periods covered by such financial statements, reports, or other information, **and as of the execution date of this Contract by the parties hereto**, there have been no material adverse changes in the business, properties, financial condition, or results of operations of Contractor. All written information furnished to the State by or behalf of Contractor in connection with this Contract, including its bid, it true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make such information not misleading.
16. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED IN THIS AGREEMENT, CONTRACTOR MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, REGARDING ANY MATTER, INCLUDING THE MERCHANTABILITY, SUITABILITY, ORIGINALITY, FITNESS FOR A PARTICULAR USE OR PURPOSE, OR RESULTS TO BE DERIVED FROM THE USE, OF ANY INFORMATION TECHNOLOGY SERVICE, SOFTWARE, HARDWARE OR OTHER MATERIALS PROVIDED UNDER THIS AGREEMENT, OR THAT THE OPERATION OF ANY SUCH SERVICE, SOFTWARE, HARDWARE OR OTHER MATERIALS WILL BE UNINTERRUPTED OR ERROR-FREE.
17. The warranties of the Contractor set forth in this Contract are subject to the provisions of Section 2.603 hereof, Excusable Failure.

2.506 STAFF

The State reserves the right to approve the Contractor's assignment of Key Personnel to this project and to recommend reassignment of personnel deemed unsatisfactory by the State. Key Personnel are listed in Section 1.201, Contractor Staff, Roles and Responsibilities. In addition, within this section, there are Key Personnel designated by Phase, that indicate certain staff positions cannot change in the middle of a phase beyond reasonable control of the Contractor.

The Contractor shall not remove or reassign, without the State's prior written approval any of the Key Personnel until such time as the Key Personnel have completed all of their planned and assigned responsibilities in connection with performance of the Contractor's obligations under this Contract. The Contractor agrees that the continuity of Key Personnel is critical and agrees to the continuity of Key Personnel. Removal of Key Personnel without the written consent of the State may be considered by the State to be a material breach of this Contract. The prohibition against removal or reassignment shall not apply where Key Personnel must be replaced for reasons beyond the reasonable control of the Contractor including but not limited to illness, disability, resignation or termination of the Key Personnel's employment.



Before any contractor staff changes are made, whether they are Key Personnel or not, a request must be made to the State project team. The State will determine a process to approve ANY changes to the BAM contractor staff. The State has final approval on any staff changes made for any reason by the Contractor. Criteria that will be utilized by the State includes required experiences and skills, as well as ability to work with State staff, and other criteria that will be shared with the Contractor at the time a change is proposed.

2.507 SOFTWARE WARRANTIES

(a) Performance Warranty

The Contractor represents and warrants that Deliverables, after Final Acceptance, will perform and operate in compliance with the requirements and other standards of performance contained in this Contract (including all descriptions, specifications and drawings made a part of the Contract) for a period of ninety (90) days. In the event of a breach of this warranty, Contractor will promptly correct the affected Deliverable(s) at no charge to the State.

(b) No Surreptitious Code Warranty

The Contractor represents and warrants that no copy of EDS-owned Software provided to the State contains or will contain in any Self-Help Code or any Unauthorized Code as defined below. This warranty is referred to in this Contract as the "No Surreptitious Code Warranty."

As used in this Contract, "Self-Help Code" means any back door, time bomb, drop dead device, or other software routine designed to disable a computer program automatically with the passage of time or under the positive control of a person other than the licensee of the software. Self-Help Code does not include Software routines in a computer program, if any, designed to permit an owner of the computer program (or other person acting by authority of the owner) to obtain access to a licensee's computer system(s) (e.g. remote access via modem) for purposes of maintenance or technical support.

As used in this Contract, "Unauthorized Code" means any virus, Trojan horse, spyware, worm or other Software routines or components designed to permit unauthorized access to disable, erase, or otherwise harm software, equipment, or data; or to perform any other such actions. The term Unauthorized Code does not include Self-Help Code.

Contractor agrees to flow down the No Surreptitious Code Warranty in all of its agreements with any Subcontractors. In addition, Contractor will use up-to-date commercial virus detection software to detect and remove any viruses from any software prior to delivering it to the State.

(c) Calendar Warranty

The Contractor represents and warrants that all software for which the Contractor either sells or licenses to the State of Michigan and used by the State prior to, during or after the calendar year 2000, includes or shall include, at no added cost to the State, design and performance so the State shall not experience software abnormality and/or the generation of incorrect results from the software, due to date oriented processing, in the operation of the business of the State of Michigan.

The software design, to insure calendar year rollover compatibility, shall include, but is not limited to: data structures (databases, data files, etc.) that provide 4-digit date century; stored data that contain date century recognition, including, but not limited to, data stored in databases and hardware device internal system dates; calculations and program logic (e.g., sort algorithms, calendar generation, event recognition, and all processing actions that use or produce date values) that accommodates same century and multi-century formulas and date values; interfaces that supply data to and receive data from other systems or organizations that prevent non-compliant dates and data from entering any State system; user interfaces (i.e., screens, reports, etc.) that accurately show 4 digit years; and assurance that the year 2000 shall be correctly treated as a leap year within all calculation and calendar logic.



(d) Third-party Software Warranty

The Contractor represents and warrants that it will disclose the use or incorporation of any third-party software into the Deliverables. At the time of Delivery, the Contractor shall provide in writing the name and use of any Third-party Software, including information regarding the Contractor's authorization to include and utilize such software.

2.508 EQUIPMENT WARRANTY

To the extent Contractor is responsible under this Contract for maintaining equipment/system(s), Contractor represents and warrants that it will maintain such equipment/system(s) in good operating condition and will undertake all repairs and preventive maintenance in accordance with the applicable manufacturer's recommendations for the period specified in this Contract.

The Contractor represents and warrants that the equipment/system(s) shall be in good operating condition and shall operate and perform to the requirements and other standards of performance contained in this Contract, when installed, at the time of Final Acceptance by the State, and for a period of one (1) year commencing upon the first day following Final Acceptance.

Within one (1) business days of notification from the State, the Contractor shall adjust, repair or replace all equipment that is defective or not performing in compliance with the Contract. The Contractor shall assume all costs for replacing parts or units and their installation including transportation and delivery fees, if any.

The Contractor shall provide a toll-free telephone number to allow the State to report equipment failures and problems to be remedied by the Contractor.

The Contractor agrees that all warranty service it provides under this Contract shall be performed by original equipment manufacturer (OEM) trained, certified and authorized technicians.

The Contractor shall act as the sole point of contact for warranty service. The Contractor warrants that it shall pass through to the State any and all warranties obtained or available from the original equipment manufacturer, including any replacement, upgraded, or additional equipment warranties.

All warranty work shall be performed on the State of Michigan worksite(s).

2.509 PHYSICAL MEDIA WARRANTY

Contractor represents and warrants that each licensed copy of the Software provided by the Contractor is free from physical defects in the media that tangibly embodies the copy. This warranty does not apply to defects discovered more than thirty (30) days after that date of Final Acceptance of the Software by the State. This warranty does not apply to defects arising from acts of Excusable Failure. If the Contractor breaches this warranty, then the State shall be entitled to replacement of the non-compliant copy by Contractor, at Contractor's expense (including shipping and handling).

2.6 Breach of Contract

2.601 BREACH DEFINED

Failure to comply with articles, sections, or subsections of this agreement, or making any false statement in this agreement will be considered a material breach of this agreement giving the state authority to invoke any and all remedies available to it under this agreement.

In addition to any remedies available in law and by the terms of this contract, if the Contractor breaches Sections 2.508, 2.509, or 2.510, such a breach may be considered as a default in the performance of a material obligation of this contract.

**2.602 NOTICE AND THE RIGHT TO CURE**

In the event of a curable breach by the Contractor, the State shall provide the Contractor written notice of the breach and a time period to cure said breach described in the notice. This section requiring notice and an opportunity to cure shall not be applicable in the event of successive or repeated breaches of the same nature or if the State determines in its sole discretion that the breach poses a serious and imminent threat to the health or safety of any person or the imminent loss, damage or destruction of any real or tangible personal property.

2.603 EXCUSABLE FAILURE

1. Neither party shall be liable for any default or delay in the performance of its obligations under the Contract if and to the extent such default or delay is caused, directly or indirectly, by: fire, flood, earthquake, elements of nature or acts of God; riots, civil disorders, rebellions or revolutions in any country; the failure of the other party to perform its material responsibilities under the Contract (either itself or through another contractor); injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused); or any other cause beyond the reasonable control of such party; provided the non-performing party and its subcontractors are without fault in causing such default or delay, and such default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans or other means, including disaster recovery plans (if included within Contractor's scope of work). In such event, the non-performing party will be excused from any further performance or observance of the obligation(s) so affected for as long as such circumstances prevail and such party continues to use its best efforts to recommence performance or observance whenever and to whatever extent possible without delay provided such party promptly notifies the other party in writing of the inception of the excusable failure occurrence, and also of its abatement or cessation.
2. If any of the above enumerated circumstances substantially prevent, hinder, or delay performance of the services necessary for the performance of the State's functions for more than 14 consecutive days, and the State determines that performance is not likely to be resumed within a period of time that is satisfactory to the State in its reasonable discretion, then at the State's option: (a) the State may procure the affected services from an alternate source, and the State shall not be liable for payments for the unperformed services under the Contract for so long as the delay in performance shall continue; (b) the State may cancel any portions of the Contract so affected and the charges payable hereunder shall be equitably adjusted to reflect those services canceled; or (c) the Contract will be canceled without liability of the State to the Contractor except to the extent that the State shall pay for products and services authorized by the State and provided by Contractor through the date of termination, as of the date specified by the State in a written notice of cancellation to the Contractor. The Contractor will not have the right to any additional payments from the State as a result of any excusable failure occurrence or to payments for services not rendered as a result of the excusable failure condition. Defaults or delays in performance by the Contractor which are caused by acts or omissions of its subcontractors will not relieve the Contractor of its obligations under the Contract except to the extent that a subcontractor is itself subject to any excusable failure condition described above and the Contractor cannot reasonably circumvent the effect of the subcontractor's default or delay in performance through the use of alternate sources, workaround plans or other means.

2.7 Remedies**2.701 CANCELLATION**

The State may cancel this Contract without further liability or penalty to the State, its departments, divisions, agencies, offices, commissions, officers, agents, and employees unless otherwise specified below for any of the following reasons:

1. Material Breach by the Contractor. In the event that the Contractor breaches any of its material duties or obligations under the Contract, which are either not capable of or subject to being cured, or are not cured within the time period specified in the written notice of breach provided by the State, or pose a serious and imminent threat to the health and safety of any person, or the imminent loss, damage or destruction of any real or tangible personal property,



the State may, having provided written notice of cancellation to the Contractor, cancel this Contract in whole or in part, for cause, as of the date specified in the notice of cancellation.

In the event that this Contract is cancelled for cause, in addition to any legal remedies otherwise available to the State by law or equity, the Contractor shall be responsible for all costs incurred by the State in canceling the Contract, including but not limited to, State administrative costs, attorneys fees and court costs, and any additional costs the State may incur to procure the services required by this Contract from other sources. All excess re-procurement costs and damages shall not be considered by the parties to be consequential, indirect or incidental, and shall not be excluded by any other terms otherwise included in the Contract.

In the event the State chooses to partially cancel this Contract for cause charges payable under this Contract will be equitably adjusted to reflect those services that are cancelled.

In the event this Contract is cancelled for cause pursuant to this section, and it is therefore determined, for any reason, that the Contractor was not in breach of contract pursuant to the provisions of this section, that cancellation for cause shall be deemed to have been a cancellation for convenience, effective as of the same date, and the rights and obligations of the parties shall be limited to that otherwise provided in the Contract for a cancellation for convenience.

2. Cancellation For Convenience By the State. The State may cancel this Contract for its convenience, in whole or part, if the State determines that such a cancellation is in the State's best interest. Reasons for such cancellation shall be left to the sole discretion of the State and may include, but not limited to (a) the State no longer needs the services or products specified in the Contract, (b) relocation of office, program changes, changes in laws, rules, or regulations make implementation of the Contract services no longer practical or feasible, and (c) unacceptable prices for additional services requested by the State. The State may cancel the Contract for its convenience, in whole or in part, by giving the Contractor written notice 30 days prior to the date of cancellation. If the State chooses to cancel this Contract in part, the charges payable under this Contract shall be equitably adjusted to reflect those services that are cancelled.
3. Non-Appropriation. In the event that funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available. The Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this project. If funds are not appropriated or otherwise made available, the State shall have the right to cancel this Contract at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of cancellation to the Contractor. The State shall give the Contractor written notice of such non-appropriation or unavailability within 30 days after it receives notice of such non-appropriation or unavailability.
4. Criminal Conviction. In the event the Contractor, an officer of the Contractor, or an owner of a 25% or greater share of the Contractor, is convicted of a criminal offense incident to the application for or performance of a State, public or private Contract or subcontract; or convicted of a criminal offense including but not limited to any of the following: embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, attempting to influence a public employee to breach the ethical conduct standards for State of Michigan employees; convicted under State or federal antitrust statutes; or convicted of any other criminal offense which in the sole discretion of the State, reflects upon the Contractor's business integrity.
5. Approvals Rescinded. The State may terminate this Contract without further liability or penalty in the event any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services pursuant to Constitution 1963, Article 11, section 5, and Civil Service Rule 7. Termination may be in whole or in part and may be immediate as of the date of the written notice to Contractor or may be effective as of the date stated in such written notice.



2.702 RIGHTS UPON CANCELLATION

A. Rights and Obligations Upon Termination

- (1) If this Contract is terminated by the State for any reason, Contractor shall (a) stop all work as specified in the notice of termination, (b) take any action that may be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that may be in Contractor's possession, (c) return all materials and property provided directly or indirectly to Contractor by any entity, agent or employee of the State, (d) in the event that the Contractor maintains title in equipment and software that is intended to be transferred to the State at the termination of the Contract, upon payment to Contractor, Contractor will transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables and other Developed Materials intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which shall be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of such items included compensation to Contractor for the provision of warranty services in respect of such materials), and (e) take any action to mitigate and limit any potential damages, or requests for Contractor adjustment or termination settlement costs, to the maximum practical extent, including terminating or limiting as otherwise applicable those subcontracts and outstanding orders for material and supplies resulting from the terminated Contract.
- (2) In the event the State terminates this Contract prior to its expiration for its own convenience, the State shall pay Contractor for all charges due for Services provided prior to the date of termination and, if applicable, as a separate item of payment pursuant to this Contract, for partially completed Deliverables, on a percentage of completion basis. All completed or partially completed Deliverables prepared by Contractor pursuant to this Contract shall, at the option of the State, become the State's property, and Contractor shall be entitled to receive equitable fair compensation for such Deliverables. Regardless of the basis for the termination, the State shall not be obligated to pay, or otherwise compensate, Contractor for any lost expected future profits, costs or expenses incurred with respect to Services not actually performed for the State.
- (3.) If any such termination by the State is for cause, the State shall have the right to set-off against any amounts due Contractor the amount of any damages for which Contractor is liable to the State under this Contract or pursuant to law or equity.
- (4.) Upon a good faith termination, the State shall have the right to assume, at its option, any and all subcontracts and agreements for services and materials provided under this Contract, and may further pursue completion of the Services under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

B. Termination Assistance

If the Contract (or any Statement of Work issued under it) is terminated for any reason before completion, Contractor agrees to provide for up to two-hundred seventy (270) calendar days after the termination all reasonable termination assistance requested by the State to facilitate the orderly transfer of such Services to the State or its designees in a manner designed to minimize interruption and adverse effect. Such termination assistance will be deemed by the parties to be governed by the terms and conditions of the Contract (notwithstanding its termination) other than any terms or conditions that do not reasonably apply to such termination assistance. The State shall compensate Contractor for such termination assistance at the same rates and charges set forth in the Contract on a time and materials basis in accordance with the Labor Rates indicated within Contractors pricing section. If the Contract is terminated by Contractor under **Section 20**, then Contractor may condition its provision of termination assistance under this Section on reasonable assurances of payment by the State for such assistance, and any other amounts owed under the Contract.

**C. Reservation of Rights**

Any termination of the Contract or any Statement of Work issued under it by a party shall be with full reservation of, and without prejudice to, any rights or remedies otherwise available to such party with respect to any claims arising prior to or as a result of such termination.

D. End of Contract Transition

In the event the Contract is terminated, for convenience or cause, or upon expiration, the Contractor agrees to comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. In the event of termination or the expiration of the Contract, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed 270 calendar days. These efforts shall include, but are not limited to, the following:

- (1) **Personnel** - The Contractor shall work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties, to effect an orderly transition. The Contractor shall allow as many personnel as practicable to remain on the job to help the State, or a specified third party, maintain the continuity and consistency of the services required by the Contract. In addition, during or following the transition period, in the event the State requires the Services of the Contractor's subcontractors, as necessary to meet its needs, Contractor agrees to reasonably, and with good-faith, work with the State to use the Services of Contractor's subcontractors.
- (2) **Knowledgeable Personnel.** Contractor will make available to the State or a Third Party Provider knowledgeable personnel familiar with the operational processes and procedures used to deliver products and services to the State. The Contractor personnel will work with the State or third party to help develop a mutually agreeable transition plan, work to transition the process of ordering, shipping and invoicing equipment and services to the State.
- (3) **Information** - The Contractor agrees to provide reasonable detailed specifications for all Services needed by the State, or specified third party, to properly provide the services required under the Contract. The Contractor will also provide any licenses required to perform the Services under the Contract.
- (4) **Software.** - The Contractor shall reasonably assist the State in the acquisition of any Contractor software required to perform the Services under the Contract. This shall include any documentation being used by the Contractor to perform the Services under the Contract. If the State transfers any software licenses to the Contractor, those licenses shall, upon expiration of the Contract, transfer back to the State at their current revision level.
- (5) **Payment** - If the transition results from a termination for any reason, reimbursement shall be governed by the termination provisions of the Contract. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after Contract expiration that result from transition operations). The hourly rates or fixed price to be charged will be agreed upon prior to the work commencing.
- (6) **Single Point of Contact.** Contractor will maintain a Single Point of Contact (SPOC) for the State after termination of the Contract until all product and service obligations have expired.

E. Transition out of this Contract

- (1) In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the Contractor agrees to perform the following obligations, and any others upon which the State and the Contractor agree:
 - (i) Cooperating with any contractors, contractors, or other entities with whom the State contracts to meet its telecommunication needs, for at least two hundred and seventy (270) days after the termination of this Contract;



- (ii) Reserved.
 - (iii) Providing the State with all asset management data generated from the inception of this Contract through the date on which this Contract is terminated, in a comma-delimited format unless otherwise required by the Program Office;
 - (iv) Reconciling all accounts between the State and the Contractor;
 - (v) Allowing the State to request the winding up of any pending or ongoing projects at the price to which the State and the Contractor agreed at the inception of the project;
 - (vi) Freezing all non-critical software changes;
 - (vii) Notifying all of the Contractor's subcontractors of procedures to be followed during the transition out phase;
 - (viii) Assisting with the communications network turnover, if applicable;
 - (ix) Assisting in the execution of a parallel operation until the effective date of termination of this Contract
 - (x) Answering questions regarding post-migration services;
 - (xi) Delivering to the State any remaining owed reports and documentation still in the Contractor's possession.
- (2) In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to perform the following obligations, and any others upon which the State and the Contractor agree:
- (i) Reconciling all accounts between the State and the Contractor;
 - (ii) Completing any pending post-project reviews.

2.703 LIQUIDATED DAMAGES

- A. The State and the Contractor hereby agree to the specific standards set forth in this Contract. It is agreed between the Contractor and the State that the actual damages to the State as a result of Contractor's failure to provide promised services would be difficult or impossible to determine with accuracy. The State and the Contractor therefore agree that liquidated damages as set out herein shall be a reasonable approximation of the damages that shall be suffered by the State as a result thereof. Accordingly, in the event of such damages, at the written direction of the State, the Contractor shall pay the State the indicated amount as liquidated damages, and not as a penalty. Amounts due the State as liquidated damages, if not paid by the Contractor within fifteen (15) days of notification of assessment, may be deducted by the State from any money payable to the Contractor pursuant to this Contract. The State will notify the Contractor in writing of any claim for liquidated damages pursuant to this paragraph on or before the date the State deducts such sums from money payable to the Contractor. No delay by the State in assessing or collecting liquidated damages shall be construed as a waiver of such rights.
- B. The Contractor shall not be liable for liquidated damages when incidents or delays result directly from causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God, fires, floods, epidemics, and labor unrest; but in every case the delays must be beyond the control and without the fault or negligence of the Contractor.
- C. Liquidated damages will be assessed as follows:
- For failure to meet agreed upon implementation date for Phase 3A, 3B, and 3C, damages in the amount equal to the payment to DIT (DOS payments made through an Interdepartmental Grant (IDG), for support of the dual system, which is \$200,000 per month.
 - For failure to meet agreed upon implementation date for Phase 3D, damages in the amount equal to the "savings" to DIT (DOS payments made through an Interdepartmental Grant (IDG), for maintaining a dual system, which is \$138,000 per month.
 - The State will grant to the Contractor one 30-day exemption to liquidated damages.

**2.704 STOP WORK**

The State may, at any time, by written stop work order to the Contractor, require that the Contractor stop all, or any part, of the work called for by this Contract for a period of up to 90 days after the stop work order is delivered to the Contractor, and for any further period to which the parties may agree. The stop work order shall be specifically identified as such and shall indicate that it is issued under this section. Upon receipt of the stop work order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the stop work order during the period of work stoppage. Within the period of the stop work order, the State shall either:

- a) Cancel the stop work order; or
 - b) Cancel the work covered by the stop work order as provided in the cancellation section of this Contract.
2. If a stop work order issued under this section is canceled or the period of the stop work order or any extension thereof expires, the Contractor shall resume work. The State shall make an equitable adjustment in the delivery schedule, the contract price, or both, and the Contract shall be modified, in writing, accordingly, if:
- a) The stop work order results in an increase in the time required for, or in the Contractor's costs properly allocable to the performance of any part of this Contract; and
 - b) The Contractor asserts its right to an equitable adjustment within 30 days after the end of the period of work stoppage; provided, that if the State decides the facts justify the action, the State may receive and act upon a proposal submitted at any time before final payment under this Contract.
3. If the stop work order is not canceled and the work covered by the stop work order is canceled for reasons other than material breach, the State shall allow reasonable costs resulting from the stop work order in arriving at the cancellation settlement.
4. If a stop work order is not canceled and the work covered by the stop work order is canceled for material breach, the State shall not allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop work order.

An appropriate equitable adjustment may be made in any related contract of the Contractor that provides for adjustment and is affected by any stop work order under this section. The State shall not be liable to the Contractor for loss of profits because of a stop work order issued under this section.

2.705 SUSPENSION OF WORK

The Contract Administrator may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contract Administrator determines appropriate for the convenience of the Government.

If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contract Administrator in the administration of this contract, or (2) by the Contract Administrator's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract.

A claim under this clause shall not be allowed:

- (1) For any costs incurred more than 20 days before the Contractor shall have notified the Contract Administrator in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order); and



- (2) Unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

2.8 Changes, Modifications, and Amendments

2.801 APPROVALS

The Contract may not be modified, amended, extended, or augmented except by a writing executed by the parties hereto, and any breach or default by a party shall not be waived or released other than in writing signed by the other party.

2.802 TIME EXTENTIONS

Time extensions for contract changes will depend upon the extent, if any, by which the changes cause delay in the completion of the various elements of performance as described in the statement of work. The change order granting the time extension may provide that the contract completion date will be extended only for those specific elements related to the changed work and that the remaining contract completion dates for all other portions of the work will not be altered. The change order also may provide an equitable readjustment of liquidated damages under the new completion schedule.

2.803 MODIFICATION

Acquisition Services reserves the right to modify this contract at any time during the contract term. Such modification may include changing the locations to be serviced, additional locations to be serviced, method or manner of performance of the work, number of days service is to be performed, addition or deletion of tasks to be performed, addition or deletion of items, and/or any other modifications deemed necessary. Any changes in pricing proposed by the Contractor resulting from the proposed changes are subject to acceptance by the State. Changes may be increases or decreases. **IN THE EVENT PRICES ARE NOT ACCEPTABLE TO THE STATE, THE CONTRACT SHALL BE SUBJECT TO COMPETITIVE BIDDING BASED UPON THE NEW SPECIFICATION.**

The State reserves the right to add an item(s) that is not described on the item listing and is available from the Contract contractor. The item(s) may be included on the Contract, only if prior written approval has been granted by Acquisition Services.

2.804 AUDIT AND RECORDS UPON MODIFICATION

DEFINITION: records includes books, documents, accounting procedures and practices, and other data, regardless of whether such items are in written form, electronic form, or in any other form

Contractor shall be required to submit cost or pricing data with the pricing of any modification of this contract to the Contract Administrator in Acquisition Services. Data may include accounting records, payroll records, employee time sheets, and other information the state deems necessary to perform a fair evaluation of the modification proposal. Contract Administrator or authorized representative of the state shall have the right to examine and audit all of the contractor's records, including computations and projections, related to:

1. The proposal for modification;
2. The discussions conducted on the proposal, including those related to negotiation;
3. Pricing of the modification; or
4. Performance of the modification.

Contractor shall make available at its office at all reasonable times the materials described in the paragraphs above.

If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement.

**2.805 CHANGES**

- (a) The Contract Administrator may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes:
 - (1) In the specifications (including drawings and designs);
 - (2) In the method or manner of performance of the work;
 - (3) In the Government-furnished facilities, equipment, materials, services, or site; or
 - (4) Directing acceleration in the performance of the work.
- (a) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contract Administrator that causes a change shall be treated as a change order under this clause; Provided, that the Contractor gives the Contract Administrator written notice stating:
 - (1) The date, circumstances, and source of the order; and
 - (2) That the Contractor regards the order as a change order.
- (b) Except as provided in this clause, no order, statement, or conduct of the Contract Administrator shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

2.9 LOCATION OF PERFORMANCE

The State requires all Contractor staff to perform all work for BAM on site at Lansing location(s). Occasional off-site work may be permitted if the State agrees prior to the performance of such off-site work, however, bidders should plan for all staff to work on site at Lansing location(s) when preparing their proposals. The State will provide physical workspace for all Contractor staff. Included in this workspace are basic office furniture, telephone for local calls, and basic office supplies (i.e., paper, staples, copy machine, pens, etc.). In some instances, Contractor staff shall be required to share a cubicle and telephone. Contractors should provide their staff with PCs. The State can augment with no more than ten (10) PCs being provided for Contractor staff. The Contractor is responsible for any costs associated with travel (incl., airline, hotel, etc.) parking fees, cell phones, and other related items.



2.10 Disclosure Issues

2.1001 CONFIDENTIALITY

Contractor and the State each acknowledge that the other possesses and will continue to possess confidential information that has been developed or received by it. As used in this Section, "Confidential Information" of Contractor shall mean all non-public proprietary information of Contractor (other than Confidential Information of the State as defined below) that is marked confidential, restricted, proprietary, or with a similar designation. "Confidential Information" of the State shall mean any information which is retained in confidence by the State (or otherwise required to be held in confidence by the State pursuant to applicable federal, state and local laws and regulations) or which, in the case of tangible materials provided to Contractor by the State pursuant to its performance under this Contract, is marked as confidential, proprietary or with a similar designation by the State. In the case of information of either Contractor or the State "Confidential Information" shall exclude any information (including this Contract) that is publicly available pursuant to the Michigan FOIA.

Protection of Confidential Information

The State and Contractor will each use at least the same degree of care to prevent its closing to third parties the Confidential Information of the other as it employs to avoid unauthorized disclosure, publication or dissemination of its own confidential information of like character, but in no event less than reasonable care. Neither Contractor nor the State will (i) make any use of the Confidential Information of the other except as contemplated by this Contract, (ii) acquire any right in or assert any lien against the Confidential Information of the other, or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information to the other party. Each party will limit disclosure of the other party's Confidential Information to employees and Subcontractors who must have access thereto in order to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where (A) use of a Subcontractor is authorized under this Contract, (B) such disclosure is necessary or otherwise naturally occurs in connection with work that is within such Subcontractor's scope of responsibility, and (C) Contractor obligates the Subcontractor in a written Contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access or continued access to the State's Confidential Information may be required to execute an acknowledgment that the employee has been advised of Contractor's and the Subcontractor's obligations under this Section and of the employee's obligation to Contractor or Subcontractor, as the case may be, to protect such Confidential Information from unauthorized use or disclosure.

News releases

News releases (including promotional literature and commercial advertisements) pertaining to the ITB and Contract or project to which it relates shall not be made without prior written State approval, and then only in accordance with the explicit written instructions from the State. No results of the activities associated with the ITB and Contract are to be released without prior written approval of the State and then only to persons designated.

Exclusions

Notwithstanding the foregoing, the provisions of this Section will not apply to any particular information which the State or Contractor can demonstrate (i) was, at the time of disclosure to it, in the public domain; (ii) after disclosure to it, is published or otherwise becomes part of the public domain through no fault of the receiving party; (iii) was in the possession of the receiving party at the time of disclosure to it without an obligation of confidentiality; (iv) was received after disclosure to it from a third party who had a lawful right to disclose such information to it without any obligation to restrict its further disclosure; or (v) was independently developed by the receiving party without reference to Confidential Information of the furnishing party. Further, the provisions of this Section will not apply to any particular Confidential Information to the extent the receiving party is required by law to disclose such Confidential Information, provided that the receiving party (i) promptly provides the furnishing party with notice of the legal request, and (ii) assists the furnishing party in resisting or limiting the scope of such disclosure as reasonably requested by the furnishing party.

*No Implied Rights*

Nothing contained in this Section shall be construed as obligating a party to disclose any particular Confidential Information to the other party, or as granting to or conferring on a party, expressly or impliedly, any right or license to the Confidential Information of the other party.

Remedies

Each party acknowledges that, if it breaches (or attempts or threatens to breach) its obligations under this Section, the other party may be irreparably harmed. Accordingly, if a court of competent jurisdiction should find that a party has breached (or attempted or threatened to breach) any such obligations, the non-breaching party shall be entitled to seek an injunction preventing such breach (or attempted or threatened breach).

Survival

The parties' respective obligations under this Section shall survive the termination or expiration of this Contract for any reason.

Destruction of Confidential Information

Promptly upon termination or cancellation of the Contract for any reason, Contractor shall certify to the State that Contractor has destroyed all State Confidential Information.

2.1002 FREEDOM OF INFORMATION ACT

All information in a bidder's proposal and the Contract is subject to the provisions of the Freedom of Information Act. 1976 Public Act No. 442, as amended, MCL 15.231, et seq

2.1003 DISCLOSURE OF LITIGATION

The Contractor shall notify the State in its bid proposal, if it, or any of its subcontractors, or their officers, directors, or key personnel under this Contract, have ever been convicted of a felony, or any crime involving moral turpitude, including, but not limited to fraud, misappropriation or deception. Contractor shall promptly notify the State of any criminal litigation, investigations or proceeding which may have arisen or may arise involving the Contractor or any of the Contractor's subcontractor, or any of the foregoing entities' then current officers or directors during the term of this Contract and three years thereafter.

The Contractor shall notify the State in its bid proposal, and promptly thereafter as otherwise applicable, of any civil litigation, arbitration, proceeding, or judgments that may have arisen against it or its subcontractors during the five years proceeding its bid proposal, or which may occur during the term of this Contract or three years thereafter, which involve (1) products or services similar to those provided to the State under this Contract and which either involve a claim in excess of \$250,000 or which otherwise may affect the viability or financial stability of the Contractor, or (2) a claim or written allegation of fraud by the Contractor or any subcontractor hereunder, arising out of their business activities, or (3) a claim or written allegation that the Contractor or any subcontractor hereunder violated any federal, state or local statute, regulation or ordinance. Multiple lawsuits and or judgments against the Contractor or subcontractor, in any amount less than \$250,000 shall be disclosed to the State to the extent they affect the financial solvency and integrity of the Contractor or subcontractor.

All notices under subsection 1 and 2 herein shall be provided in writing to the State within fifteen business days after the Contractor learns about any such criminal or civil investigations and within fifteen days after the commencement of any proceeding, litigation, or arbitration, as otherwise applicable. Details of settlements, which are prevented from disclosure by the terms of the settlement, shall be annotated as such. Semi-annually, during the term of the Contract, and thereafter for three years, Contractor shall certify that it is in compliance with this Section. Contractor may rely on similar good faith certifications of its subcontractors, which certifications shall be available for inspection at the option of the State.



Notwithstanding the foregoing, Contractors that are publicly held corporations shall be deemed to have complied with the requirements of this Section 3.103 by delivering their annual and quarterly reports, as filed with the Securities and Exchange Commission ("SEC") to the State.

Assurances - In the event that such investigation, litigation, arbitration or other proceedings disclosed to the State pursuant to this Section, or of which the State otherwise becomes aware, during the term of this Contract, causes the State to be reasonably concerned about:

- a. The ability of the Contractor or its subcontractor to continue to perform this Contract in accordance with its terms and conditions, or
- b. Whether the Contractor or its subcontractor in performing services is engaged in conduct which is similar in nature to conduct alleged in such investigation, litigation, arbitration or other proceedings, which conduct would constitute a breach of this Contract or violation of Michigan or Federal law, regulation or public policy, then

The Contractor shall be required to provide the State all reasonable assurances requested by the State to demonstrate that: (a) the Contractor or its subcontractors hereunder will be able to continue to perform this Contract in accordance with its terms and conditions, (b) the Contractor or its subcontractors will not engage in conduct in performing services under this Contract which is similar in nature to the conduct alleged in any such litigation, arbitration or other proceedings.

*** The Contractor's failure to fully and timely comply with the terms of this section, including providing reasonable assurances satisfactory to the State, may constitute a material breach of this Contract.

2.11 Contractor Compliance with Laws

2.1101 GENERALLY

Contractor shall keep informed of federal, state, and local laws, ordinances, rules, regulations, orders, and decrees of bodies or tribunals having any jurisdiction/authority that in any manner affects those engaged in or employed on the work done under this agreement or that in any manner affects the conduct of the work done under this agreement. Contractor shall observe and comply with such laws, ordinances, rules, regulations, orders, and decrees. Contractor shall indemnify the state for any civil claim or liabilities arising from a violation of such laws, ordinances, rules, regulations, orders, or decrees, whether by itself or its employees, even if in part caused by a violation of such laws, ordinances, rules, regulations, orders, or decrees by the state or its agents or representatives.

2.12 LIABILITY INSURANCE

A. Insurance

The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage shall be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract.

All insurance coverage provided relative to this Contract/Purchase Order is PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The insurance shall be written for not less than any minimum coverage specified in this Contract or required by law, whichever is greater.



The insurers selected by Contractor shall have an A.M. Best rating of not less than A- or better, or as otherwise approved in writing by the State, or if such ratings are no longer available, with a comparable rating from a recognized insurance rating agency. Companies that have been approved to do business in the State shall issue all policies of insurance required in this Contract.

See www.michigan.gov/cis

Where specific limits are shown, they are the minimum acceptable limits. If Contractor's policy contains higher limits, the State shall be entitled to coverage to the extent of such higher limits.

Before both parties sign the Contract or before the purchase order is issued by the State, the Contractor must furnish to the Director of Acquisition Services, certificate(s) of insurance verifying insurance coverage ("Certificates"). The Certificate must be on the standard "accord" form or equivalent. **THE CONTRACT OR PURCHASE ORDER NO. MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING.** All Certificate(s) are to be prepared and submitted by the Insurance Provider. All Certificate(s) shall contain a provision indicating that coverage afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY (30) days prior written notice, except for ten (10) days for non-payment of premium, having been given to the Director of Acquisition Services, Department of Management and Budget. The notice must include the Contract or Purchase Order number affected and be mailed to: Director, Acquisition Services, Department of Management and Budget, P.O. Box 30026, Lansing, Michigan 48909. Failure to provide evidence of coverage, may, at the State's sole option, result in this Contract's termination.

The Contractor is required to pay for and provide the type and amount of insurance checked **below**:

- ☒ 1. Commercial General Liability with the following minimum coverage:

\$2,000,000	General Aggregate Limit other than Products/Completed Operations
\$2,000,000	Products/Completed Operations Aggregate Limit
\$1,000,000	Personal & Advertising Injury Limit
\$1,000,000	Each Occurrence Limit
\$500,000	Fire Damage Limit (any one fire)

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSURED(S) on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

- ☒ 2. If a motor vehicle is used to provide services or products under this Contract, the Contractor must have vehicle liability insurance on any auto including owned, hired and non-owned vehicles used in Contractor's business for bodily injury and property damage as required by law.

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSURED(S) on the vehicle liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

- ☒ 3. Workers' compensation coverage must be provided in accordance with applicable laws governing the employees and employers work activities in the state of the Contractor's domicile. If a self-insurer provides the applicable coverage, proof must be provided of approved self-insured authority by the jurisdiction of domicile. For employees working outside of the state of qualification, Contractor must provide appropriate certificates of insurance proving mandated coverage levels for the jurisdictions where the employees' activities occur.

Any certificates of insurance received must also provide a list of states where the coverage is applicable.



The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company. This provision shall not be applicable where prohibited or limited by the laws of the jurisdiction in which the work is to be performed.

- ☒ 4. Employers liability insurance with the following minimum limits:
 - \$100,000 each accident
 - \$100,000 each employee by disease
 - \$500,000 aggregate disease
- ☒ 5. Employee Fidelity, including dishonest acts by Contractor employees involving computers, insurance naming the State as a loss payee, providing coverage for direct loss to the State and any legal liability of the State arising out of or related to fraudulent or dishonest acts committed by the employees of Contractor or its Subcontractors, acting alone or in collusion with others, in a minimum amount of one million dollars (\$1,000,000.00) with a maximum deductible of fifty thousand dollars (\$50,000.00).
- ☒ 6. Umbrella or Excess Liability Insurance in a minimum amount of ten million dollars (\$10,000,000.00), which shall apply, at a minimum, to the insurance required in Subsection 1 (Commercial General Liability) above.
- ☒ 7. Professional Liability (Errors and Omissions) Insurance with the following minimum coverage: three million dollars (\$3,000,000.00) each occurrence and three million dollars (\$3,000,000.00) annual aggregate.
- ☐ 8. Fire and Personal Property Insurance covering against any loss or damage to the office space used by Contractor for any reason under this Contract, and the equipment, software and other contents of such office space, including without limitation, those contents used by Contractor to provide the Services to the State, up to the replacement value thereof, where such office space and its contents are under the care, custody and control of Contractor. Such policy shall cover all risks of direct physical loss or damage, including without limitation, flood and earthquake coverage and coverage for computer hardware and software. The State shall be endorsed on the policy as a loss payee as its interests appear.

B. Subcontractors

Except where the State has approved in writing a Contractor subcontract with other insurance provisions, Contractor shall require all of its Subcontractors under this Contract to purchase and maintain the insurance coverage as described in this Section for the Contractor in connection with the performance of work by those Subcontractors. Alternatively, Contractor may include any Subcontractors under Contractor's insurance on the coverage required in this Section. Subcontractor(s) shall fully comply with the insurance coverage required in this Section. Failure of Subcontractor(s) to comply with insurance requirements does not limit Contractor's liability or responsibility.

C. Certificates of Insurance and Other Requirements

Contractor shall furnish to the Office of Acquisition Services certificate(s) of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in this Section (the "Certificates"). Before the Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor shall provide evidence that the State and its agents, officers and employees are listed as additional insureds, but only to the extent of liabilities assumed by Contractor as set forth in Indemnification Section of this Contract, under each commercial general liability and commercial automobile liability policy. In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.



Contractor shall maintain all required insurance coverage throughout the term of the Contract and any extensions thereto and, in the case of claims-made Commercial General Liability policies, shall secure tail coverage for at least three (3) years following the expiration or termination for any reason of this Contract. The minimum limits of coverage specified above are not intended, and shall not be construed, to limit any liability or indemnity of Contractor under this Contract to any indemnified party or other persons. Contractor shall be responsible for all deductibles with regard to such insurance. If Contractor fails to pay any premium for required insurance as specified in this Contract, or if any insurer cancels or significantly reduces any required insurance as specified in this Contract without the State's written consent, at the State's election (but without any obligation to do so) after the State has given Contractor at least thirty (30) days written notice, the State may pay such premium or procure similar insurance coverage from another company or companies; and at the State's election, the State may deduct the entire cost (or part thereof) from any payment due Contractor, or Contractor shall pay the entire cost (or any part thereof) upon demand by the State.

2.13 ORDER OF PRECEDENCE

The following documents will be a part of the Contract in the following order of precedence:

- Appendix K of this Contract, Negotiation Document, supercedes the Best and Final Offer documentation, dated, August 4, 2005, language in the EDS ITB response dated July 14, 2005, clarifications (appendix L) dated July 26, 2005, and State's responses to Questions & Answers dated June 15, 2005 and June 28, 2005.
- Best and Final Offer documentation, dated, August 4, 2005, supersedes language in the EDS ITB response dated July 14, 2005, clarifications (appendix L) dated July 26, 2005, and State's responses to Questions & Answers dated June 15, 2005 and June 28, 2005.
- Responses from EDS from the State on clarifications (appendix L) on their proposal supersede any statements made in the ITB response from EDS dated July 14, 2005. Document dated July 26, 2005.
- All responses to Questions & Answers dated June 15, 2005 and June 28, 2005 are added as contractual language and supersede any previously noted sections in the State's ITB. (Attachments to the Contract section.)
- This Contract
- The State's original ITB
- The EDS ITB response dated July 14, 2005

This Contract shall represent the entire agreement between the parties and supersedes all proposals or other prior agreements, oral or written, and all other communications between the parties relating to this subject.



Appendix A

Activity 1 – Project Start-Up, Planning, Execution, and Closedown

Task 1.1 – Perform Project Management Functions

Requirements of Task

Upon commencement of the project (contract), the Contractor shall work with the State project team to perform Project Startup and Initiation for the BAM initiative. This shall include establishment of a Contractor project team, with appropriate staff, in Lansing, Michigan, acclimating the contractor team to the BAM project, meeting management and staff, setting up the work environment, and, conducting a formal kickoff meeting with the State team. The project kickoff should occur within two months of contract start.

Additional activities at project start-up, as well as during the course of the project, include team building meetings, operational meetings, status meetings, and other activities all aimed at creating a unified BAM team to accomplish the project objectives.

Each phase will be managed as a “project,” with its unique scope, schedule, risks, and issues. Each requires effective project management to plan, execute, and control to achieve the desired outcome. The Contractor’s role in each phase is critical, as it provides the business and system knowledge and experience to develop and complete an aggressive - yet attainable - plan. It is the contractor’s responsibility to execute and control the entire BAM project, including each phase from initiation to closeout, and the requisite tasks associated with planning, execution, and controlling the BAM project.

In coordination with the State team, the Contractor shall develop a plan for each phase and gain agreement on the plan from all stakeholders. This plan shall contain the scope, schedule, staffing plan (Contractor and State), cost, and risk items associated with the phase, as well as documented assumptions.

In coordination with the State team, the Contractor shall execute and control the plan to achieve the agreed upon functionality within each phase. This will include performing impact assessment on proposed changes in scope (i.e., Change Control Impact Assessment), identifying risks and issues, developing and executing risk mitigation plans, assigning specific tasks to specific individuals, tracking resource effort and progress on tasks, and generally managing the staff and project activities necessary to complete the project successfully. Communicating and sharing information with the State project leadership team and other stakeholders in a timely and accurate manner will also be a critical responsibility of the Contractor.

At the completion of each phase the Contractor shall perform project closedown activities in coordination with the State team. This shall include a review of project metrics and general “lessons learned” from project participants, and shall generate a Post-Implementation Evaluation Report (PIER). The PIER should minimally include a review of the quantity and type of issues encountered, general root causes for the issues, and recommendations for improving the subsequent phase. A comparison of actuals to estimates for total effort, staff-months, number of configuration items, etc. should also be conducted, yielding input for estimates on subsequent release projects. A formal review of the PIER document shall be conducted with the State project leadership team. This should be completed within one month of phase (or major release) implementation.

The Contractor is responsible for managing the interdependencies between the various contractor teams / sub-teams (i.e., Technical Planning and Support, Application Development, Data Conversion, Testing, Implementation Support, and Ongoing Production Support) to efficiently and effectively complete the BAM project work. The Technical Project Manager will assist the State Program Manager in overseeing the Contractor.

The BAM program also requires effective project management to ensure the overall goals and objectives are met. Periodic reviews of the overall strategy to achieve these goals and objectives will occur throughout this contract and the Contractor, with its depth and breadth of industry experience, is a critical participant in these reviews.

The State's Program Manager will conduct monthly Executive Steering Committee meetings to review and gain agreement on BAM program status and direction. The Contractor's Project Manager will attend these meetings. Other project related meetings will be scheduled regularly and the Contractor is expected to participate as appropriate.

The Contractor is responsible for fulfilling the requirements of this contract, including **Article 2 – General Terms and Conditions, Article 3 – Certifications and Representations** requirements not specifically addressed here in **Article 1 - Statement of Work (SOW)**.

The Contractor is generally responsible for managing the overall contract from its company's perspective, including but not limited to:

- Financial management – producing bills/invoices
- Subcontractor management - managing subcontractors, contracts and relationships
- Scope management

Deliverables from Task 1.1

1. Project kickoff meeting – within two months of contract start
2. Startup and Planning Document (i.e., Project Plan) (by phase) – within six weeks of contract start
3. Processes, tools, and procedures for executing and controlling each phase of BAM
4. Change Control Impact Assessment (request by request) (duration, effort, cost, risk)
5. Issue and risk items (by phase)
6. Risk mitigation plans (by phase)
7. Task estimates – duration, effort, cost (initial and ongoing)
8. Resource time (effort) tracking/reporting (weekly, by task)
9. Individual task assignments
10. Bills/Invoices – as agreed upon
11. Project Closedown (i.e., PIER) Report – within one month of project implementation (by phase)

Contractor Response:

The State's project control partner will understand the risks inherent to large, complex, high-visibility projects and will adept at guiding the State in avoiding these risks. The size, complexity, and high visibility of the BAM project magnify these risks. EDS recognizes the need to establish and maintain a Project Control Office (PCO) that exercises schedule and technical control and mitigates project risks by meeting primary objectives such as the following:

- Provide strong, centralized, independent, and unbiased project management
- Foster thorough communications among the departments, agencies, and vendors
- Confirm that project scope and release dates are reliably satisfied by implementing aggressive schedule, issue, and risk management
- Establish procedures and control mechanisms to support the technical integrity of the BAM application and its architecture
- Instill a commitment to continuous improvement throughout the project, thereby improving application quality and performance while increasing the productivity of the entire BAM team

Project Control Office Overview

EDS will propose that BAM benefit from the successful model implemented for MiCSES as a starting point to the success of the BAM project. EDS BAM Management Team, EDS has defined the management structure to execute BAM Phase 3 according to the named roles. Based on the breadth of BAM, EDS will define a PCO structure that will control all aspects of the contract. This PCO structure is an important part of our solution, but not the complete solution. The complete solution is described in the activity sections, however the PCO concept will provide overarching control of each activity. This organizational structure will align seamlessly to the State project team structure and guarantee success for both the State and EDS. The overall management team for the BAM project will be composed of State and EDS staff. Through its PCO team, EDS will rigorously implement the BAM Phase 3 system.

Project Control Office Tools

EDS, in conjunction with the State, has developed a toolset used to track and monitor project performance called Tracker Tools or PCO Toolset. EDS PCOs have successfully used these tools EDS on other State projects. The BAM PCO team is poised to leverage EDS' expertise with these tools to establish and maintain an environment for maximum reuse, benefit, and improvement to the project.

In a project as large and visible as BAM, robust communication and readily available data can mean the difference between

success and failure. EDS has determined that establishing an integrated PCO toolset as a mechanism for sharing data across the project facilitates this critical capability. The PCO toolset affords access to a wide range of project information and dynamic communications among project personnel, the PCO, and project managers. EDS will make sure toolsets interface with, complement, and support the processes of the various project teams (PCO, Technical Support team, Application Development team, and production support teams, and so on).

The following tools are proposed for BAM:

- **Issue Tracker** – The Issue Tracker furnishes mechanisms for entering, tracking, and reporting project issues, change controls, and risks.
- **Project and Report Tracker** – Project management uses the Project and Report Tracker functionality to generate project scorecards.
- **Time Tracker** – The Time Tracker contains functionality for automated uploading of project plan tasks from Microsoft Project (.mpp files), generating timesheets for individuals, adding custom time tracking tasks to timesheets, and logging timesheet entries.
- **Build Tracker** – Build Tracker enables the parameterized generation and scheduling of build scripts to eliminate errors and enhance flexibility.
- **Infrastructure Request System** – The Infrastructure Request System provides request entry, assignment, status tracking, and automated e-mail notification features to propagate communication about events in each environment.
- **Test Tracker** – Test Tracker is employed during the system and user acceptance test cycles to provide necessary controls and monitoring of testing results.
- **Ticket Tracker** – Ticket Tracker is a collection of reports from the Remedy (Action Request System) database providing the ability to manage production maintenance ticket flow and assist with release composition.
- **Load Tracker** – Load Tracker collects user logon information at half-hour intervals to show peak, concurrent usage and daily usage patterns.
- **Improvement Requests (CIR, Infrastructure Request System)** – The Continuous Improvement Request (CIR) was designed to provide a mechanism to request enhancements or other support work on the toolsets.

Task 1.1 – Perform Project and Contract Management Functions

EDS will manage each BAM phase (3A, 3B, 3C, 3D) as a “project,” with its unique scope, schedule, risks, assumptions, costs, and issues controlled through the PCO. EDS will use its PM2 methodology to apply effective project management to plan, execute, and control each project to achieve the desired outcome. EDS’ role in each phase will provide the business and system knowledge and experience to develop and complete an aggressive, yet attainable, plan. EDS will take full responsibility to execute and control the entire BAM project in cooperation with the State of Michigan, including each phase from initiation to closeout, and the requisite tasks associated with startup, planning, execution, and controlling the BAM project.

The following subsections describe EDS’ approach to performing Task 1.1 – Perform Project and Contract Management Functions.

Project Startup and Planning

EDS will work with the BAM Project team to identify project stakeholders. Stakeholders will include representative from DOS, DIT, and recipients of BAM services. It is critical that EDS understand stakeholder requirements during creation of the project plan. The PCO will create a project plan within the first six weeks of the contract. Project plan components will be reviewed and approved by key project stakeholders as defined by the BAM Project Manager. Key components of this plan include the following.

- **Scope and Objectives** – Defines products and services to be provided by the project and how these items align with the State’s objectives for this project
- **Risk Management Plan** – Defines procedures required to document, evaluate impact, and define mitigation actions related to project risks
- **Issue Management Plan** – Defines procedures required to submit, review, track, resolve, and escalate project issues
- **Schedule** – The Microsoft Project schedule provides a work breakdown structure for all activities that will be performed by the project. Each activity or task will be estimated for effort and assigned to a project resource. EDS will baseline the estimated effort and start and end dates for each schedule task to facilitate measurement of project performance during execution.
- **Staffing Plan** – Documents project resources required to complete tasks defined within the project schedule

- **Assumptions and Constraints** – Documents project initial assumptions and constraints
- **Configuration Management Plan** – Defines process by which the project team will perform configuration and data management
- **Cost Management Plan** – Provides means to measure project performance to budget
- **Roles and Responsibilities** – Defines each project role and associated responsibility
- **Communication Plan** – Communication planning involves defining the information needs of project stakeholders, sources of this information, and communication timing and format. EDS will tailor the BAM Communication Plan to meet organizational needs including team building meetings, status meetings, operational meetings, and other activities required to foster successful execution of project objectives.
- **Measurement Plan** – Defines project measurements that EDS will use to measure performance and provide insight to potential process improvement
- **Scope Management Plan** – Includes the processes required to manage potential changes in project scope
- **Quality Plan** – Defines project quality assurance activities such as independent audit of execution of project processes and procedures, review of work products, and project health checks
- **Standards and Procedures** – Defines project-specific standards and procedures such as program coding standards, time tracking, and defect tracking
- **Contact List** – Documents important contact information for those associated with the project

With an approved Project Plan, EDS will conduct a project kickoff meeting, allowing stakeholders to meet each other and achieve a common understanding of the project's objectives. Within the context of the meeting, EDS will discuss the State's and EDS' shared project control vision, objectives, and communication planning. The PCO will define and deploy an environment required for the Project team to perform work. During project startup, the PCO will deploy Project team members as required by the approved Staffing Plan.

Project Execution and Control

To achieve successful delivery of each project, EDS will continually monitor the project schedules for adherence to the project plan. EDS will perform impact assessments on proposed changes in scope (such as Change Control Impact Assessment), identifying risks and issues, developing and executing risk mitigation plans, assigning specific tasks to specific individuals, tracking resource effort and progress on tasks, and generally managing the staff and project activities necessary to complete the project successfully. EDS will communicate and share information with the State project leadership team and other stakeholders in a timely and accurate manner.

Managing, Executing, and Controlling Each Phase as a Project

In coordination with the State of Michigan team during Phase 2, EDS has already developed the high-level time lines for BAM Phase 3 and fully understands the suggestions put forth in the Implementation Strategy document and all defined BAM requirements. EDS has taken the scope of BAM Phase 3 and developed new project schedules and staffing plans that improve on the suggestions in the Implementation Strategy document.

See Activity 1 Appendix A - Draft Project Plans to get a global view of how EDS has organized the MS Project schedules. To understand the cost according to effort and duration, the staffing plan is documented in Activity 1 Appendix C - Contractor Staffing Plan. This approach applies to all phases, but for BAM Phases 3B, 3C, and 3D minor alterations to this approach will occur once EDS has defined the detailed scope.

EDS will continually monitor the project schedules or work breakdown structure for adherence to the Project Plan to achieve the agreed upon functionality within each phase.

Management of Issue, Risk, and Change Control

To manage issue, risk, and change control, EDS will institute robust processes for BAM, leveraging the Issue Tracker tool. This tool permits identification, tracking, and reporting of issues, risks, and change controls by release, assigned personnel, status, and level of escalation.

The tool will allow for entry of new issues and risks by any project team member. The PCO will review all new issues and risk items and assign them to an appropriate staff member, establishing a target date for resolution. The PCO will review issues and risks at team meetings, manager status meetings, and executive leadership meetings as needed.

Per the issue and risk management plans defined during project startup, the PCO will escalate an issue or risk so that an appropriate level of management is aware of the problem and resolution can be expedited. EDS has included the draft Risk Mitigation Plan in Activity 1 Appendix B detailing the initial risks of BAM and the strategies for prevention of those risks.

The Issue Tracker tool will be readily accessible to all project participants. The tool generates a number of reports in various formats, including reports on the following:

- Open issues and risks
- Closed issues and risks
- Issues and risks still outstanding after 30 days, 60 days, and 90 days
- Issue and risk details
- Escalated issues and risks

The State and EDS have collaborated on past projects to establish an issue and risk escalation process defined for risk management and issue management as well as key decision points. The PCO will assign an escalation level that generates a review at the regularly scheduled leadership meeting to unresolved issues on the BAM project. Items requiring the involvement of a leader to remove roadblocks will be assigned to that leader, who assumes ownership of the issue or risk and assists in its swift resolution. This approach can be modified as needed as the stability of BAM matures.

The PCO serves as the facilitator and driver for the change control process. A change control may be entered by any project team member. For each new change control, the PCO will identify a staff member to estimate effort associated with the change, including identification of the resource requirements for change implementation. The PCO will perform an analysis against the project schedule to determine the impact on existing project commitments. The PCO will facilitate necessary meetings that address the change control scope, effort, cost, assumptions, and schedule impacts with the State so that timely decisions can be made.

Strategic Reviews and Intergroup Communication

EDS will develop a robust and broad communication plan that will address verbal communications in meetings or by e-mails distributed to the team, but will also manage and control the flow of all critical project data to appropriate personnel. Strategic Reviews and Executive Steering Committee participation will occur throughout this contract. Inadequate executive sponsorship is the cause of 43 percent of projects failing. EDS has an established relationship with the existing BAM Executive Committee and understands the important role that the executive committee plays in BAM. To be successful, communications will be consistent, timely, and transparent. Effective project management enables communication. It is the softer “people” issues that are the true differentiators in our business. To promote communication consistency, EDS will create procedures and distribution lists for standard project communications. EDS will support and monitor these communications to verify adherence to the plan.

Schedule Performance Monitoring and Time Tracking

A key input to schedule performance monitoring is the report of actual effort for each task within the schedule. Project schedule effort information provides the PCO with the ability to:

- Track progress on scheduled tasks
- Monitor personnel workloads
- Analyze historical information to improve future planning

EDS will use the Time Tracker tool to generate a weekly time sheet for each staff member working on the BAM project. The time sheet includes project assignments from the Microsoft Project schedules that support each release and base operation activity. Each team staff member will be required to submit a time sheet weekly.

EDS will use data entered into the Time Tracker tool to update the project schedule with the prior week’s effort by close of business each Monday. After updating the schedule, EDS will use a number of tools to extract data from the schedule and generation performance measures. Using performance thresholds defined within the Measurement Plan during project startup, EDS will perform completion-to-milestone and earned value analysis. When analysis indicates a problem, the PCO will document a corrective action plan and communicate details to the BAM Project team per the Communication Plan. Corrective action plan monitoring becomes part of the weekly performance monitoring process until the corrective action activity is complete.

Status Reporting

EDS will facilitate weekly status meetings with the BAM Program Manager, Technical Project Manager and agency leaders to discuss work accomplished during the reporting period; work to be accomplished during the subsequent period; real and anticipated risks and issues, especially those requiring escalation; and any significant deviation from the baseline schedule.

A Weekly Status Report, that details key information such as accomplishments during the previous week, relevant milestones and progress toward those dates, current issues, risks and change controls, and next project steps will be compiled. All Project-level coordinators on the BAM project will complete these reports. The PCO will consolidate and collate the information with the relevant metrics reports to create the project scorecard report. Every week, EDS will submit executive-level status updates and escalated issue reports to the BAM program manager and technical project manager.

EDS will provide copies of all project status reports and escalated issue reports to the following:

- BAM program manager
- BAM technical project manager
- BAM EDS team members
- Executive Steering Committee designee
- Project documentation file

EDS will provide executive-level status to the BAM Executive Steering Committee monthly. If required, EDS will also participate in person for project updates and any potential risks and deviations from the baseline project plan. During test execution, the PCO will produce Test Execution and Defect Resolution Status reports. Identifying defects early in the life cycle is one of the most valuable outputs of the CMMi Level-5 process techniques. Detecting defects prior to Implementation is essential to the quality assurance process. The Test Execution Status reports provide real-time counts of the total number of test cases, total started, total passed, total failed, and total not started.

Interface with stakeholders

Stakeholder interactions are tied closely to communications and to relationship management. Project success depends in no small part on the active participation of all partners and stakeholders, from project startup through closeout. Because of the very role that DOS plays in State programs, BAM will be intricately tied to many other applications and agencies and will rely on the support of those agencies and DIT support staff. These stakeholders will be included in communication opportunities and must be invited to project meetings. The PCO will nurture relationships with these stakeholders to make sure they understand their roles and contributions to the success of BAM. In addition, EDS will monitor the initiatives of other organizations, looking for activities that could adversely affect BAM. Forging this partnership between EDS and project stakeholders will produce strong working relationships that further the goals and success of the entire BAM project. EDS will leverage those relationships and build on the trust that EDS will already have earned to further cement the links needed to support the BAM project.

Internal Quality Control Monitoring

The PCO will work with the State to define performance requirements and to develop a quality assurance (QA) plan for satisfying these requirements. All project participants will follow the defined plans and procedures. EDS will analyze performance to project requirements, goals, and standards to monitor compliance with both State and Project team expectations.

EDS also will apply work product review processes and procedures. Essentially, EDS will conduct work product reviews for all deliverables and will enlist the State's participation. Work product reviews are formal reviews in a meeting environment with a diversified amount of subject-matter experts providing feedback on the review topic. This approach will improve accuracy, enhance the probability of meeting or exceeding expectations, and produce work products that are correct the first time, avoiding the need for rework. To signify acceptance of the completed work, the State will formally sign off on all deliverables at the end of each major milestone, or more frequently as appropriate.

Production Ticket Assessment

Ticket assessment represents a major entry point into release planning. Starting with a proven model created by EDS and the State on other projects (integration of the Ticket Tracker tool with Remedy), the PCO will collaborate with DOS and DIT, to establish a formal production ticket assessment process. This process will enable stakeholders to offer input on the prioritization and timing of work on the BAM project, including system enhancements, bug fixes, required legislation enhancements, and technical improvements. EDS will schedule tickets into maintenance releases as warranted by size, resource availability, and priority.

Deliverable Products and Signoff Procedures

To signify acceptance of the completed work, the State will formally sign off on all deliverables at the end of each major milestone or on a monthly basis as appropriate. Deliverable sign off will require at a minimum approval of both the EDS project manager and the BAM program manager. Other signatures will be added as they are deemed appropriate. Deliverables that can reasonably be described as project driven, having a specific scope and duration, will require a formal sign off at the end of each major milestone. Those deliverables that can reasonably be described as part of daily or continuing operations will be signed off as part of the monthly performance review and acceptance. For Statements of Work (SOWs), formal sign off will be required on the requested scope and the estimated effort, cost, and time line. Once approved, formal sign off for the Scope of Work deliverables will be required at the end of each major milestone or on a monthly basis as appropriate. The EDS project manager and the BAM program manager will review all active SOWs on a monthly basis.

Project Closedown

For any company to be successful, it is critical that they do a great job of collective learning. EDS understands that lessons learned can help save time and money while improving the judgment of team members. If an organization can pull its wisdom together, it can learn from mistakes and successes alike. A safe culture makes the effects of sharing positive, not punitive.

At the completion of each phase, EDS will perform project closedown activities in coordination with the State team, including internal, subcontractor, and customer surveys. This shall include a review of project metrics and general "lessons learned" from project participants, and shall generate a Post-Implementation Evaluation Report (PIER). The PIER will minimally include a review of the quantity and type of issues encountered, general root causes for the issues, and recommendations for improving the

subsequent phase. EDS will conduct a comparison of actuals to estimates for total effort, staff-months, number of configuration items, and other measurable areas, yielding input for estimates on subsequent phases. EDS shall conduct a formal review of the PIER document with the State project leadership team.

Task 1.2 – Participate in Organizational Readiness and Contractor Integration Activities

During Phase 2, the State completed Change Management activities that included an assessment of the DOS and DIT staffing and their ability to handle changes. A change management plan was prepared that include organizational activities as well as training activities such as technical and process training. For purposes of this RFP, the Contractor will be responsible for training activities only. The DOS and DIT will assume the organization change readiness activities and may have a separate contractor assist with other activities. It will be the responsibility of this Contractor to participate and contribute information for purposes of organization readiness and communication activities. Examples of potential activities include, briefings with DOS or DIT staff, high-level overview documents produced, etc. The level of work expected of the Contractor is minimal and outcomes will be managed by State. The contractor is an integral part of BAM so it will not be possible to exclude the Contractor from these activities.

It is also expected that the Contractor will identify risks and issues related to their work with DOS and DIT, where they perceive organization readiness activities are necessary. The issues and risks should be documented and confirmed as part of the ongoing status meetings with the State. It will also be expected that the Contractor shall work with any potential contractors that may be brought in to assist either DOS or DIT with organizational readiness activities.

Contractor is also required within this contract to use creative methods to ensure both the Contractor and State staffs are integrated, aligned, and freely sharing knowledge. It is a firm belief that in order for BAM to be successful, both the State and Contractor will need to share their knowledge and learn to depend upon one another. It will take due diligence upon the Contractor's leadership and the State leadership in order to make that happen. The State understands their responsibility within this task, but will be looking for a Contractor who exemplifies this behavior in a contract. The State and Contractor resources will need to contribute equally and feel part of the BAM solution in order for BAM to be successful.

Deliverables from Task 1.2

1. Ongoing updates to weekly status report and risk documents, specific to the above-named activities
2. Minor documentation for organizational readiness activities

Contractor Response:

Task 1.2 - Participation in Organizational Readiness and Integration Activities

Making changes to an established culture requires careful planning, education, and cooperation by all effected participants. Developing a shared understanding and planned approach to process, technology, and people changes create the conditions for success. Using the BAM Phase 2 deliverable documents (BAM Change Management Plan and BAM Communications and Marketing Plan), EDS will be cognizant of the change management activities for which the State is responsible. EDS understands through the ITB that Technical Training, Business Process Training, and the creation of documentation to support these tasks is the responsibility of EDS. EDS will assist the State by assigning a Training and Documentation Coordinator at the beginning of this contract to help lay out the master plan for managing the organizational changes resulting from Phase 3 of the DOS BAM project. EDS' Training and Documentation Coordinator will be experienced in Change Management activities and will serve as the liaison between the activities that EDS will be responsible for and the State Change Management Coordinator and their activities. In addition to EDS' Training and Documentation Coordinator, EDS' core solution team brings an understanding and respect of the required Change Management activities for a successful BAM implementation. The Phase 3 BAM Change Management Plan outlines, per phase, the activities used to target stakeholder groups to improve the success of the BAM implementation.

A cultural shift of the magnitude required to implement BAM will need the support of the entire DOS and DIT Departments. To increase the Department's capability to accept, sponsor, and implement change, EDS understands the DOS Bureau of Organizational Services will continue to implement its change management programs, reinforcing the ideals of the Department's envisioned culture. Some of these activities are captured within the Organizational Change Readiness section of the defined Change Management document. BAM Change Management Activities will target both the tactical level and the milestones of the project. These activities will highlight operational needs for process, people, and technology changes, and EDS will assign the Training and Documentation Coordinator to help the State coordinate the defined training needs associated with this endeavor. The Training and Documentation Coordinator will have a team of technical and business trainers along with the technical writers to help prepare the required training material. The EDS Training and Documentation Coordinator will provide ongoing status updates to the PCO specific to the training and documentation tasks. The Training and Documentation Coordinator will provide

any minor documentation for organizational readiness activities. Additional activities at project startup, as well as during the course of the project, may include participation in team building meetings, operational meetings, status meetings, and other activities all aimed at creating a unified BAM team to accomplish the project objectives.

Risks and Issues

EDS will work with the DOS Bureau of Organizational Services, individually and in groups, to document their assumptions regarding the organizational readiness effort and their perceived risks. This involves a comprehensive list, created collaboratively with the stakeholders, of their assumptions, concerns, and perceived exposure on this project. This process of gathering and reviewing assumptions is a powerful tool for providing all stakeholders with a common understanding of the project vision and approach. EDS will also review the issues and risks and put them through EDS' formal management process.

EDS recognizes the significant challenge the State will confront in identifying ways to minimize the risks inherent in the change management area. Based on EDS' work in BAM Phase 2, EDS has identified and analyzed several critical risks for BAM in Activity 1 Appendix B – Draft Risk Mitigation Plan. As BAM Phases 3B, 3C, and 3D approach, EDS will identify the risks associated with those specific projects.

Team Integration, Alignment, and Knowledge Sharing

Team Integration, Alignment, and Knowledge Sharing include the ability to plan and manage the resources required to deliver the project. This also requires identifying the training and support needed to allow these resources to succeed. Knowledge transfer and cross-training will begin quickly for the EDS and State staff members of BAM. EDS will assess project-specific skills and the knowledge that each resource requires to perform their appointed function. The resulting training plan will emphasize a self-paced review of existing project process and tool documentation and provide extended on-the-job training with an experienced mentor. The training plan will also include the necessary Technical and Business Process training required by the State resources over the course of the project. Training will take place throughout the initiation phase and throughout the entire project. Mentoring of the State staff and EDS development and implementation team will take place over the life of the contract. Along with the job-specific training, this knowledge transfer period will include overviews of the BAM toolset, the BAM process set, and the BAM project. The most critical component of the training is the development and execution of the BAM initiation plan itself. Also, equally important is the hands-on experience the State will gain through frequent and thorough design and code reviews, working in collaboration with the EDS development team. Through this effort, EDS will be able to provide the State with hands-on, real-life experience with all of the components of BAM, the impact of the PCO, and the CMMi Level-5 processes. Fifty percent of project managers responding to a Project Management Institute poll answered that personality and ability to work in a group was the most important characteristic in a project team member. EDS understands it cannot be successful without the State. It's all about people, process, and technology. As was exemplified in BAM Phase 2, EDS and State resources will become one unified team, working together diligently to realize the goals of the project.

Task 1.3 – Manage Project / Contract Management Activities / Staff

Requirements of Task

The Contractor shall provide a full-time person, Contractor Project Manager, to act as the focal point for project level discussions and decisions. This person will be identified as "Key Personnel" (reference 2.506, Staff), for the duration of the project and shall report directly to the State Program Manager. The Contractor Project Manager will have overall responsibility for the management of contractor staff assigned to the project (contract), as well as the work produced/delivered by contractor staff, as well as being the primary point of contact and accountability for all contractor activities.

The Contractor Project Manager is expected to work with the State Program Manager and Technical Project Manager to appropriately staff the project. The Contractor Project Manager will be responsible for transitioning contractor staff onto and off of the project as needs dictate. Management of the overall contract, and any processes and procedures necessary to ensure the efficient and effective management of the contract, are also the responsibility of the Contractor Project Manager.

Additional project management, administrative support, or any other staff necessary to manage the project and contract should also be included here.

Within six weeks of contract start, the Contractor shall provide a Project / Contract Management Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to attachment titled, *Contractor Staffing Plan Example*.

Deliverables from Task 1.3

1. Project/Contract Management Team Staffing Plan - due six weeks after contract start, with updates as required thereafter.
2. Status Reports – due to the Program Manager at agreed upon day (typically Monday or Tuesday of each week) for prior week's activities. Status reports shall include:
 - Major accomplishments
 - Major upcoming work
 - Significant issues and concerns for the overall project
 - Any other issues the Contractor Project Manager feels should be communicated
 - Updates to risks and other project documentation

Contractor Response:

Task 1.3 - Manage Project, Contract Management Activities and Staff

The EDS U.S. Government Solutions (USGS) operating unit supports a wide array of federal, state, and local government agencies. John Dullock will serve as the EDS project manager and will report to the local EDS USGS office in Lansing, which will be responsible for administering this contract, including all subcontractor management and scope. The staff at this office currently supports multiple Michigan contracts and is familiar with State organization, business operations, and technologies.

The local EDS USGS office participates in EDS financial and technical solution reviews, which EDS conducts to validate the consistency of deliverables, schedules, and risks with established solutions criteria, as specified in the ITB. Scope management is also discussed as a main agenda item in these reviews. Once EDS receives a signed contract or purchase order, our local USGS office is authorized to begin governance and administration of the project. The financial management of BAM will be determined prior to signing the contract to make certain EDS adheres to any specific financial management requirements regarding billing and invoicing.

As part of the overall management of this contract, John Dullock will produce and maintain the Project and Contract Management Team Staffing Plan as well as all other staffing plans. John Dullock will also generate the weekly status report containing all the major accomplishments, major upcoming work, significant issues and concerns for the overall project, as well as maintaining updates to risks and other project documentation.

Below is the Contract Management Team Staffing Plan by man-months. Please see Activity 1 Appendix C – Contractor Staffing Plan for a complete list of resources assigned to this Activity.

Activity One: Contract Management Team Staffing Plan (man months)					
Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	Totals
Project Start-up, Planning, Execution, Etc.					
EDS Project Manager	21.50	15.00	9.00	11.25	56.75
Business Requirements Manager	21.50	15.00	9.00	9.25	54.75
Data Architect	21.50	15.00	9.00	9.25	54.75
Enterprise Integration Architect	21.50	15.00	9.00	9.25	54.75
Process Owner (Level 5 SME)	21.50	13.00	0.00	0.00	34.50
Project Scheduler	21.50	15.00	9.00	9.25	54.75
PCO Tool Maintenance	21.50	15.00	9.00	9.25	54.75
Administrative Assistant	21.50	15.00	9.00	9.25	54.75
Total man-months by Phase for Activity One	172.00	118.00	63.00	66.75	419.75

Contract Management Team Staffing Plan by Man-Months

Methodology to Monitor and Evaluate Performance of Personnel

EDS will assign highly-qualified and effective professionals and to delivering high-quality, client-focused services to the State and the BAM project. The EDS team comprises some of the current BAM project personnel, each offering years of BAM PCO-specific experience and knowledge, as well as other personnel who meet the qualifications outlined in the BAM ITB. EDS has selected these professionals based on their proven performance and dedication to customer service and user satisfaction. While executing PCO responsibilities, EDS will continue to monitor and evaluate the effectiveness and products of each team member to maximize our value to the State.

Subcontractor Performance Monitoring and Evaluation

EDS has instituted teaming agreements with all identified subcontractors, providing the terms and conditions for supplying services under this contract. Subcontractor personnel are fully integrated into the EDS team and receive all direction and oversight from EDS project management leaders. EDS will interpret ITB roles and responsibilities for our subcontractors, including communicating, tracking, and managing those expectations. EDS will confirm and monitor the performance of our subcontractors to confirm that their performance supports and contributes to State goals and the success of the BAM project. If those objectives are not attained, EDS will swiftly take decisive action to rectify such a failure.

EDS Performance Monitoring and Evaluation

EDS will maintain a corporate approach to individual performance that includes documented processes, a code of conduct, performance assessment criteria, and periodic evaluations. Personnel management represents an internalized approach that is critical to assigning the most skilled and appropriate professionals to work on client projects. Employees who do not fulfill expectations undergo a formal process that can include mentoring, performance improvement objectives, or dismissal. EDS will make sure that the State is served by professionals who are prepared to deliver expected results and to perform at a world-class level.

Activity 1 Deliverables

The deliverables defined for ITB Activity 1 are listed below. EDS will complete all these activities along with all other deliverables described above. All of the deliverables outlined in the ITB are scheduled in the project plans included in Activity 1 Appendix A – Project Plans.

Deliverable	Measure of Success
Task 1.1 – Perform Project and Contract Management Functions	
1. Project kickoff meeting – within two months of contract start	The initial project kickoff meeting allows ‘Core’ project stakeholders to meet each other, achieve a common understanding of the project’s objectives, and plan the next steps. Within the context of the initiation kickoff meeting, the State’s and EDS’ shared project control vision would be presented. Next EDS will present the objectives for the initiation phase, followed by the activities required during initiation to build the foundation for the long-term success of BAM. Once the initial project kickoff is conducted the State of Michigan and EDS teams will collaborate to define the process set that will govern the BAM project. At the end of all this startup and planning work, EDS will again bring all the project stakeholders together to meet each other, achieve a common understanding of the project’s objectives, and review the processes and defined plan. Within the context of the initiation kickoff meeting, the State’s and EDS’ shared Project Control Office (PCO) vision would be presented.
2. Startup and Planning Document (i.e., Project Plan, by phase) – within six weeks of contract start	Working collaboratively with the State of Michigan, all project startup and initiation activities will be completed in an accelerated timeline. The EDS resources assigned to BAM are already BAM-experienced and have an established trusted partnership with DOS and DIT. This saves time acclimating the individual personalities to work with each other.
3. Processes, tools, and procedures for executing and controlling each phase of BAM	EDS will use the defined set of PCO tools and the processes defined in Startup and Planning to govern the entire BAM project.
4. Change Control Impact Assessment (by request, including duration, effort, cost, risk)	The EDS team will institute robust change control processes for BAM, leveraging the Issue Tracker tool. This issue and change control tracking tool permits the identification, tracking, and reporting of issues and change controls by release, assigned personnel, status, and level of escalation. This tool generates automatic e-mail notifications about new issues, assignments, and changes in status.
5. Issue and risk items (by phase)	The EDS team will institute robust issue control processes for BAM, leveraging the Issue Tracker tool. This issue and change control tracking tool permits the identification, tracking, and reporting of issues and change controls by release, assigned personnel, status, and level of escalation. This tool generates automatic e-mail notifications about new issues, assignments, and changes in status.
6. Risk mitigation plans (by phase)	The EDS team will institute robust risk mitigation processes for BAM, leveraging the Issue Tracker tool. This issue and change control tracking tool permits the identification, tracking, and reporting of issues and change controls by release, assigned personnel, status, and level of escalation. This tool generates automatic e-

Deliverable	Measure of Success
	mail notifications about new issues, assignments, and changes in status.
7. Task estimates – duration, effort, cost (initial and ongoing)	EDS employs a robust estimating process and procedures that accurately predict needed development effort. This estimating process includes the following major components: <ul style="list-style-type: none"> • Metrics repository containing historical metrics from all EDS projects • Easily quantifiable size component • Estimating algorithms for all platforms based on historical metrics • Automated estimating worksheets to be completed for a bottom-up estimate • Estimate reviews
8. Resource time (effort) tracking and reporting (weekly, by task)	Each team staff member must submit a time sheet weekly. The Project Control Office Team has the opportunity to review time sheets before they are submitted. To facilitate this review, the time tracking tool automatically highlights over-budget and late tasks on individual time sheets and generates manager-level reports with comparable information. The Project Control Office team also will review the time sheets to detect any unusual entries before applying the effort to the schedule. This review process is a mechanism for identifying underutilized or overused personnel and for confirming that effort was not misapplied.
9. Individual task assignments	Each team staff member will receive their daily direction and task assignments either from the EDS Project Manager or other PCO staff, depending upon their roles. Their assignments will be commensurate with their skills and without delineation between State tasks and EDS PCO tasks. All these tasks are included in the BAM project schedules for time tracking purposes.
10. Bills/Invoices – as agreed upon	The EDS U.S. Government Solutions (USGS) operating unit supports a wide array of Federal, State, and Local government agencies. John Dullock will serve as the BAM Project Manager and will report to the local EDS USGS office in Lansing, which will be responsible for administering this contract, including all subcontractor management. The staff at this office currently supports three Michigan contracts and therefore is very familiar with State organization, business operations, and technologies. The financial management of BAM will be determined prior to signing the contract to ensure EDS adheres to any specific financial management requirements regarding billing and invoicing.
11. Project Closedown (i.e., PIER) Report – within one month of project implementation (by phase)	At the completion of each phase, EDS will perform project closedown activities in coordination with the State team. This shall include a review of project metrics and general “lessons learned” from project participants, and shall generate a Post-Implementation Evaluation Report (PIER).
Task 1.2 – Participation in Organizational Readiness and Integration Activities	
1. Ongoing updates to weekly status report and risk documents, specific to the above-named activities	BAM Change Management Activities will target both the tactical level and the milestones of the project. These activities will highlight operational needs for process, people and technology changes and the Training and Documentation Coordinator will be assigned to help the state coordinate the defined training needs associated with this endeavor. The Training and Documentation Coordinator will have a team of technical and business trainers along with the technical writers to help prepare the required training material. The Training and Documentation Coordinator will provide ongoing status updates to the PCO specific to the training and documentation tasks.
2. Minor documentation for organizational readiness activities	The Training and Documentation Coordinator will provide any minor documentation for organizational readiness activities. Additional activities at project start-up, as well as during the course of the project, may include participation in team building meetings, operational meetings, status meetings, and other activities all aimed at creating a unified BAM team to accomplish the project objectives. Please see Activity 6 – Implementation Support for detailed information.
Task 1.3 – Manage Project / Contract Management Activities / Staff	
1. Project/Contract Management Team Staffing Plan - due six weeks after contract start, with updates as required thereafter.	EDS will produce and maintain the Project/Contract Management Team Staffing Plan. Please see Activity 1 Appendix C for the initial draft of this staffing plan.

Deliverable	Measure of Success
<p>2. Status Reports – due to the Program Manager at agreed upon day (typically Monday or Tuesday of each week) for prior week's activities. Status reports shall include:</p> <ul style="list-style-type: none"> a. Major accomplishments b. Major upcoming work c. Significant issues and concerns for the overall project d. Any other issues the EDS project manager believes should be communicated e. Updates to risks and other project documentation 	<p>Using the suite of PCO tracking tools, the EDS team will generate graphical metrics reports and will produce scorecards driven by empirical evaluation. EDS will collate the scorecards with the issues reports and status reports provided by each team coordinator. These status reports will be furnished weekly to the State.</p>



Appendix B

Activity 2 – Technical Planning and Support

The Contractor is required to take ownership of the Technical Environments proposed in Phase 2. Refer to attachment titled, *Technical Architecture Specification*. The Contractor will provide confirmation of the design of the Technical Environment in the *Technical Architecture Specification* and if deviations and/or additions are required all deviations and/or additions should be clearly highlighted with reasons/justifications for the changes. The Contractor is encouraged to make alternate hardware recommendation for the support of the proposed environments (i.e. Unisys ES7000, HP Superdome or similar enterprise servers). The Contractor shall provide confirmation that the plans for the Technical Environment are sufficient and will adequately handle the volumes proposed by the State while providing appropriate performance. Contractors should refer to the attachment titled, *Technical Requirements*, for performance standards.

At the sole discretion of the State, the State may choose to purchase all or some of the hardware or software from the Contractor.

Contractor Response:

EDS will use proven methods and processes to plan and deliver the BAM environment so that the BAM technical architecture supports development and production efficiently. Using the EDS Global Solutions Management Systems (GSMS) process set which includes the Systems Life Cycle 3 (SLC3) methodology, EDS will create deliverables using the Object Component Engineering, Platform Engineering, and Business Continuity processes. The remainder of this section of our proposal describes how these processes will be applied to the BAM Phase 3 project.

BAM Architecture Confirmation

The BAM technical architecture specifications (TAS) have been targeted at the Microsoft .NET environment. It appears from the TAS that careful consideration has been given to keep this environment open. Given the inherent object-oriented nature of BAM Phase 2 deliverables, EDS confirms that this architecture is valid to implement BAM .NET application components. Although the BAM TAS define the .NET architecture for systems services, additional frameworks will be needed to deliver BAM.

The following section defines the components of the framework:

- **Model/View/Controller Framework** – Implementation of the classic Model View Controller (MVC) pattern supports separation of data (Model) from presentation (View) and presentation management (Controller). This separation is achieved through data binding and incorporating the concept of publish and subscribe event listeners, also known as Actions using .NET Remoting.
- **BusinessObjects** – Implementation of configurable .NET code for evaluating and applying business rules.
- **Data Access Objects** – Support for storage and retrieval of data associated with business entities. This includes transaction support for Atomicity, Consistency, Isolation, and Durability (ACID).
 - **Reporting** – A mechanism to generate and deliver reports
 - **Security Framework** – Support for the common security functions including authentication and authorization.
 - **Batch Processing** – Support for scheduling the execution of business processes in an offline batch mode.
 - **Document Management** – Support for incorporating binary images of textual and nontextual images.
 - **Exception** – Standard and Utility Classes for consistently and effectively detecting exception situations, managing errors, and delegating responsibility up the call stack.
 - **Trace Logging** – High-level facility to record and monitor system processing for the purpose of debugging and performance profiling.
 - **Audit** – Support for identifying which business functions have been executed in the system, the responsible user, and the date and time.
 - **Orchestration** – Support for system-to-system interaction (that is, list sales). This contemplates third-party-initiated requests and requests to third-party systems (that is, Unified Network Interface [UNI]).
 - **Service Control** – Support for secured business transactions and request routing.

These framework components are expansions of the hardware and software framework defined in TAS as opposed to deviations.

Using GSMS object component engineering (OCE) processes and UML deliverables, EDS will work with the Michigan Department of Information Technology (MDIT) to design and assign specific application responsibilities for these components. The tasks and activities necessary to create these components are identified in the EDS OCE work breakdown structures. The OCE process is a well-defined set of tasks and activities that EDS has developed to support Unified Modeling Language (UML) methodology during a full life cycle of systems development. The OCE task related to hardware and software frameworks will be performed early in the BAM Phase 3 project schedule to provide validation of the software design's ability to support BAM.

The following table is an evaluation of the ITB Technical Requirements contrasted with the Technical Architecture Specification (TAS). Columns to the right identify where the Technical Requirement is met, can be met with modifications to TAS, or does not meet with the proposed TAS environment.

Technical Requirements	TAS Meets	TAS Meets With Modification	TAS Doesn't Meet
System shall be an n-tier architecture that supports flexibility by separating a software application into tiers or layers that are architecturally independent of other layers. The minimum set of tiers must include presentation, business logic, and persistence.	√		
System shall support scalability, meaning additional application hardware can be used to address increases in system loads without modifying program code.	√		
System shall manage business rules via a robust rules engine.		√	
System workflow of Web pages and program functions must be configurable and modifiable without changing program code. (Additional or modified programmatic validations to support system flow are acceptable)		√	
System shall use object-oriented development principals such as encapsulation, inheritance, and polymorphism to support a UML oriented design process.	√		
System must operate in a 7x24x365 on-line environment with the exception of infrequently planned maintenance windows. System shall be available 99.999% of the time.	√		
System shall provide a batch window that does not interfere with normal business hours (6 AM – 9 PM ET M - F, 8 AM – 5 PM Sat).	√		
System shall use a relational database for persistence.	√		
System shall utilize message-orientated middleware for integrating with legacy systems.	√		
System shall include the use of wildcards, partial string matching, and either Soundex or another similar spelling error correction search method.	√		
System shall provide support to generate scrambled tests in multiple languages.	√		
System shall provide load balancing of Web and application servers in order to improve performance.		√	
System shall support up to 1,500 users with a sustained load of 200 page requests per second.	√		
System shall support up to 10,000,000 clients in the client index.	√		
System shall support up to 25,000,000 vehicles.	√		
System shall support the use of proxy or separate application and Web servers for hosting web pages that are externally facing to the internet. This is intended to provide a secure layer separating intranet only/internal Web pages and Web pages that are exposed through the DMZ, using mechanisms such as URL redirection and proxies.	√		
System shall provide support for data modeling or data object modeling used in persistence.	√		
System shall support system modeling and partial code generation using a tool comparable to Rational Rose.	√		
System shall provide wizards for performing common or well-defined development actions.	√		
System shall utilize the Rationale repository to assist in the impact analysis in order to improve developer productivity by identifying the impact of code changes across the entire development project.	√		

Technical Requirements	TAS Meets	TAS Meets With Modification	TAS Doesn't Meet
System shall provide a well-defined method for identifying data for archiving, and for archiving the data.	√		
System shall support SQL Server 2000 or higher as the data repository RDBMS.	√		
Database tables, columns, or data objects must follow a naming convention that allows for a partially self-documenting data or data object model.	√		
The core class model or data object model must be normalized, making proper use of foreign keys, constraints, and domain based data types.		√	
Access to the database from the application must be through standard ODBC drivers.	√		
For the online portion of the system there must be only one logical database. Physically, the online database could be supported with a cluster or parallel servers acting against one database.	√		
System shall be ADA compliant.	√		
System shall provide tutorials, task-oriented user guides, and context sensitive help.	√		
System must make use of HTML templates and/or CSS or XSLT to facilitate a common look and feel that can be easily modified, including common attributes such as fonts, navigation bars/menus, etc.	√		
Each piece of major functionality must be accessible within two clicks on menu or navigational links.	√		
Standard browser functions such as the back and forward buttons must be visible and enabled.	√		
The application must experience no loss in functionality due to pop-up blockers and other toolbars designed to block advertisements.	√		
Navigation menus should be collapsible in a tree-like structure so that scrolling can be minimized when looking at navigation bars and menus.	√		
System editing/viewing of records must provide screen refresh and error notification within two seconds of submission 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a WAN connection.	√		
System printing of existing reports (non-ad hoc) must begin within ten seconds 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a WAN connection.	√		
System response time required to open any supporting applications (i.e. Word) must be within eight seconds 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a Wan connection.	√		
System search for records must return results within two seconds 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a WAN connection.		√	
System must support 128-bit SSL encryption of all Web pages.	√		
All system level passwords (database, application server, etc.) must be configurable and modifiable outside of the application, meaning there is no way within the application to change or view these passwords, nor can these passwords be stored in clear text form within an application database.	√		
All security events must be logged in a system security log, including password changes, password resets, privilege changes, successful and failed logins, session duration by user, and attempts to access functionality explicitly denied a particular user.	√		
System must provide module, screen-level, and field-level security.	√		

Technical Requirements	TAS Meets	TAS Meets With Modification	TAS Doesn't Meet
System must support roles for grouping of privileges as well as the granting of single privileges directly to individual users.	√		
System must support the temporary assignment of privileges.	√		
Roles and privileges must be modifiable by work location.	√		
System must be able to comply with enterprise application access rules for the State Of Michigan (policy 500.01).	√		
System must include full data auditing, identifying who modified/created/deleted/viewed a particular data item and when. The audit log must at least contain the original value that was changed for updates and deletes. Similar audit trails must be provided for access to sensitive data as well, including the search criteria if any. This audit trail cannot be modifiable from the application.	√		
System must provide a read only account that can be used to examine audit trails and application logs for auditing purposes.	√		
System must support the use of a LDAP v3 repository for public usernames and passwords for authentication purposes.	√		
System must support an enforceable password policy for end users, including specifying password length, minimum complexity, expiration, password reuse and history, and lockouts for failed login attempts. (See 1410.17 Michigan State Government Network Security Policies.)	√		
System must provide a password reset screen usable by help desk personnel.	√		
System must contain an alert mechanism for hacking attempts or denial of service attack through brute force manipulation of usernames and/or passwords.		√	
System must interface with the concept of an identity vault, containing usernames and passwords loaded from a secure/trusted source.	√		
System must support the concept of a service directory that contains the usernames and passwords replicated forward from the identity vault, and any other security information needed by the applications supported by the service directory.	√		
System must ensure all API's including standard library/component functions are fully documented.	√		
System must support an object-modeling interface to Rational Rose® in order to standardize development of object classes and to quickly build foundations of application business logic.	√		
System must support version management tracking where a version of the application can be deployed as a single configuration, including application code, configuration data, reference data, and sets of rules.	√		
System must have a well-defined build and deploy process, which is fully automated and scriptable.	√		
System must support automated unit testing.	√		
Load testing for the database must be scriptable either by direct access to the database or through interfaces to data access objects.	√		
System must provide configurable levels of logging detail to support unit, system, and user acceptance testing. The log detail should be sufficiently detailed when configured as to correlate log data with an individual user's actions.	√		
System must be developed in a modular fashion facilitating multiple parallel teams	√		
System should support an iterative development cycle, meaning small testable portions of functionality will be delivered and tested in short development cycles as part of a larger release.	√		
System must include administration tools for manageability and maintainability, including	√		

Technical Requirements	TAS Meets	TAS Meets With Modification	TAS Doesn't Meet
modifying configuration files.			
System must include the capability of sending emails/pages in the event of system and software failures.	√		
System should include tools for profiling and performance tuning.	√		
System must support fault tolerance and failover of Web, application, database servers, storage devices, and secondary devices such as load balancers in order to support high availability.	√		
System must provide sufficient backup capabilities to completely restore the online system on new hardware within 8 hours.	√		
System must be able to recover from the complete loss of any single data file within 30 minutes. If online redo logs are unaffected, loss of committed data must be zero.	√		
System must provide sufficient failover support to re-establish the system within eight hours of the loss of the primary hosting center.	√		
System must support at a minimum Internet Explorer 6.0 on Windows 2000	√		
System must require a screen resolution no greater than 800x600 but be able to support resolutions up to 1600x1200.	√		
System must support the minimum desktop environment of PII 400MHz and 256MB of RAM.	√		
System should support Symantic Anti-Virus Software on Windows 2000	√		

As the table above evidences, the Technical Architecture Specifications fully meet 67 of the 73 requirements in the Technical Requirements document. The remaining six requirements can be met with modifications to TAS. These six TAS' modifications to comply with the Technical requirements are discussed below.

1. System shall manage business rules via a robust rules engine.

In the TAS document, a rules engine will need to be added. To add this component to the BAM solution, EDS will work with Michigan's DIT and DOS to develop the following requirements:

- Plan where to incorporate rules into the BAM application
- Identify business logic that can be represented with rules
- Identify data sources that provide rule elements
- Define rules from vocabulary definitions or directly from data bindings. Defined rules will compose a policy that represents BAM business logic

2. System workflow of Web pages and program functions must be configurable and modifiable without changing program code. (Additional or modified programmatic validations to support system flow are acceptable.)

In the TAS document, a rules engine will need to be added. The same requirements identified for item 1 above will need to be accomplished to meet this requirement.

3. System shall provide load balancing of web and application servers in order to improve performance.

In the TAS document, specification of a network appliance load balancer is not given. However, Windows 2003 provides load balancing by addressing all the computers in a cluster by one IP address while maintaining their individual, unique IP. It will be a specific task of the Platform Engineering team to create the specification for load balanced configuration.

4. The core class model or data object model must be normalized, making proper use of foreign keys, constraints, and domain based data types.

In data modeling, it is common to create data normalization by which one organizes data in such a way as to reduce and even eliminate data redundancy. Can the techniques of data normalization be applied to object schemas? Yes, but this is not an ideal approach because data normalization deals only with data, not with behavior. When adding behavior (methods), it is critical to establish inheritance chains that may violate normalization rules but result in efficient software designs.

5. System search for records must return results within two seconds 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a WAN connection.

Although the support for this requirement is probable, it should be noted that IPv4 network traffic is not inherently prioritized. As a result, competing network traffic has the potential to violate this requirement. Analysis of the network payload and specification for bandwidth may be required in each BAM phase. To meet this requirement, TAS may need to add multi-protocol layer support to the DOS branch routers so that message priority in BAM is established.

6. System must contain an alert mechanism for hacking attempts or denial of service attack through brute force manipulation of usernames and/or passwords.

The TAS document identifies a firewall server in the BAM environment. This server will typically meet this requirement. However, depending on this firewall's capability, it may be necessary to establish a Host Based Intrusion Detection Services (HBIDS) to meet the stated requirement. These services will be specified as part of the infrastructure design activities.

EDS accepts the TAS and technical requirements that are the basis of the Technical Architecture Plan. The proposed environment will meet or exceed expected volumes specified in the Phase 2 deliverables and the ITB. The technical requirements are also met, with the exceptions noted previously. During BAM Phase 3, EDS will work with the State to refine, design, and deliver on the modifications required to comply with these noted exceptions.

Confirmation of Technical Environment – Hardware

EDS will perform the OCE task to “engineer all environments.” In this task, EDS will create a Proof-Of-Concept (POC) environment. The POC will validate hardware, operating system, fit to Data Center Operations (DCO) standards, and application framework. Performance, scalability, availability, and fit to the DCO environment will also be validated with this task.

EDS recommends that the hardware selected for BAM comply with State of Michigan standards. The Dell PowerEdge 7250 servers meet this standard. Choosing nonstandard hardware for BAM creates variability in the DCO environment, and variability creates waste. Although several 64bit x86 hardware platforms capable of running Windows 2003 will meet the needs of BAM, standard environments create efficiency in DCO; for example, server parts inventory for repairs and spares can be shared, which means that inventory levels can be kept lower than in a nonstandard hardware configuration. Service technicians become familiar with the hardware, and experience is the best predictor of success in repair. Consequently, EDS recommends establishing a BAM hardware environment that meets State of Michigan standards and is a common environment for DCO.

Task 2.1 – Design and Define Application Infrastructure

Requirements of Task

The Contractor shall provide a technical architecture to support development, testing, training, conversion, and production of the proposed solution. Based on the final procurement plan the Contractor should be prepared to establish the development environment.

The environments shall include:

Development: The BAM System development infrastructure is to be utilized to allow all the development and unit testing of all source code. This environment will also allow automated unit testing to be run on a scheduled basis to make sure no defects are found in changed objects. The Contractor will be required to maintain a separate development environment for production support releases. This environment will be utilized for bug fixes and other enhancements required by the State that are not initially part of a planned Phase. The Contractor will be limited to two development environments.

QA Testing: The Testing environment is designed to allow the BAM System to integrate all of its components and test that the components work correctly. The Testing environment will be used by the BAM Testing Team to verify that the BAM System works according to requirements and that the integrated components work together correctly. The Testing environment will allow for quality assurance testing as well any conversion testing required. The environment will be available only for the BAM Testing Team.

UAT/Disaster Recovery:

The User Acceptance Environment will be used to verify that the BAM System works according to requirements and will be utilized prior to implementing into production. The environment will be available from the public Internet, Branch Offices and for use by internal users. The environment will be used for Performance Testing to ensure that the BAM System and infrastructure work under peak load conditions. The User Acceptance Environment should closely replicate the production environment. If the Production Environment should experience a disaster that caused it to be inoperable, this environment would be used as the Disaster Recovery environment. The State's storage facility provides data replication to the remote hosting center. It is expected the UAT environment will utilize the replicated data for Disaster Recovery purposes.

Production: The Production Environment is for branch, internal, and public users. The BAM System should have high availability 7x24x365 with 99.999 percent uptime in a year.

Optional Training Environment

A test/demo area for training users that needs to be updated and rebuilt on demand with a standardized base set of data.

Other Environmental Considerations

Testing: An automated testing tool will be required. The tool should allow developers to create tests that can be easily repeated during the development phase. The tool will be required to run unit tests built in any .NET Common Language Runtime-compliant language. The tool is required to integrate tightly with Visual Studio.NET to allow the execution of tests and permits stepping through code with Visual Studio .NET's debugger. The tool may be required to integrate with the Rational Suite of products.

Integration/Performance Testing:

An integration and performance testing tool will be required. The tool will allow the testing of functional and regression tests. Performance testing will find application failure points, as well as load limits to the infrastructure. The tool is required to allow the BAM System to be tested under many different loads. The tool is capable of creating real-world performance testing by setting the number of sessions, think time, web browser types and connection speeds during a test. The tool should include the use of test cases to perform load tests and help identify and diagnose performance bottlenecks.

Loading: An extract, transform and load (ETL) tools will be required.

Scheduling: Software tools and utilities will be required to schedule jobs or batch files to run at specified times.

These environments are NOT required to reside on distinct hardware. However, the Contractor must elaborate on how and where multiple environments will be proposed and supported on the same hardware.

The Contractor may include other environments as deemed appropriate for proper use and deployment of the proposed solution with State approval. The Contractor shall fully describe any additional proposed environments and the rationale for such environments.

The Contractor shall provide a final Technical Architecture Plan within one month of contract start. This plan will include detailed architectural diagrams with textual support for the environments listed above. The Contractor shall keep this plan up to date as hardware and software are modified, added, or upgraded. Each new version of the plan must be reviewed and approved by the State.

The Technical Architecture Plan will include:

1. Required servers and the optimal hardware specifications per server, identifying each server by its purpose and its environment.
2. Required software for each server, including number of licenses and versions.
3. Additional hardware required (such as routers and load balancers), including recommended contractors, versions, and specifications.

4. Other software required, including the total number of licenses and the structure of pricing and usage of the licenses.
5. An overall detailed architectural diagram(s). The diagram should include detailed graphics displaying the listed hardware and its relative placement in the architecture. The Contractor should clearly mark the communication channels between hardware units, identifying things like encryption where appropriate.
6. Network Diagram depicting how BAM will be routed to internal customers, Branches and the public.

A primary intent of this plan is to identify everything needed from the hardware and software perspective in order to render the solution – from development to testing to training to deployment in the production environment – so there are **no** surprises in terms of additional purchases necessary.

Deliverables from Task 2.1

1. Technical Architecture Plan for development – due one month after contract start, with updates as required thereafter.
2. Technical Architecture Plan for remaining environments – due two month after contract start, with updates as required thereafter
3. Technical Architecture Acceptance – a Statement included in the Technical Architecture Plan accepting Technical Environment, and confirming it is sufficient and will adequately handle the volumes proposed by the State while providing appropriate performance.

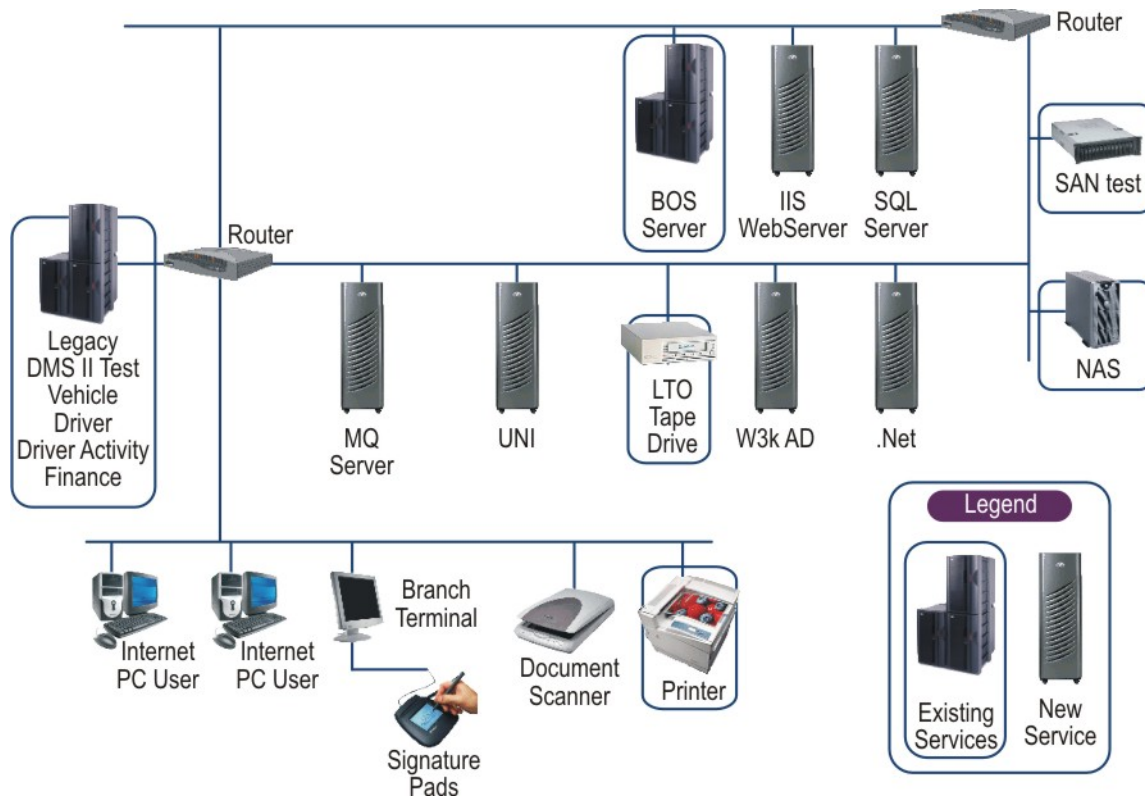
Contractor Response:

Task 2. 1 – Design and Define Application Infrastructure

It is clear that BAM will be delivered in multiple project phases; as a result, the technical architecture will have to support multiple environments concurrently. For each environment, a Technical Architecture Plan will be created. The Engineering Work Order (EWO) in Activity 2 Appendix A – Technical Architecture Plan, provides the template for this task.

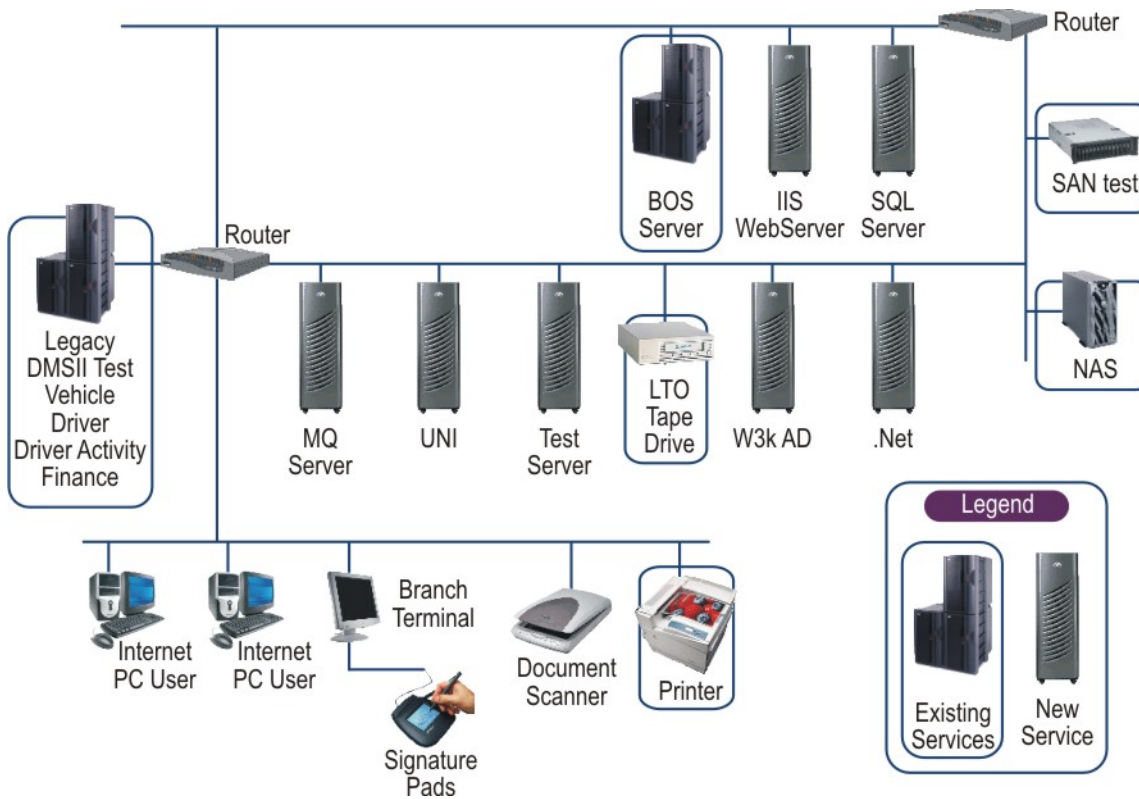
Although these environments can be thought of as separate configurations, the following environments will be physically configured together to minimize BAM hardware needs while still providing coverage for the required phased development requirements.

- **Development Infrastructure.** Development infrastructure will provide the necessary environment to model, code, and unit test individual projects. These projects will be managed and developed with Visual Studio . NET in specific project files for code and common language runtime (CLR) libraries. This approach allows for separate projects to run simultaneously. Figure 4.4.2-2, BAM Development Environment, represents this environment, which will be housed at the DCO site. In addition, this environment relies on common DCO services, specifically, the legacy DMS II system, BOS, SAN, NAS, and Tape units and network backbone are services required to support BAM development.



BAM Development Environment

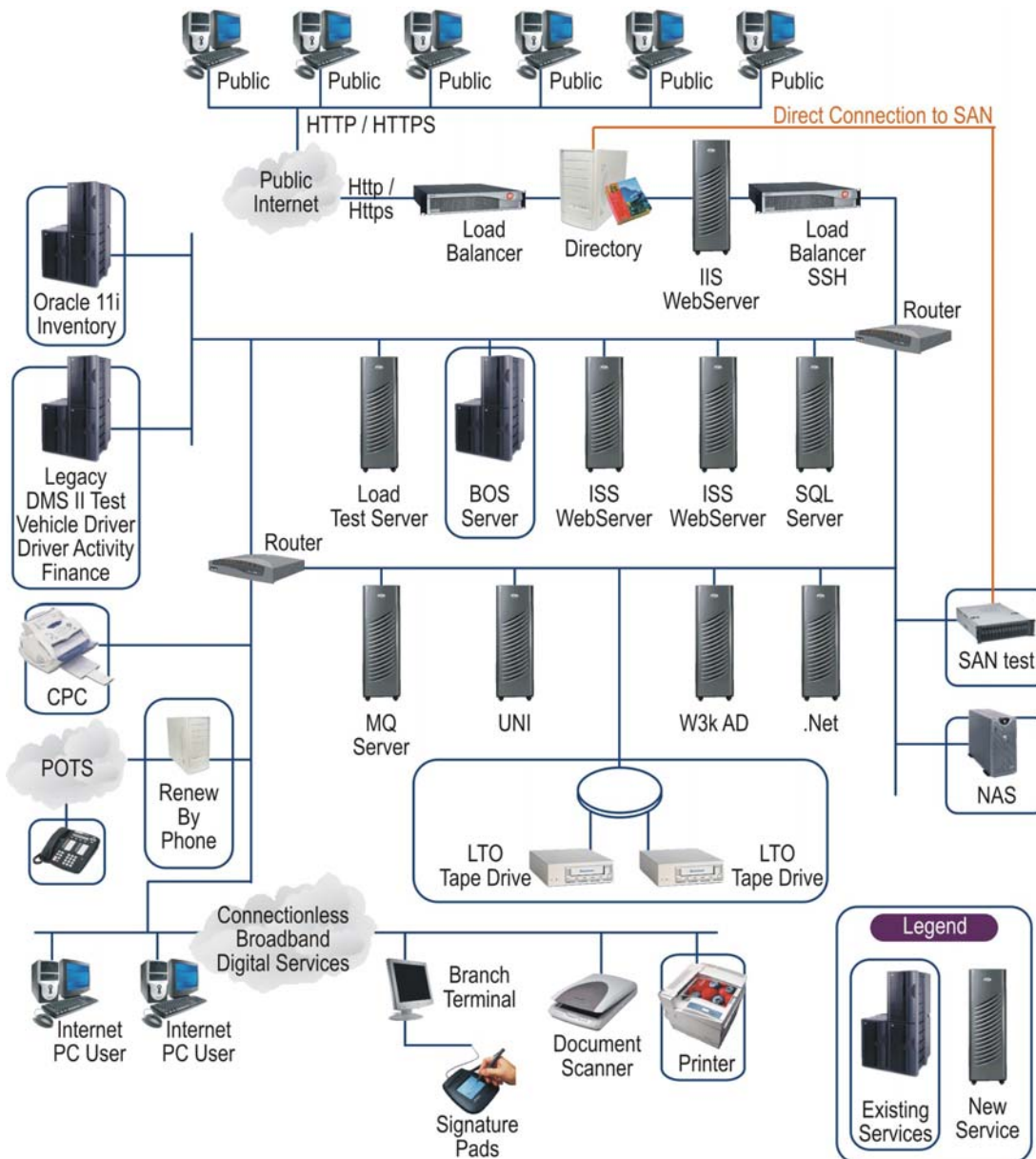
- **Optional Training Environment.** The software environment used for training will be the same as the UAT. For training purposes, the Structure Query Language (SQL) data will be specifically identified for training purposes. At the end of training, the data will be refreshed to prepare for future training sessions.
- **Testing.** Testing in the UAT will follow user test case scenarios, and every Scenario Diagram will have a test case. These test cases will have inputs and expected outcomes. Users will be able to exercise these test cases in the UAT.
- **Scheduling.** Changes to batch jobs and off-line processes will be simulated in UAT before a change in production.
- **QA Testing.** The Quality Assurance and Testing environment, shown in Figure 4.4.2-3, BAM Quality Assurance and Testing Environment, will provide a place in which code progresses from unit testing into an integrated set of project files. The QA Testing environment will be housed at the DCO site and will rely on common DCO services; specifically, the legacy DMS II system, BOS, SAN, NAS, and Tape units and network backbone are services required to support BAM development.
 - **Integration/Performance Testing.** Integration Test will be performed in the QA environment. Each Controller, Business, or Data Access object within a project space will be tested against the others to validate purpose and performance.
 - **Loading.** In the QA environment, load testing will be performed using automated testing tools and scripts. These tests will yield specific parameters around system performance using predetermined scripts and volumes to simulate production loads.



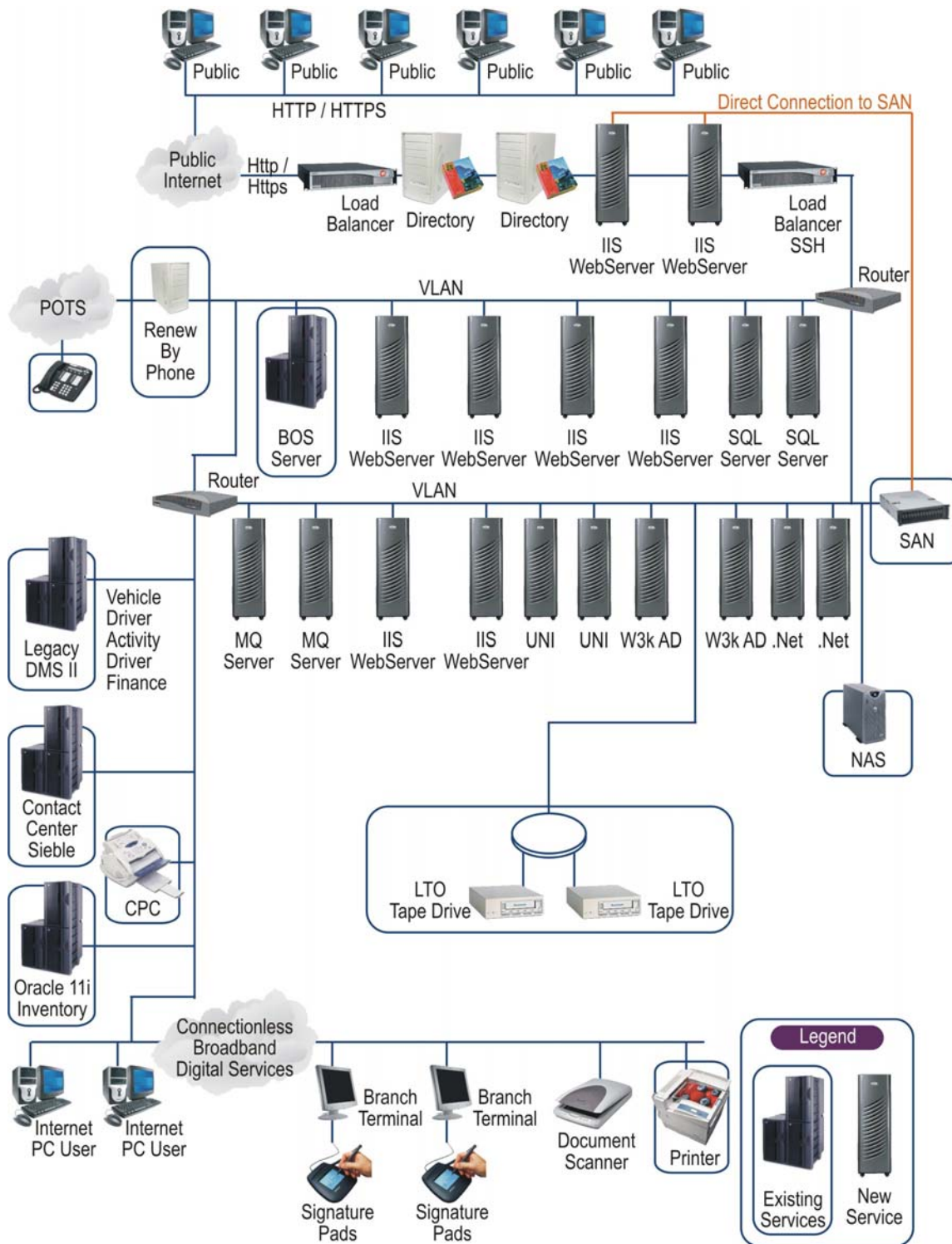
BAM Quality Assurance and Testing Environment

- UAT/Disaster Recovery.** The User Acceptance Test (UAT) and Disaster Recovery environment, which is shown in Figure 4.4.2-4, BAM UAT Disaster Recovery Environment, will be configured and managed with the same procedures as production. The UAT environment will be housed at the DCO site, but geographically separate from production. In addition, this environment relies on common DCO services; specifically, the legacy DMS II system, BOS, SAN, NAS, DTMF, Inventory, Tape units and network backbone are services required to support BAM UAT.

In this environment, geographically dispersed branch offices and DOS and MDIT personnel will perform acceptance testing of initial project releases and enhancements. Furthermore, in the event of disaster, this environment will be redirected and reloaded with the production environment's last recoverable state.



- Production.** Production is the operational environment created to support the BAM day-to-day services. This environment; shown in Figure 4.4.2-5, BAM Production Environment, will be backed up and monitored continuously to provide 99.999 percent up time and service.



BAM Production Environment

A key aspect of all of these environments is IIS 6.0 and .NET. IIS provides a redesigned World Wide Web Publishing Service (WWW service) architecture that helps achieve better performance, reliability, scalability, and security for Web sites whether running on a single server running IIS or on multiple servers.

IIS does not require separate environments to run on separate hardware. IIS 6.0 runs a server in one of two distinct request processing models, called application isolation modes. Application isolation is the separation of applications by process boundaries that prevents one application or Web site from affecting another and reduces the time spent in restarting services to correct problems related to applications. As a result, training and UAT can co-exist. In production support, development can continue in isolation while an additional BAM phase is being developed.

Technical Architecture Plan

EDS will create the BAM Technical Architecture Plan to support the software frameworks identified. It will evolve as logical BAM systems components are assigned physical software responsibilities in the UML Class and Sequence models. In addition, EDS and MDIT Hardware and Software Engineering teams that are responsible for the systems service components of the framework will create an EWO including topology diagrams such as those shown above. These diagrams will be used to create the associated Bill of Materials to support the BAM Procurement Plan and their deployment to the BAM framework.

Draft Technical Architecture Plan

Activity 2 Appendix A - Technical Architecture Plan, includes a draft Engineering Work Order (EWO). EWOs are the foundation of the Technical Architecture Plan, and in conjunction with MDIT, EDS will create EWOs to support the four BAM hardware and software configurations (Development, QA, UAT, and Production). These EWOs will be maintained as part of the Platform Engineering Activity. The development environment EWO will be created one month after contract start, and the remaining environment EWOs will be created within two months of contract start.

Deliverables from Task 2. 1

Deliverable	Measure of Success
Task 2. 1 – Design and Define Application Infrastructure	
1. Technical Architecture Plan for Development – due one month after contract start, with updates as required thereafter.	During Month 1 of the project, the BAM Technical Architecture Plan will be created to support the software frameworks for development environments identified.
2. Technical Architecture Plan for Remaining Environments – due two months after contract start, with updates as required thereafter	Within two months of project start, the BAM Technical Architecture Plan will be created to support the software frameworks for QA, UAT Disaster Recovery, and Production.
3. Technical Architecture Acceptance – a statement included in the Technical Architecture Plan accepting the Technical Environment and confirming that it is sufficient to adequately manage the volumes proposed by the State while providing appropriate performance	In response to this ITB, an evaluation of the ITB technical requirements is contrasted with the TAS provided. EDS has identified where the technical requirement is met, will be met with modifications, or does not meet with the proposed TAS environment with recommendations. During project execution and before EWOs are created, the acceptance will be reconfirmed.

Task 2.2 – Procure Hardware and Software

Requirements of Task

The Contractor shall provide a procurement plan to support development, testing, training, conversion, and production of BAM. The procurement shall take into consideration the increase in hardware and software requirements across all four phases of BAM. The Contractor shall provide a Procurement Plan, the development environment should be present and approved first.

For procurement planning purposes, the Development environment should be procured once the procurement plan has been finalized allowing for the development to begin in a timely manner. To obtain information on the timeframes for establishing these environments and phases, please refer to the various phases (3A through 3D) Hardware and Software Gantt charts in the *Implementation Strategy* attachment.

The Contractor shall keep this plan up to date as hardware and software are modified, added, or upgraded, or plans to procure these items change. Each version must be reviewed and approved by the State prior to procurement being initiated.

The Procurement Plan will include a suggested procurement path for all of the infrastructure identified in the Technical Architecture Plan, including contractors, delivery mechanisms, financing options, and discounts that either the responder or a secondary contractor can provide the State.

Based on the procurement plan the State reserves the right to purchase the hardware and software outside of this contract. All State procurement requests will require 12 weeks lead-time (from request to installation).

Deliverables from Task 2.2

1. Procurement Plan for development environment – due one month after contract start, with updates as required thereafter
2. Procurement Plan for remaining environments – due two months after contract start, with updates as required thereafter
3. Procurement of Environments – Once the procurement plan(s) is approved the environment shall be procured (either by the State or the Contractor) as appropriate per procurement plan

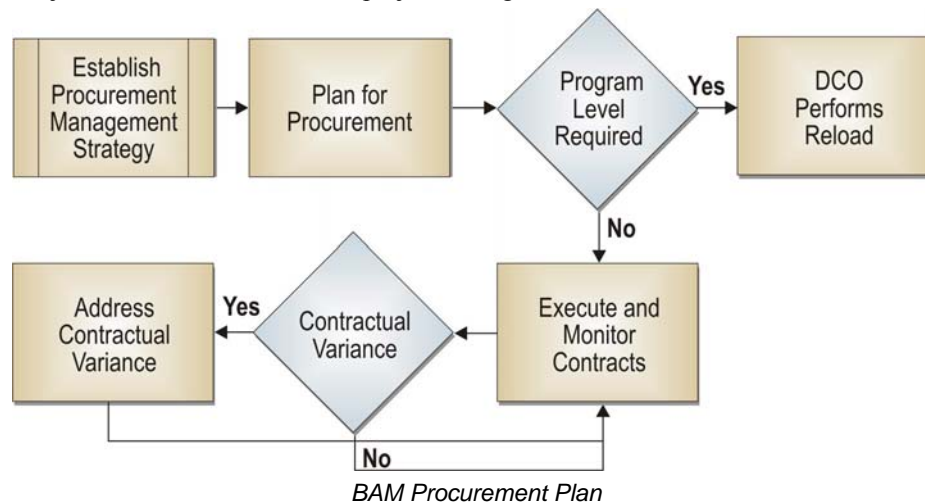
Contractor Response:

Task 2. 2 – Procure Hardware and Software

The BAM project requires procurement of a new hardware and software environment to support the .NET architecture. EDS will staff, develop, and execute a BAM-specific procurement plan, which will provide for BAM the same efficient and quality service EDS has delivered to the State of Michigan on other projects.

Hardware and Software Procurement Plan

The BAM Procurement Plan encompasses all the activities depicted below in the BAM Procurement Plan, to acquire the goods and services from outside the performing organization that are necessary to accomplish the BAM phase objectives. The purpose of this plan is to provide the information and tools required to manage and oversee contractual requirements of the BAM procurement project including hardware, software, and equipment acquisitions. The work involved in administering and approvals using this procedure is the responsibility of the Project Control Office, the EDS project manager, and the SOM.



Draft Procurement Plan

A draft of the BAM Procurement Plan is provided in Activity 2 Appendix B - Procurement Plan. Using this plan, the commodities will be procured and provisioned for the four BAM environments identified in the Application Infrastructure task of this activity.

Deliverables from Task 2. 2

Deliverable	Measure of Success
Task 2. 2 – Procure Hardware and Software	
1. Procurement Plan for Development Environment – due one month after contract start, with updates as required thereafter	During Month 1 of the project, EDS will create the BAM Procurement Plan to support the software frameworks for development environments identified above and updated as BAM phases require additional hardware and software.

Deliverable	Measure of Success
2. Procurement Plan for Remaining Environments – due two months after contract start, with updates as required thereafter	Within two months of the project start, EDS will create the BAM Procurement Plan to support the software frameworks for QA, UAT Disaster Recovery, and Productions identified above and updated as BAM phases require additional hardware and software
3. Procurement of Environments – When the Procurement Plan(s) is approved the environment shall be procured (either by the State or the Contractor) as appropriate and in accordance with the Procurement Plan	In support of BAM delivery, EDS will preform the procurement process using the Michigan Master Computing Contract (MMCC), as shown above.

Task 2.3 – Install, Configure, Test, and Maintain Technical Environments

Requirements of Task

The Contractor will be responsible for installing, configuring, testing, monitoring and maintaining the technical environments for the BAM project.

The State will have long-term responsibility (i.e., post contract completion) for execution of the plans established by the Contractor. However during the four phases the configuration of the software and hardware shall be the responsibility of the Contractor. The Contractor will work with the State in partnership when installing and configuring the hardware and software.

To obtain information on the timeframes for establishing the environments and phases, please refer to the various phases (3A through 3D) Hardware and Software Gantt charts in the *Implementation Strategy* attachment.

The Contractor shall provide a training environment separate from the Production environments. This environment will be utilized for both formal classroom and non-classroom training. This environment will provide the same functionality as the BAM production environment and will have a training database sufficient to meet the requirements of all training needs. This environment may be established in the User Acceptance infrastructure or a new infrastructure based on the Contractors recommendations. The plan must be reviewed and approved by the State.

During the four phases of BAM the Contractor must provide and maintain a Capacity Plan document for planning and sizing estimates for all environments, including expected storage requirements, storage growth rates, network bandwidth, backup media consumption, anticipated load, and expected maintenance activities. The Contractor is responsible for ongoing updates to this plan throughout the project. Each new version of the plan must be reviewed and approved by the State.

The Contractor must provide a Configuration Management (CM) Plan describing how configurations for all environments should be managed. The CM Plan must describe how configurations will be verified and promoted. The Contractor must describe how objects will be promoted from development all the way to production. The plan must be reviewed and approved by the State.

After initial installation, access to other environments will be coordinated through the State. The State uses Serena as its standard repository tool. The Contractor may make use of their own internal CM tool, but anything that is to be promoted must be checked into a repository managed and controlled by the State. This includes such things as master configuration files, migration scripts for software upgrades, and other CM utilities. The application of most configuration changes will be performed by the State, requiring that the CM Plan be appropriately detailed for general use.

In the Installation Plan, the Contractor must describe in detail what is necessary to install the computer hardware, software and appliances needed for all of the proposed environments. This should include staffing and effort estimates, outside contracting resources for services and estimated timelines for procurement of hardware, software, and services. The Contractor in partnership with the State will execute this plan for the initial installation, fully documenting all revisions so the process can be repeated, if necessary, by State technical staff. Each new version of the plan must be reviewed and approved by the State.

The Contractor will be responsible for the initial installation and deployment of all of the hardware and software. The staff provided by the Contractor must work closely with the State to ensure appropriate knowledge transfer to State staff for the ongoing maintenance and support of the technical infrastructure.

Deliverables from Task 2.3

1. Capacity Plan – due two months after contract start; updated as required.
2. Configuration Management (CM) Plan – due three months after contract start; updated as required.
3. Installation Plan – due one month after contract start; updated as required thereafter.

Contractor Response:

Task 2.3 – Install, Configure, Test, and Maintain Technical Environments

EDS is a world leader in data center operations, data center migrations, and application conversions. Since 1984, EDS has successfully relocated more than 1,000 large computer environments with a variety of diverse, disparate applications. Many of our clients have multiple computer environments, redundant resources, and disparate core applications.

EDS uses a time-proven methodology for data center operations to ensure a successful, low-risk movement of critical computer workload. EDS' dedicated teams will work with MDIT to configure, test, and install the BAM technical environment from beginning to end.

Separate Training Environment

The UAT environment will provide the basis for training, and it is planned that a separate set of data will be used for training. If required because of release conflicts during phased development, a separate IIS isolation partition will be used for training.

Draft Capacity Plan

Currently, EDS monitors the capacity of more than 100 global mainframe sites with more than 20,000 MIPS of processing power. In the midrange, workstation, and client-server-based environments, EDS monitors systems with more than 100 times this processing power with varying high performance service characteristics. This monitoring can be categorized in two principal areas: platform and applications. These two categories can be thought of as coarse-grained and fine-grained monitoring respectively.

For coarse-grained monitoring, EDS will use historical metrics obtained from its operation and vertical application partner, Microsoft, to predict BAM platform monitoring thresholds. These thresholds will be reviewed at each BAM phase to forecast added data center demands. During performance testing and later in production, EDS will refine these threshold metrics for monitoring with MDIT tools to enable coarse-grain monitoring alerts and limits. Platform monitoring will include up/down status; disk usage; memory usage; CPU usage; Simple Network Management Protocol (SNMP) monitoring; and other categories, such as backup tapes used.

Fine-grain monitoring will provide the basis for BAM application monitoring. Each layer in the BAM application has its own unique fine-grained application metrics. In the presentation layer, IIS will monitor the number of application restarts, application requests queued, and application requests rejected. The data access layer (SQL) will monitor percent interrupt time, percent processor time, working set and pages per second, locks per second, and lock waits per second. Interface components will be monitored through MQ Series Queue performance throughput, and service component metrics such as number of active components, percent completed, application durations, and started processes will be used to monitor business objects.

EDS understands that the Data Center has strategically deployed tools (HP OpenView, CA UniCenter, and others) to monitor the server environment. During the platform engineering activities, EDS will work with MDIT to determine the best method to use these tools to craft a capacity plan report such as the following example. This plan will include both coarse- and fine-grained application metrics and their ongoing maintenance.

Strategy	Platform					Application		
Technology	Availability	Disk Usage	Memory Usage	CPU Usage	Other	IIS	SQL	MQ Series
Thresholds	UP/Down	75/85	75/85	75/85	75/85	TBD	TBD	TBD
Windows 2003	Confirm Tool	Confirm Tool	Confirm Tool	Confirm Tool	SNMP P3	WMI	WMI	WMI
Firewall	Confirm Tool	Confirm Tool	Confirm Tool	Confirm Tool	SNMP P3	Confirm Tool	Confirm Tool	Confirm Tool
Network	Confirm Tool	Confirm Tool	Confirm Tool	Confirm Tool	SNMP P3	Confirm Tool	Confirm Tool	Confirm Tool

As change is introduced into the system, capacity planning for critical resources will be addressed for each release. EDS will provide

release metrics for storage area network (SAN) planning and the consumer and provider data transfer requirements for network planning. Also, transaction rates and memory usage will be analyzed so that the capacity of the production hardware is not compromised. EDS will address capacity planning in a proactive manner for each release to ensure that implementation releases are transparent to the user and do not cause negative unplanned resource usage on the infrastructure.

Draft Configuration Management Plan

During the first three months of project development, contractor will create the specific BAM Configuration Items and plan. The Production Acceptance Readiness and Production Control Handoff processes identified in Figure 4.4.2-5 will be the basis for identification of this configuration and approval by the State. When identified, these items will be included in the BAM Configuration Management Plan and maintained as part of the BAM environment by the contractor

Installation Plan

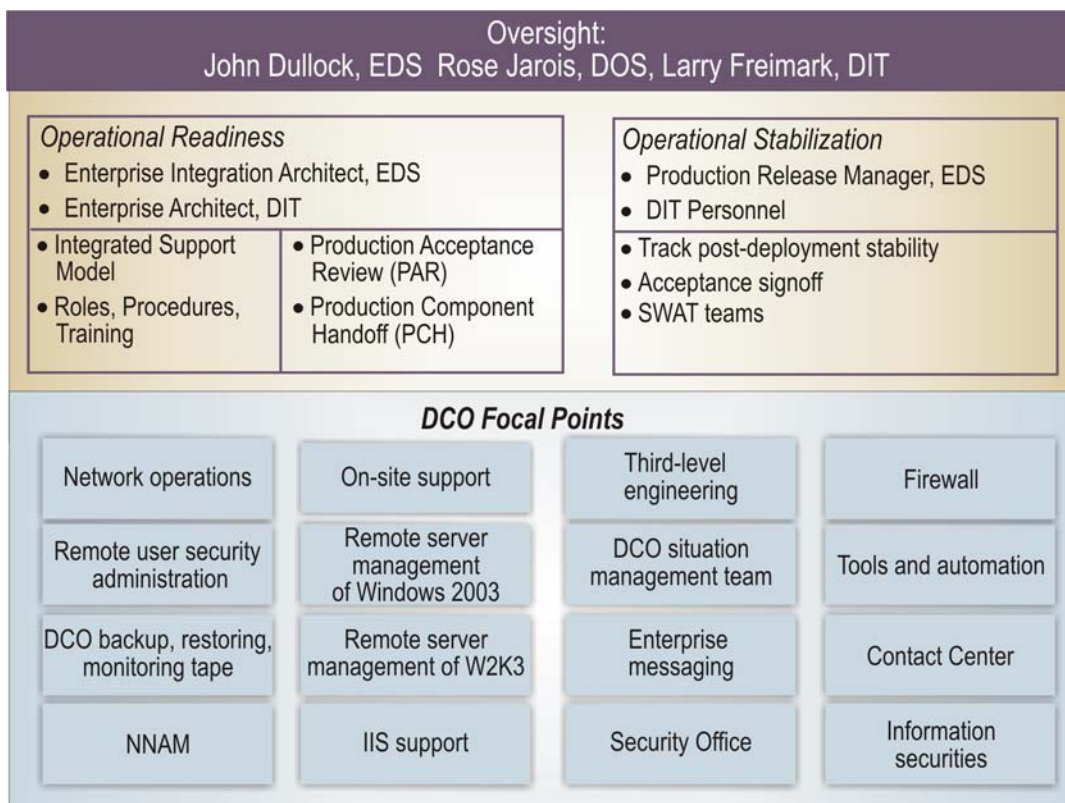
The BAM applications Installation Plan will follow the hardware and software project plan for each phase of delivery. As identified in the TAS, the majority of the BAM environment is required in Phase 3a. During all BAM phases, EDS will work with the MDIT staff to identify the specific resources required to efficiently stand up each hardware and software environment, validate the environment, and turn it over to production in support of BAM.

To ensure the performance and capability of the release, EDS will use its GSMS standard Production Acceptance Review and Production Control Handoff (PAR/PCH) process. The following paragraph explains these processes further.

Production Acceptance Readiness and Control Handoff

The Production Acceptance Review and Production Control Handoff (PAR/PCH) process identified below, Production Acceptance Readiness Control Handoff, contains several key processes that are to be performed in partnership with the State. EDS will be responsible for managing and controlling the initial installation and stabilization of each BAM release. In addition, working closely with State resources, using the PAR/PCH process knowledge transfer, and validated support models will ensure a smooth transition to ongoing production support.

BAM UAT Disaster Recovery Environment



Production Acceptance Readiness Control Handoff

During the BAM phases, the EDS-DIT Operations Readiness team will develop the EWOs and be responsible for the following as part of PAR/PCH:

- Develop or adjust operational processes needed to support technology bundles
- Ensure that adequate capacity and resource planning are in place for the Operations Support teams to support the transition of users to BAM

- Provide deliverables to incorporate operational requirements in all aspects of the BAM phase according to the budget and schedule defined by BAM phase specifications
- Ensure a smooth transition from deployment to operations during implementation of BAM services (turnover to production process)
- Develop the acceptance criteria to be used to accept deployed components into the production environment
- Ensure that the DCO service lines, third-level engineering, and other leveraged teams are ready for BAM by:
- Implementing an operations support model for the BAM phase
- Ensuring that operational processes needed to support new technology are understood and implemented
- Ensuring that support resources are trained (vendor training, mentoring, etc.)
- Ensuring that there are resources to support the steady state, working with the DCO, third-level engineering, and other leveraged teams
- Manage the turnover to production process for the BAM phase by
- Defining turnover activities
- Enforcing adherence to process by other functions
- Improving processes to make them more effective
- Reducing operational impact during the deployment process and smooth transition
- Meet the schedules of the program
- Communicate to the leveraged teams.

Deliverables from Task 2.3

Deliverable	Measure of Success
Task 2.3 – Install, Configure, Test, and Maintain Technical Environments	
1. Capacity Plan – due two months after contract start; updated as required.	EDS will use historical metrics as predictors of BAM demands. In addition, actual BAM load test and operational metrics collected through monitoring tools will be collected and reported.
2. Configuration Management (CM) Plan – due three months after contract start; updated as required.	During the first three months of project development, the specific BAM Configuration Items and plan will be created and maintained throughout the phases by the contractor.
3. Installation Plan – due one month after contract start; updated as required thereafter	Using the proven PAR/PCH process, EDS will create and maintain the EWOs and installation plans.

Task 2.4 – Manage Contractor Technical Activities / Staff

Requirements of Task

As part of the ongoing development, it is expected that continuous planning will be required with respect to maintenance of the various environments, including activities such as hardware and software upgrades, software patches, and regular hardware maintenance.

The Contractor shall provide a full-time person as the Technical Support Engineer, to oversee the Technical Planning and Support Team. The Technical Support Engineer will be identified as “Key Personnel” (reference 2.506 – Staff) for the duration of the project. This person will be the primary point of contact for the State BAM technical planning and support activities. This includes resource assignments for the technical planning and support team, as well as the monitoring and reporting of team progress. The Technical Support Engineer shall provide weekly status reports regarding technical planning and support activities.

The Technical Support Engineer will work with the State to plan and implement technical infrastructure support activities.

The Contractor shall provide a Technical Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to the attachment titled *Contractor Staffing Plan Example*. This plan must include database, system, and network administrators, and any

other resources such as utility programmers for performing technical infrastructure support and maintenance tasks. The State will review and approve the plan.

Deliverables from Task 2.4

1. Technical Team Staffing Plan – due six weeks after contract start, with updates as required thereafter.
2. Status Reports – due to the State at the close of business on first business day of each week for prior week's activities. Status reports shall include:
 - a. Major tasks accomplished
 - b. Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task
 - c. Clear identification of areas at risk of not meeting schedule
 - d. Additional issues affecting productivity or efficiency
 - e. Any other issues the Technical Support Engineer feels should be communicated

Contractor Response:

Task 2.4 – Manage Contractor Technical Activities and Staff

Steve Sinicki will serve as the BAM Conversion Coordinator reporting to the BAM Enterprise Integration Architect, Noel Clark. Steve will be responsible for administering the day-to-day tasks associated with the technical planning and support activity, including all reporting and staffing requirements for the Project Control Office.

Steve will also generate the Weekly Status Report containing the major accomplishments, major forthcoming work, significant issues, and concerns for the overall project, as well as maintaining updates to risks and other project documentation.

Activity 2, Contractor Technical Activities and Staff

In addition to Project Control Office oversight, Activity 2 deliverables will be overseen by key resource, Conversion Coordinator Steven Sinicki. The contractor's technical engineers and hardware and software engineers will also provide support for this activity. These resources will be dedicated to specific Activity 2 tasks.

The table below shows the Technical Team Staffing Plan by man-months. Please see Activity 1 Appendix C – Contractor Staffing Plan for additional staffing detail.

Activity Two: Technical Team Staffing Plan (man-months)					
Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	Totals
Technical Planning and Support					
Conversion Coordinator (Shared w/Act 4 - Conversion)	10.00	7.25	5.25	5.00	27.50
Technical Support Engineer	20.00	15.00	9.00	9.25	53.25
Hardware/Software Engineer	37.75	0.00	0.00	0.00	37.75
Total man-months by Phase for Activity Two	67.75	22.25	14.25	14.25	118.50

Technical Team Staffing Plan by Man-Months

Deliverables from Task 2. 4

Deliverable	Measure of Success
Task 2.4 – Manage Contractor Technical Activities and Staff	
1. Project/Contract Management Team Staffing Plan - due six weeks after contract start, with updates as required thereafter.	The EDS' Conversion Coordinator will produce or maintain input to the Project / Contract Management Team Staffing Plan for Activity 2.
2. Status Reports – due to the program manager on agreed upon day (typically Monday or Tuesday of each week) for previous week's activities. Status reports shall include: a. Major task accomplishments b. Major forthcoming work c. Significant issue risks and concerns for the overall project d. Any other issues the EDS project manager wishes to communicate e. Updates to risks and other project documentation f. Issues the technical support engineer may report g. Issues affecting productivity or efficiency h. Progress to schedule, including hours spent on tasks in progress and estimates of remaining effort	Using the suite of Project Control Office (PCO) tracking tools, the EDS team will generate graphical metrics reports and will produce scorecards driven by empirical evaluation. EDS will collate the scorecards with the issues reports and status reports provided by each team coordinator. These status reports will be furnished weekly to the State.

Task 2.5 – Develop Disaster Recovery and Business Continuity plans

Requirements of Task

The Contractor is required to produce and maintain explicit disaster recovery and business continuity plans.

The State is responsible for facilities and facility management. This includes addressing physical security, extended power loss, natural disasters, and physical loss of a hosting center. The Contractor is responsible for addressing only BAM system related issues in the plans.

The Disaster Recovery Plan shall address the following scenarios:

- Failure of a single disk in the storage subsystem
- Failure of a single disk in any single server
- Failure of a single CPU in any individual database, web, or application server
- Single failure of any network interface on any server or appliance, including interfaces to external storage systems
- Failure of the power supply in any individual server
- Failure of any switch or hub essential to the system
- Complete loss of any single server
- Complete loss of any single appliance such as a load balance, security device, etc.
- Complete loss of the primary storage system

The Contractor is encouraged to also include additional scenarios the Contractor feels are in the State's best interest to consider.

The Disaster Recovery Plan shall include strategies for backup, failover, and clustering, as well as strategies to address issues related to high availability and rapid system restoration. The State will review and approve the Plan.

The Business Continuity Plan is related to disaster recovery, but it covers a single scenario: a catastrophic failure of the primary hosting center. The State has two major hosting centers, one is designated for production and one for development/business continuity. The Contractor can assume that both may be used to support the system for business continuity. Again, facility issues, such as generators are the responsibility of the State. The State will review and approve the plan

As the project evolves and new software and hardware are introduced, or existing hardware and system software are upgraded and modified, both the Disaster Recovery Plan and Business Continuity Plan must be updated.

The Disaster Recovery Plan and Business Continuity Plan must be tested. The tests will be performed with the Disaster Recovery hardware and coordinated with the State. The State will review and approve the results of the tests.

Deliverables from Task 2.5

1. Disaster Recovery Plan – due 18 months from project start.
2. Business Continuity Plan – due 18 months from project start.
3. Test 1 of Disaster Recovery Plan/Business Continuity Plan – within one month of Phase 3A implementation.
4. Ongoing Test of Disaster Recovery Plan/Business Continuity Plan – every six months until the end of the contract.

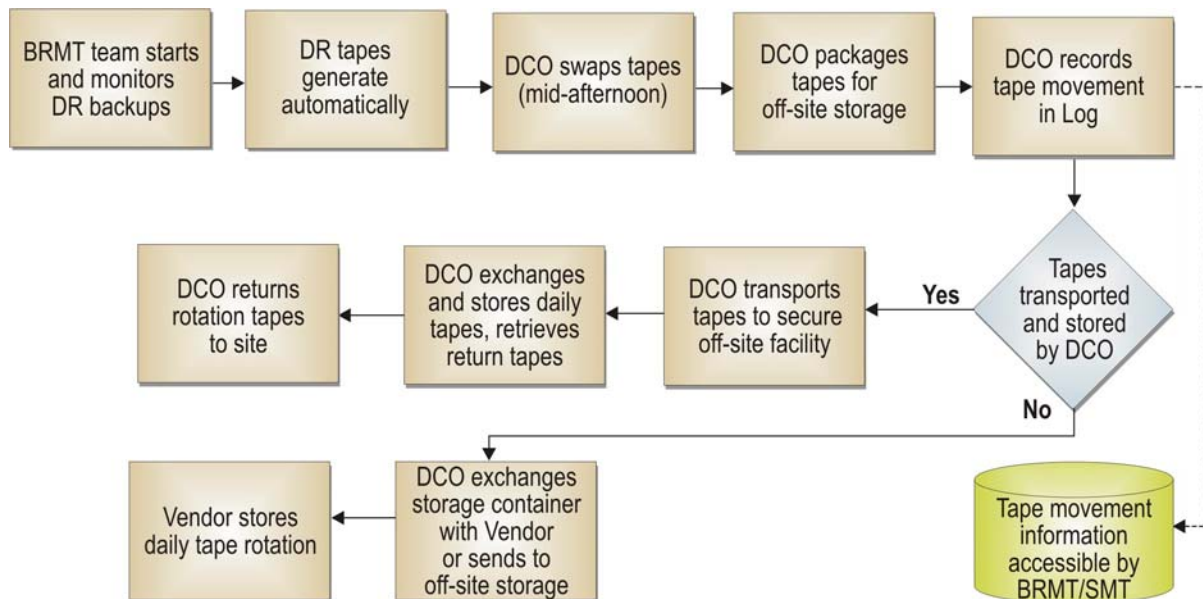
Contractor Response:

Task 2.5 – Develop Disaster Recovery and Business Continuity Plans

During project startup, the EDS team will develop a detailed Disaster Recovery and Business Continuity Plan and maintain it throughout the life of the project using our knowledge of BAM requirements that EDS have learned during the relationship at DIT - DOS. The recovery plan is detailed below.

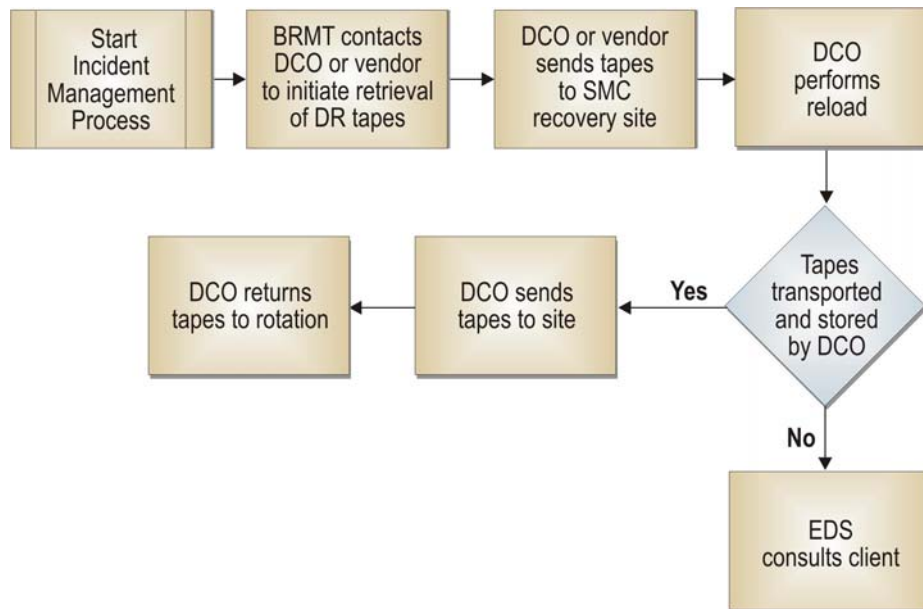
Disaster Recovery Plan

Working with the Data Center Operations (DCO) team, a Disaster Recovery and Business Continuity Plan will be created by the contractor. The BAM Disaster Recovery Backup Framework, is a typical process to follow during the backup in preparation for a disaster recovery plan.



BAM Disaster Recovery Backup Framework

Together with the backup process, a disaster recovery process will be created for BAM. The BAM Disaster Recovery, shows a typical recovery process in the event of a disaster. For BAM, the UAT will also serve as the disaster recovery environment. As shown in Figure 4.4.2-10, BAM Disaster Recovery, a Backup Recovery Monitor Technical (BRMT) team will work with DCO to restore the BAM system to its last backup performed, as shown above.



BAM Disaster Recovery

Steps to ensure a recoverable project:

Within 18 months of development, a specific BAM plan will be created to support disaster recovery by the contractor. The following is the proposed Draft Disaster Recovery Plan template.

The result of this planning and execution will be a recoverable BAM environment. The major process steps are as follows:

- Risk and Business Impact Analysis
- Plan Development
- Plan Testing
- Plan Implementation.

Disaster Recovery Plan outline:

I. Purpose, Scope, and Objectives

II. Contact Lists and Procedures

- A. Customer
- B. Account Recovery Team Members
- C. EDS Resources
- D. Vendors
- E. Others

III. Detailed Recovery Plan

- A. Applications
- B. Operating Environment
- C. Telecommunications
- D. Output Processing
- E. Manual Processing
- F. Administrative Support.

IV. Disaster Scenarios

- A. Account Site
- B. Customer Site
- C. Service Provider Site

V. Test Plan

VI. Maintenance Plan

Supporting Documentation:

- Risk Assessment
- Analysis Documentation

Potential Failure Points in Architecture and Mitigation Steps

During development, the development servers are the critical resources. Key failure points include network or server hardware failure and human error. Human error in the development or execution of the backup plan must also be considered. Hardware failure is

mitigated by selection of a level of redundant hardware and effective training plans. Human error is mitigated by effective training and independent testing of the backup plan and its execution.

Disaster Recovery After the BAM Project

The EDS team's foregoing template for disaster recovery can be used as the foundation for the development of the MDIT disaster recovery following the implementation of BAM. In addition, the existing MDIT disaster recovery plan will be a key resource, and finally, evolving State of Michigan policy and technical resources such as those available from the National Institute of Standards and Technology Computer Security Resource Center. The EDS team's work plan will anticipate the deployment of most BAM capabilities near the end of the each BAM phase. Up until full implementation, primary MDIT business continuity resources will be applied in relationship to the current suite of BAM information systems. After the transition, MDIT may wish to deepen its business continuity resources by, for example, arranging hot-site recovery capabilities.

Business Continuity Plan

EDS' Business Continuity Policy states, "EDS is committed to protecting the information entrusted to us by our clients. EDS will advise and assist EDS' clients on ways to reduce the likelihood and severity of a service disruption, and EDS will develop, maintain, and test business continuity plans according to our clients' requirements and our mutual contractual commitments. In addition, EDS will maintain an effective business continuity capability that supports our employees, assets, and corporate infrastructure."

Our commitment to business continuity for our client base has been demonstrated throughout our history. EDS services have weathered earthquakes, hurricanes, and utility failures with little or no disruption to client processing.

Business continuity is a set of practices that mitigates risk, ensures the availability of essential services for EDS and its clients, and provides for the safety and welfare of our employees during a disaster. Business continuity planning is the development and testing of plans to ensure the safety and welfare of the EDS team and the recovery of our services to our clients following a disaster. Business continuity is crucial from a customer service perspective, but equally important are our efforts to protect EDS assets, infrastructure, and employees.

The first element of EDS' business continuity program is prevention; it is less disruptive and less expensive to prevent a disruption rather than to recover as a result of a disaster. For this reason, EDS will invest extensive corporate resources in standardizing and implementing preventive measures. In EDS' experience, this preventive stance has proven effective.

The second element of business continuity planning is recovery planning, which is based on individual client requirements to ensure appropriate levels of recovery capability. Recovery planning takes into account all EDS support for the client. EDS will provide a harmonious service recovery in the event that a disaster creates a major service disruption.

Deliverables from Task 2. 5

Deliverable	Measure of Success
Task 2. 5 – Develop Disaster Recovery and Business Continuity Plans	
1. Disaster Recovery Plan – due 18 months from project start.	A detailed recovery and business continuity plan will be developed by the EDS team during project startup and maintained throughout the life of the project
2. Business Continuity Plan – due 18 months from project start.	During the first 18 months of project development, the specific BAM business continuity plan focused on prevention and recovery will be integrated with the Disaster Recovery Plan by the contractor
3. Test 1 of Disaster Recovery Plan/Business Continuity Plan – within one month of Phase 3A implementation.	EDS will exercise the DRP/BC Plan within one month of Phase 3A implementation
4. Ongoing Test of Disaster Recovery Plan/Business Continuity Plan – every six months until the end of the contract.	EDS will exercise the DRP/BC Plan every six months from Phase 3A implementation

Task 2.6 – Perform Technical Planning and Support Knowledge Transfer

Requirements of Task

It is the State's intent to be able to perform the technical planning and support on its own at the completion of this contract. To this end, the Contractor shall work with the State to perform a "knowledge transfer" on the technical planning and support tasks identified previously. This knowledge transfer shall include involving State personnel in technical planning and support activities from the beginning of the project. The

Contractor will utilize multiple channels and methods for the transferring of knowledge to the State personnel for example documentation, training, and hands-on experience.

The State intends to identify 2-3 individuals to participate on a full-time basis in technical planning and support activities. These people will have the requisite skills to participate on the team as identified by the Contractor in the System Support Transition Plan (reference *Activity 8, Task 2– Transition Support to State*). The Contractor is expected to communicate concerns regarding specific areas/individuals if the Contractor feels there is an elevated level of schedule risk; the State will pursue other methods of performing the knowledge transfer for the given area in this situation.

The State staff participating in these activities is meant to provide a smooth transition of technical support upon completion of the phase. The Contractor should not rely on these individuals to reduce Contractor staffing levels on the technical planning and support team during the phase; in fact, no guarantee is made as to the State's ability to provide these staff. The Contractor is entirely responsible for meeting the technical planning and support requirements of this contract, regardless of whether State staff participates in these activities.

Deliverables from Task 2.6

1. Support Knowledge Transfer of the Technical plan – occurs progressively over the life of the phases

Contractor Response:

Task 2. 6 – Perform Technical Planning and Support Knowledge Transfer

The State will provide ongoing production support of the BAM System with DIT at the completion of each project Phase. EDS will work with DIT to perform a knowledge transfer of the ongoing production support tasks. Throughout the duration of the project, EDS will work with DIT to ensure that DIT personnel are familiar with ongoing production support activities.

The State intends to identify three to six full-time DIT personnel to participate with EDS in ongoing production support activities. The DIT personnel will have the requisite skills as identified in the System Support Transition Plan (reference *Activity 8, Task 8. 2 – Transition Support to State*) to participate with EDS on the production support team. EDS will communicate concerns regarding the ongoing production support knowledge transfer if EDS identifies a schedule risk. EDS and the State will then work together to pursue alternative methods of performing the knowledge transfer for the affected area.

EDS understands that DIT personnel may not be available to participate with EDS in ongoing production support activities. EDS also understands that the responsibility of completing ongoing production support requirements is EDS'. EDS will use DIT personnel to review and verify production support tasks. This will keep DIT personnel cognizant of all production support activities in the BAM System. Finally, EDS will perform a formal knowledge transfer of ongoing production support to DIT six months after the successful implementation of Phase 3D.

Deliverables from Task 2. 6

Deliverable	Measure of Success
Task 2. 6 – Perform Technical Planning and Support Knowledge Transfer	
Ongoing Technical Planning and Knowledge Transfer – continually throughout, and complete by end of contract	The contractor will develop a plan for Ongoing Technical Planning and Support Knowledge Transfer, EDS will use the Knowledge Transfer process described within Activity 7..

Task 2.7 – Perform COBIT Review

Requirements of Task

COBIT stands for Control Objectives for Information and related Technology. COBIT is recognized as a generally applicable and accepted standard for good Information Technology (IT) security and control practices that provides a reference framework for management, users, and IT audit, control and security practitioners.

The Contractor shall conduct an initial COBIT review of the base system finalized by the Contractor. The extent of this review will be limited to the questions and information contained in the attachment titled, *COBIT Audit Form*. The intent of this review is to identify gaps between the COBIT requirements and the base system proposed by the Contractor.

All completed COBIT Audit Forms (i.e., COBIT reviews) must be reviewed and approved by the State.

Deliverables from Task 2.7

1. Initial COBIT review – due six months after contract start
2. Second and Third COBIT review – due three months after statewide implementation of Phase 3A and 3B respectively
3. Final COBIT review – due three months before the end of the Contract

Contractor Response:

Task 2.7 – Perform COBIT Review

EDS understands that the Control Objectives for Information and related Technology (COBIT) has 34 control objectives classified in domains, which are first introduced in the COBIT Framework document. The document takes each of the control objectives to another level of detail. For each of the control objectives, documentation maps the objective to high-level business requirements and factors to be considered when implementing the control. The high-level control objectives are then broken down into granular ways in which the control objectives can be achieved.

Based on the ITB request, it is clear that the COBIT framework is considering the Security Audit monitoring and Internal controls. Using the COBIT Audit form attached, EDS' Project Manager will administer the evaluation of the BAM system. Further, these evaluations will be reviewed for approval by the State BAM Project Manager or a designate.

Deliverables from Task 2.7

Deliverable	Measure of Success
Task 2.7 – Perform COBIT Review	
1. Initial COBIT Review – due six months after contract start	EDS Project Manager will administer the COBIT survey and review in the first six months after contract start.
2. Second and Third COBIT Review – due three months after statewide implementation of Phase 3A and 3B respectively	EDS Project Manager will administer the COBIT survey and review in the first three months after Phase 3A and 3B implementation.
3. Final COBIT Review – due three months before the end of the contract	EDS Project Manager will administer the COBIT survey and review three months after the implementation of the BAM contract.

Clarification (July 26, 2005), Item 31:

EDS understands and accepts that COBIT is the State standard. Pursuant to the ITB Task 2.7, EDS will perform and complete the COBIT Audit form.



Appendix C

Activity 3 – Application Development

Please highlight deviations from suggestions in the RFP, including the *Implementation Strategy* and *Technical Architecture Specification*, and provide appropriate justifications. It is important for the Contractor to show creativity in design and approach to the development of the BAM system. For Phases 3C and 3D there is ample opportunity to apply alternative approaches for meeting the requirements. For example Case Management may fit well for Driver Activity in Phase 3D. The Contractor should articulate examples of out the box thinking in providing creative solutions to business applications. Outlines or samples of the technical documentation deliverables may be submitted with the proposal, but please keep these to a minimal number of pages necessary to communicate the format, organization, and detail proposed.

Task 3.1 –Application Development Approach Plan

Requirements of Task

During Phase 2, the BAM State team, in coordination with the Phase 2 contractor (EDS), developed an *Implementation Strategy* for building BAM. The *Implementation Strategy* may be utilized by contractors to assist them in developing their Application Development Approach Plan. It is not required to follow the development process proposed. Contractors should follow the phasing of BAM as proposed (the transactions and activities included in Phases 3A-3D). A detail application interface diagram is found in Appendix C – Legacy Interfaces of the *Implementation Strategy* section. If a contractor would like to propose any alterations to the phases, justification should be included as to why the contractor would recommend changes in phases.

In addition, the *Requirements* for all BAM phases were compiled and are included as attachments. Requirements include an overview of the “as-is” process flows for all DOS business processes, as well as “to-be” flows so that Contractors can utilize both flows in determining the changes that will exist in the new environment. Contractors are to utilize these requirements in determining their approach to Application Development, as well as understanding the requirements for this RFP for development purposes. The requirements also convey the size and effort of each phase and should be utilized when determining the cost of development for each phase.

In order to keep to a five-year project time-line it is anticipated that phases will overlap, so that requirements capture and design could be a continuous process, as are development and testing. If at all possible, multiple parallel teams should be used to maximize the efficiency of the development process. The Contractor is encouraged to identify other exceptions or opportunities for efficiencies for whatever development methodology is proposed.

The Contractor shall deliver an Application Development Approach Plan with their proposal, which will be updated along with input from the State. In this plan, the Contractor shall identify and describe their proposed development approach. The State will review the plan as part of the contract award and after contract award; the State will review and approve the final plan.

It is mandatory throughout the application development activities that the Contractor will actively involve State Department of Information Technology (DIT) technical staff. The Application Development Approach Plan shall address this requirement. Specifically, the plan shall recommend training; document how DIT staff will be actively mentored, and how development tasks may be assigned to DIT staff if/when appropriate. As the project progresses, DIT staff should take a more active role in requirements capture, design, and development, with the eventual goal of the State taking over support of the application at contract completion. However, DIT staff availability and project schedule demands may affect whether or not this goal is achievable, and the Contractor shall retain full responsibility for the delivery of the required functionality per the schedule requirements.

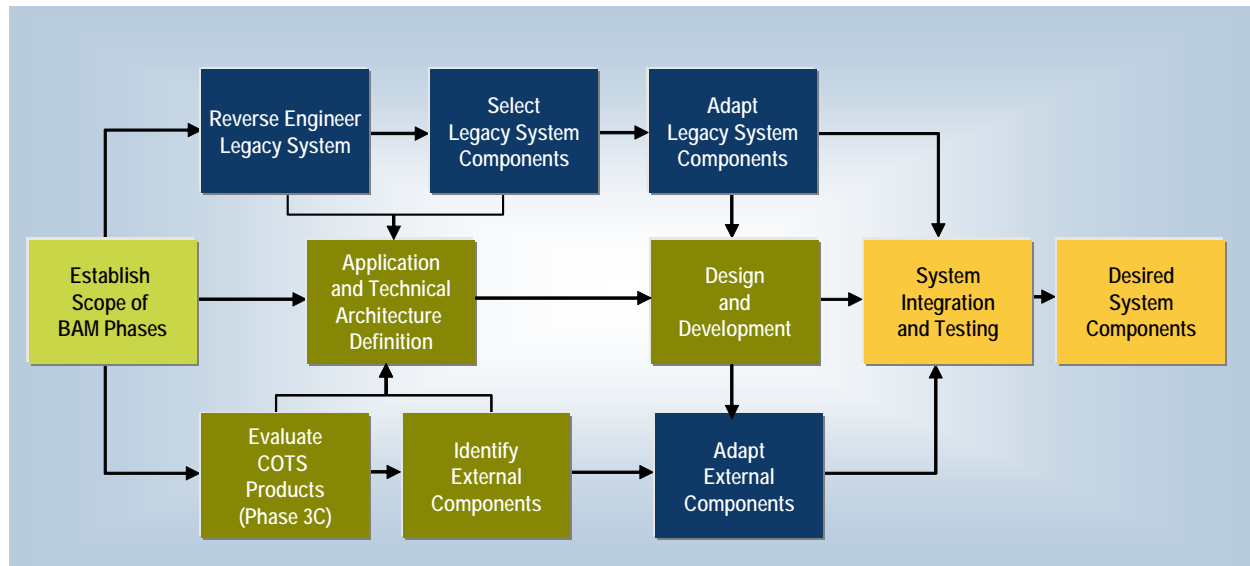
Deliverables from Task 3.1

1. Application Development Approach Plan – proposed plan as part of the bid requirements and with the final plan due one month after contract start; updated as changes occur thereafter.

Contractor Response:

Task 3.1 –Application Development Approach Plan

EDS looks forward to a collaborative effort with Michigan Department of State (DOS) and Michigan Department of Information Technology (DIT) to create the BAM system. During BAM Phases 3B, 3C, and 3D, EDS will refine the DOS scope and analysis of current systems artifacts. For Phase 3A scope, EDS will accomplish the analysis using the same techniques that EDS and DOS employed during BAM Phase 2. Subsequent to this analysis all phases will progress through definition, design, and implementation as depicted below. During each activity of the BAM Component Realization framework DOS and DIT will be involved.



BAM Component Realization

During BAM Component Realization DIT, DOS and EDS all have active roles in the project tasks. For example, and using BAM Component Realization:

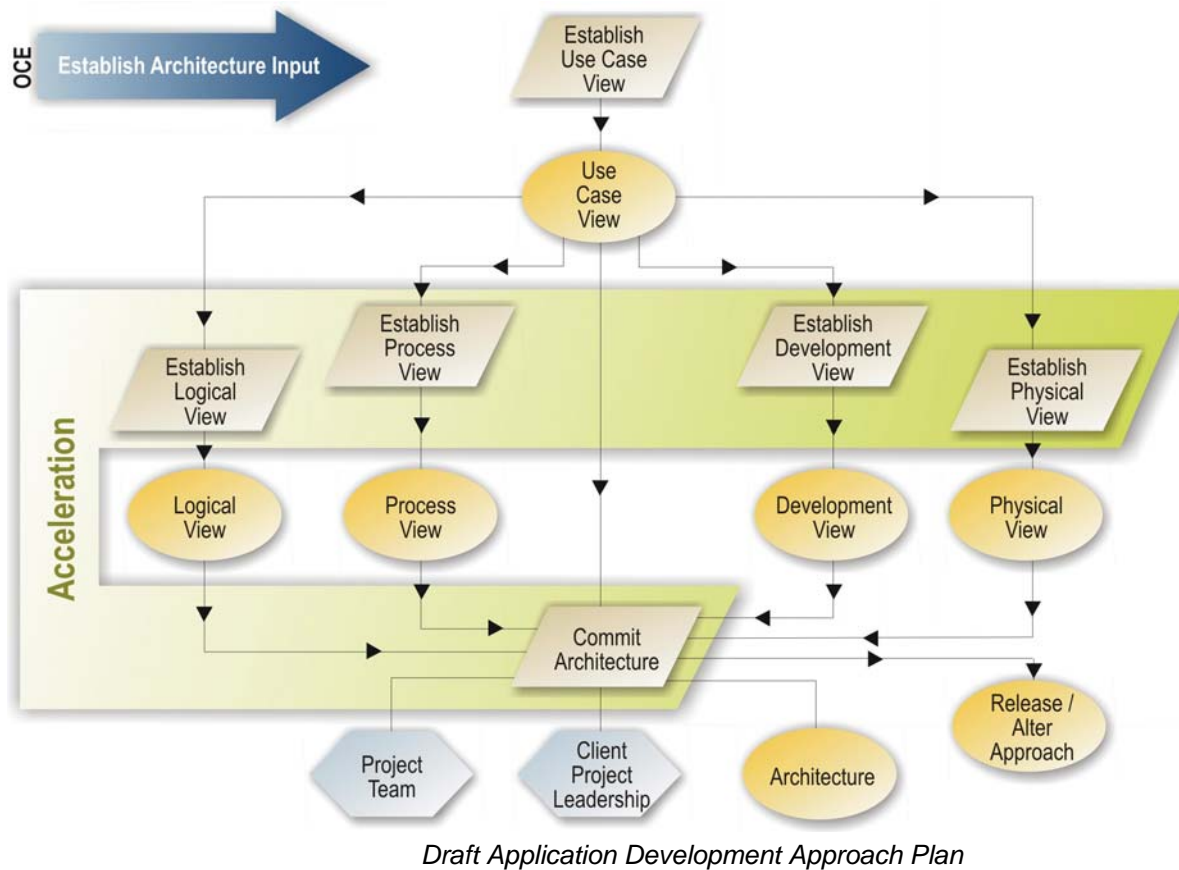
- DOS working with DIT and EDS will provide guidance and scope on the inclusion of specific business applications in all phases.
- During Reverse Engineering of Legacy System, EDS and DIT will work closely together to extract logic and rules from the existing Unisys and Branch Office System (BOS) VB6 systems code. EDS will need the expertise of DIT to identify and provide access to libraries, data definition languages, systems code, and documentation used in these existing DOS systems. EDS assumes a DIT person knowledgeable of these system components will be assigned to support this task. Where possible EDS will use tools to evaluate and decompose these systems into requirement with its Cogen tool. Cogen is a Cobol extract tool that maps rules and data into reports used to develop requirements. EDS will use these requirements to establish additional BAM functional requirements and will incorporate them in the resultant elaborated scenario diagrams.
- EDS will select and adapt the legacy systems during each phase of BAM 3, to meet the requirements of that phase. EDS and DIT will work together to establish the necessary legacy enhancement and interfaces that will enable BAM to progress through phase implementation. For example, the BOS will need to communicate with .Net code in Phase 3A. This VB6 application will need to create COM objects to communicate with BAM. EDS will collaborate closely with DIT to accomplish this task.
- During Design and Development of BAM EDS plans to use facilitated sessions with DOS Subject-Matter Experts (SME) and DIT technical experts to create deliverables associated with Design.
- EDS will recommend training in the .Net and UML methods for DIT staff identified to be part of the Development task. Code templates and standards will be provided to DIT to support the knowledge transfer and ongoing support of BAM technologies. Further, EDS technical leads will act as mentors to the development team. When available, DIT staff may participate in the creation of business and data access objects that will provide an instance of BAM.
- EDS will create the application and technical architecture with DIT involvement to make certain that interfaces and legacy component adaptations are accomplished.
- Evaluation of common off-the-shelf packages will include DIT and DOS to validate the selection criteria for a qualitative and quantitative view.

Draft Application Development Approach Plan

A system as large as the BAM System can be overwhelmingly complex. Accordingly, it is necessary to decompose it into

understandable logical groupings. The BAM Phase 2 deliverables have identified these as groupings of business processes assigned to Phases 3A, 3B, 3C, and 3D. The BAM Phase 2 Scenario, and Sequence Diagrams show well designed cohesive, strongly related elements and dynamic information. Further, the BAM Phase 2 deliverables all use Unified Modeling Language (UML) to describe models of the BAM system (manual processes and software) based upon object-oriented concepts. Accordingly, EDS will continue to use the UML methodology for the Phase 3 Application Development Approach.

The foundation of the Phase 3 Application Development Approach is UML. However, UML is only a methodology without a prescribed process. A defined process is needed to complete the Application Development Plan. EDS will use its proven Global Solutions Management Systems (GSMS) process set for Object Component Engineering (OCE) to complete this plan. The figure below identifies the major OCE tasks EDS will perform to produce standardized UML outputs as part of the Development Approach and Plan. Further, EDS will manage and create these outputs in the Rational tool as part of this plan.



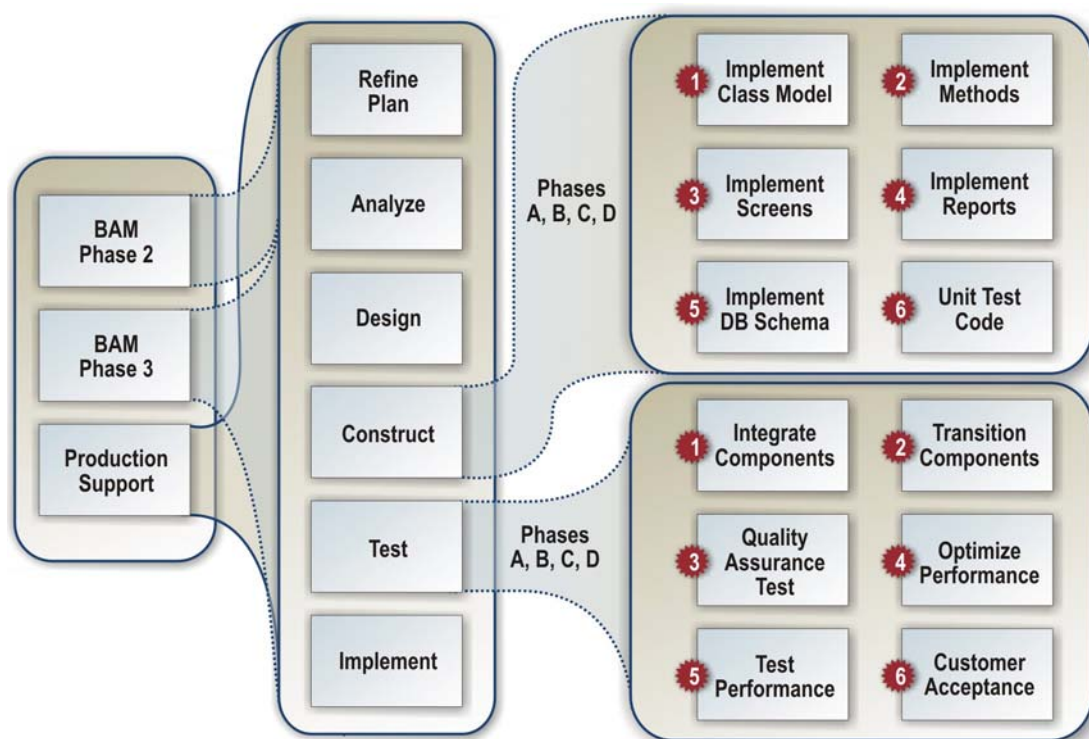
Using OCE and UML provides a flexible modeling language that supports object-oriented analysis and design. Two main categories of UML apply to BAM Phase 3. The overall System Model will apply to Phases 3A, 3B, 3C, and 3D to varying degrees consisting of Analysis Models (models related to the investigation of the BAM domain but not the solution) and Design Models (models related to the logical solution).

EDS also understands that the outputs of BAM Phase 2 represent varying degrees of Analysis and Design for BAM phases 3B, 3C, and 3D. As a result, the application of UML will have different development activities and corresponding effort for Phase 3A as it does for 3B, 3C, and 3D. Specifically, EDS estimated the following volumes associated to this Application Development Activity for each BAM Phase based solely upon the ITB Phase 2 deliverables. EDS anticipates that this scope is likely to change during Analysis and Design for 3B, 3C, and 3D, and will use the process described in Activity 8.1, Provide System / Service Enhancements, to integrate these changes into the application development process.

Phase	Scenarios / Sequences	Interactions	Class Elements	Record Elements	Function Points Estimated
Phase 3A	98	1447	47	92	12,257
Phase 3B	68	496	92	218	5,660
Phase 3C	61	382	92	218	5,007
Phase 3D	87	671	92	218	7,824

EDS will perform the following activities for BAM by Phase to meet the anticipated demands of Analysis and Design:

- Phase 3B, 3C, and 3D will perform Analyze activities. EDS will accomplish this with a series of facilitated sessions. These sessions will refine requirements, scenarios text, and scenario diagrams. Phase 3B and 3D will immediately follow with creation of sequence diagrams and class models to assign systems responsibilities to scenarios in preparation for construction. Before Phase 3C progresses to creation of class and sequence diagrams, EDS will perform an evaluation of commercial off-the-shelf (COTS) software packages' ability to meet the gathered requirements.
- As depicted in Figure 4.4.3-1 above, Phase 3C requirements will provide the basis for evaluation of a COTS Finance and Document Management system. EDS' Analysis activities for these systems will be limited to their required external interaction with other BAM actors. EDS has estimated effort for Phase 3C to provide this level of analysis. Specifically, internal logical functions for Finance and for Document Management systems will be provided as part of the COTS package. Therefore, it will not be a part of the elaborated scenarios created in Analysis for these Phase 3C systems.
- Phase 3A, 3B, 3C, and 3D will perform Design activities. EDS will accomplish this through the process described in the BAM Realization Model shown in Figure 4.4.3-1 above, resulting in the creation of UML deliverables identified in Figure 4.4.3-4. Working with DIT and DOS, EDS will decompose legacy artifacts (Code and Systems Analysis) with automated tools to identify requirements and rules. These requirements and rules will then be elaborated during the creation of Real Scenarios. Adjacent to Real Scenarios will be the creation of Navigation Graphs (screen flow), Sequence Diagrams, Class Models, and Database Schema. EDS will create these deliverables with collaboration of DIT and DOS SMEs during the design phase of BAM.
- Phases 3A, 3B, 3C, and 3D will perform all Construct and Test activities depicted below. During this activity EDS will actively mentor and involve DIT to facilitate an efficient hand off to production support.
- Phase 3A, 3B, 3C, and 3D implemented systems will all move into production support. During production support EDS will perform planned and unplanned modifications to the BAM system. An unplanned modification represents a break or fix activity. Additionally, EDS understands the dynamic nature of the DOS business and resultant BAM enhancements. EDS will coordinate these activities with ongoing phase Analysis and Design through continued use of UML methodology, completing the full life cycle of Refine through Implementation.



BAM Analysis and Design Activities

Referencing Figure above, BAM Analysis and Design activities will create the systems artifacts necessary to validate requirements and progress to construction. EDS will actively involve the identified DIT resources for participation in this activity. The completion of BAM Phase 3 Analysis and Design will produce the following:

1. **Refined Requirements** – EDS will discover and document the functional and business requirements through facilitated sessions supporting the creation of scenarios.
2. **Refined Scenarios** – EDS will refine the scenario elaborated text to take them from conceptual models to real models describing details of each step and all alternate methods.
3. **Refined Scenario Diagrams** – EDS will refine the scenario diagrams' graphical depiction of the elaborated text to take them from conceptual models to real models describing details of each actor interaction.

4. **Defined Sequence Diagrams** – EDS will create sequence diagrams to assign data and class object methods to meet the interaction needs of scenarios.
5. **Defined Class Model** – Sequence diagram interactions require class object methods and data to complete. As a result, EDS will create class object models to support systems interaction.

Subsequent to Analysis of BAM Phase 3, EDS will perform the following Design Activities:

1. **Decompose Legacy Artifacts** – EDS will evaluate existing legacy documentation and code to discover additional requirements.
2. **ID Real Scenarios** – With the discovery of requirements from legacy artifacts, EDS will further elaborate scenarios with the new requirements, taking them to the level of real.
3. **Define Navigation Graphs** – EDS will graphically model screens and screen flows in navigation graphs.
4. **Refine Sequences** – With the complete real scenarios, EDS will assign additional systems responsibilities that were discovered.
5. **Refine Class Model** – Sequence diagram interactions require class object methods and data to complete. As a result, EDS will refine class object models to support the refined systems interaction.
6. **Create Database Schema** – EDS will create database models to create persistence of class objects.

Completion of the defined analysis and design activities will position the BAM Phase 3 deliverables for the construction and testing task of the application development activity. The following paragraphs further describe these activities.

Using the UML methodology will provide the necessary engineering rigor for EDS to accomplish the phased approach to BAM. Through continued maintenance of systems artifacts (requirements, scenarios, models), BAM business processes changes will be efficiently supported for the released Phase. Using this same methodology and the Rational Rose UML modeling tool repository, EDS will simultaneously support the ongoing phased design and releases. The following sections of this activity further describe methodology tasks to be accomplished as part of the Application Development Approach for BAM. For complete plan schedule details please see Activity 1, Appendix A - Project Plan.

Deliverables from Task 3.1

The application of GSMS OCE and UML results in set of task and activities required for EDS to accomplish the BAM Application Development Approach Plan described in the paragraphs above. EDS will finalize this plan within one month of contract start and update the plan as required. Activity 1, Appendix A - Project Plan defines the detailed project plans required to accomplish the specific outputs of this planned approach.

Deliverable	Measure of Success
Task 3.1 – Application Development Approach Plan	
Application Development Approach Plan – proposed plan as part of the bid requirements and with the final plan due one month after contract start; updated as changes occur thereafter.	UML methodology along with the EDS GSMS OCE work type provide the Application Development Approach. Activity 1 Draft Project Plan sequences this approach and will be maintained throughout all Phases of BAM by the contractor.

Task 3.2 – Perform Analysis, Refine, and Requirements Definition

Requirements of Task

Prior to initiating new phases, the Contractor must review and validate the Phase 2 documentation ensuring their full ownership and understanding of key documentation in order for BAM to move forward. Contractor must complete several tasks in order to complete the review and validation task including:

- Review and obtain complete understanding of the BAM Rational repository completed in Phase 2, as well as requirements completed during Phase 2. Make modifications in repository only as deemed necessary with State approval. Changes to requirements may only be made through facilitated sessions with State.
- Conduct facilitated sessions with State staff to review the logical class model. Complete and update a revised logical class model for Phases 3A-3D.
- Review and obtain complete understanding of the Technical Architecture Specification and Implementation Strategy documentation. Modifications may be made with State approval only; justification must be provided for all deviations from the original plan. The State will provide the necessary subject matter experts on the current legacy environment.

For each phase, functional requirements will be gathered utilizing the UML methodology and updating the current Rational repository. Requirements for 3A are sufficiently detailed to give contractors an idea of the method utilized, the products required, as well as the scope of Phase 3A. The contractor will be required to have a refine and analysis process for each phase. The required time for refine and analyze in each phase may vary and contractors should utilize the *Requirements Documentation* to estimate their timeframes for refining and analyzing requirements. The contractor should utilize the detailed information from Phase 3A to benchmark against the information compiled for Phases 3B, 3C, and 3D, in order to determine the amount of time to complete all detail requirements for each phase. Additional requirements are anticipated, and given the fixed price of this contract, contractors are to adequately price to adjust for the additional requirements.

The State will be responsible for providing subject matter experts and other analysts to further define and clarify requirements. The Contractor will update all products that currently exist in the repository including the *Traceability Matrix* from the completed requirements. The repository includes as-is and to-be process flows using Visio and the full suite of Rational requirements documentation. The *Traceability Matrix* is to be used throughout the remainder of the development effort, and particularly in mapping user acceptance test criteria back to the requirements.

The required format for requirements documentation is elaborated use cases. The Contractor must provide a Requirements Document for each phase, including a detailed description of the functionality surrounding each high-level requirement. Again, the Contractor is to utilize the current repository that the BAM team has initiated in Phase 2.

The Contractor shall also provide a Requirements Overview Document - an outline of the high-level requirements, their dependencies, and a reference to the details of each high-level requirement. The Contractor is welcome to provide alternative formats and approaches consistent with the overall development methodology.

The State will provide final review and approval of all plans, requirements and technical specifications.

Deliverables from Task 3.2

1. Requirements Document, including Gap Analysis and Traceability Matrix – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
2. Requirements Overview Document – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
3. Business Process Change Document – identifies new or changed business processes based on the agreed upon (high-level) requirements; due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
4. Logical Class Model – due for each phase at the onset of the contract. This will be required early on to be refined (there is a draft logical class model from Phase 2 included in *Logical Data View* for all phases of BAM. This exercise is required in order to ensure the contractor understands requirements for all phases of BAM – not just Phase 3A).
5. Review and validation of documentation, including a signed document by the Contractor that the full repository of requirements documentation, the updated logical class model, the Technical Architecture Specification and the Implementation Strategy are now understood and owned by the Phase 3 Contractor.

Contractor Response:

Task 3.2 – Perform Analysis, Refine, and Requirements Definition

As depicted above in Figure 4.4.3-4, EDS will accomplish BAM Analysis and Design Activities for the phased implementation approach. EDS will hold facilitated sessions that will be a key activity for Analysis and Design. EDS will complete the Analysis phase for Phases 3B, 3C, and 3D. EDS will complete the Design phase for Phases 3A, 3B, 3C, and 3D. EDS will create UML deliverables for all of the BAM problem domain. This will include BAM Class objects and interfaces required from BAM to all external actors (software and system). As a result of this Analysis and Design activity, EDS will discover and define enhancements to the legacy.

To accomplish the legacy enhancements discovered, EDS will utilize the BAM design deliverables created during this task as requirements. Utilizing these requirements, EDS will augment the State staff with two development resources for all the Legacy enhancements. One staff member will assist with BOS legacy enhancements and one staff member will assist with all other legacy enhancements identified. The EDS Legacy Enhancements Coordinator will closely monitor these activities to ensure that the

combined State and EDS staff will provide enough resources to perform all the necessary work in this area.

Facilitated Sessions

Facilitated sessions help deliver projects on time, on budget, and within scope while enabling users with the ability to gain consensus on how best to develop and implement their project. During Phase 2, EDS, DOS, and DIT SMEs participated in several facilitated sessions to create Phase 2 outputs. Facilitated sessions help participants to better describe requirements and gain an understanding of the entire business work flow as they are guided through discussions by trained facilitators who know how to get results quickly. In addition, facilitated sessions provide systems knowledge transfer and methodology mentoring opportunities for all involved.

During BAM Phase 2, EDS and our vendor partner Analysts International (AI) created a customized facilitation process that gathered Business Requirements and Functional Requirements in an efficient and organized manner. EDS will use this same facilitation process followed by documentation reviews to achieve our BAM Phase 3 goals. EDS has successfully delivered over 50 such sessions to the State to date. EDS will continue to leverage this process along with Phase 2 Scenario templates to deliver the requested services quickly to the DOS customer.

In a minimal amount of time, facilitated sessions enable related stakeholders to discuss events, their roles, needs, and expectations and establish an understanding of the requirements the system application will need to meet. Facilitated sessions not only enable input from various working groups associated with the project, they also promote better communication, knowledge transfer, and working relationships moving forward with ongoing project efforts.

During Analysis, DOS and DIT will attend EDS facilitated sessions. The focus of these sessions will be on what the system must accomplish for the business. During the sessions, EDS will review each Scenario provided for Phase 3B, 3C, and 3D, and identify and document new requirements in the Requisite Pro requirements management software tool. The outcome of this analysis will be a set of requirements and business scenarios. Phase 3A will be focused on the business needs and EDS will rely on DOS SMEs to elaborate the Phase 3B, 3C, and 3D scenarios.

Rational Requisite Pro and Rose will be key tools used to document and manage the BAM requirements and related analysis and design. As part of the Application Knowledge Transfer Plan, on-the-job training on the mechanics and use of these tools will be provided. Additionally, EDS facilitators will actively mentor DIT personnel assigned on the use of these tools to capture and elaborate business requirements through the facilitated sessions.

In Design the focus will shift to how BAM will accomplish the scenarios defined through facilitated sessions in Analysis. Using a series of focus groups composed of DOS and DIT SMEs, EDS will accomplish the Design of BAM. Using focus groups will make sure the BAM system will meet DOS and DIT objectives at the time it is delivered. Additionally, DIT involvement not only makes certain that their expert knowledge of the current system is considered, it also improves communication, knowledge transfer, and working relationships.

Object-oriented system design (OOSD) is generally most relevant to creation of application logic and persistence. During OOSD, EDS will design the following layers in detail:

- **Presentation** – EDS will create graphical interface and user screens in Joint Application Design Sessions with DOS and DIT SMEs. Model View Controller Class Objects and Screen Navigation Graphs will be created.
- **Application Logic** – EDS will create Business Objects from the Scenarios Diagrams. These Scenarios will be further elaborated during Design from decomposed requirements discovered from analysis of legacy artifacts (Code, Databases, and Documentation). From these Scenarios, EDS will design Sequence Diagrams and Class Model responsibilities for Internal Logical Functions.
- **Application Logic** – EDS will create Data Access Objects to support persistent storage of Business Objects. EDS will design these objects to support Sequences Created when assigning systems responsibility for Scenarios. EDS will create these models and review them with DIT Application focus groups assigned to BAM support.
- **Storage** – EDS will create schema that will physically store the data in a relational database. The physical model created will be reviewed within a focus group of DIT database architects (DBAs) responsible for the support of BAM.

The foundation of the OOSD will be the Rational Rose and Requisite Pro tools providing integrated engineering for UML outputs. Once again an opportunity to provide application knowledge transfer will be facilitated through the use of these tools. EDS technical team leaders will actively mentor DIT personal assigned on the use of these tools to assign systems software responsibilities through the use of focus group sessions.

With the design deliverables created, EDS will refine the Technical Architecture Specification. Data volumes, interface methods, calibration of server (speeds and feeds), and storage requirements will be accomplished. The output of this will be a Engineering Work Order (EWO) with specific Hardware and Software configurations engineered to meet the BAM phased requirements. Members of DIT and EDS will work together to create these outputs to support of the Phased implementation of BAM.

Review and Understanding of Phase 2 Deliverables

EDS has reviewed the deliverables provided with Phase 2 and understands the scenarios to be included in each phase of the BAM project. EDS direct involvement in the creation of these deliverables will accelerate the project understanding. For instance, EDS understands the relationship of these scenarios to each phase.

Legend	
x	Process impacted during the Phase
XN	Process Impact new to Phase 3a
I	Interface required with a Legacy or External System
IN	Interface included to phase 3a
cc	Credit Card
fin	Finance
all	All Payment Types

Phase 3A	Phase 3B	Phase 3C	Phase 3D	Scenario
				<i>Global Scenarios</i>
x	x	x	x	GUC001: Collect Fees
	x	x	x	GUC002: EFT
x (cc)	x (cc)	x (all)	x (all)	GUC003: eChecks & Credit Card Processing (aka: Collect Credit Card Payments)
		x	x	GUC004: Other Payment
x	x	x	x	GUC005: Late Payment
I	I	x/I (fin)	x	GUC006: Lift Suspension
x	x	x	x	GUC007: Calculate Fees
		x	x	GUC008: Produce Receipt
I	I	x		GUC009: Validate Payment
I	I	x	x	GUC010: Relieve Inventory
IN	I	x	x	GUC011: Destroy Inventory
IN	I	x	x	GUC012: Assign Inventory
IN	I	x	x	GUC013: Update Inventory
		x		GUC014: Refunds
x	x	x	x	GUC015: Scan Document
	x	x	x	GUC016: Send Communication
	x	x	x	GUC017: Receive Communication
	x		x	GUC018: Receive Complaint
x	x	x		GUC019: Adjust Fees
			x	GUC020: Receive Documents (Consider consolidating with GUC015: Scan Document)
x	x	x	x	GUC021: Retrieve Document
			x	GUC022: Authentic Document Access Rights
x	x	x	x	GUC023: Retention Schedule (aka: Purge/Archive Documents)
	x	x	x	GUC024: Retrieve Communication
		x		GUC025: Customer Pre-Registration
		x		GUC026: Create Single Renewal Billing Statement
xN	x	x	x	GUC027: Search System with Partial Info

Phase 3A	Phase 3B	Phase 3C	Phase 3D	Scenario
x	x	x	x	GUC028: Change of Address
		x		GUC029: Investigate Fraud - External Organizations
I	I	x		GUC030: Investigate Fraud - Customer (Driver & Vehicle)
x				GUC031: Authenticated Access
x				GUC032: Encryption
x				GUC033: BAM Password Reset Public Customer
		x		GUC035: Request for DOS Information (Consider consolidating with List Sales and Direct Access)
x				GUC037: Access Denied
xN				GUC038: Unauthenticated Access
x				GUC039: BAM ID Request
x				GUC040: Data Classification
I	I	I	x	GUC045: Status Checking
xN				GUC051: Access BAM
xN	x	x	x	GUC052: Pended Transaction
xN	x	x	x	GUC053: Continue Pended Transactions (aka: Complete Pended Transactions)
xN	x		x	GUC060: Capture Signature
xN	x		x	GUC061: Create Application
			x	GUC064: Customer Contacts
xN	x		x	GUC061: Create Application
xN	x		x	GUC067: Maintain Problematic / Questionable Address
		x		GUC068: EOD (Payment Distribution)
		x		GUC069: Revenue Distribution
				Driver Scenarios
xN			x	DUC001: Original Commercial Driver License and Out of State Transfers
x				DUC002: 180 Day Extension
x				DUC003: Commercial Driver License Duplicate - Branch
		x		DUC004: Process Organ Donor Requests
x				DUC005: Commercial Driver License Conversion
x				DUC006: Commercial Driver License Helpdesk
xN			x	DUC008: Problem Driver Pointer System (PDPS) History (aka: Commercial Driver License Helpdesk Change State of Record)
x			x	DUC009: Unverified Customer Record From Court or Law Enforcement (aka: No License Record From Court)
x				DUC011: Personal Identification
x				DUC012: Operator License
x				DUC013: GDL Level 1
x				DUC014: Chauffeur
x				DUC015: GDL Level 2
x				DUC016: GDL Level 3
x	x			DUC017: Unverified Customer Record From Voter (aka: No License Record Voter)

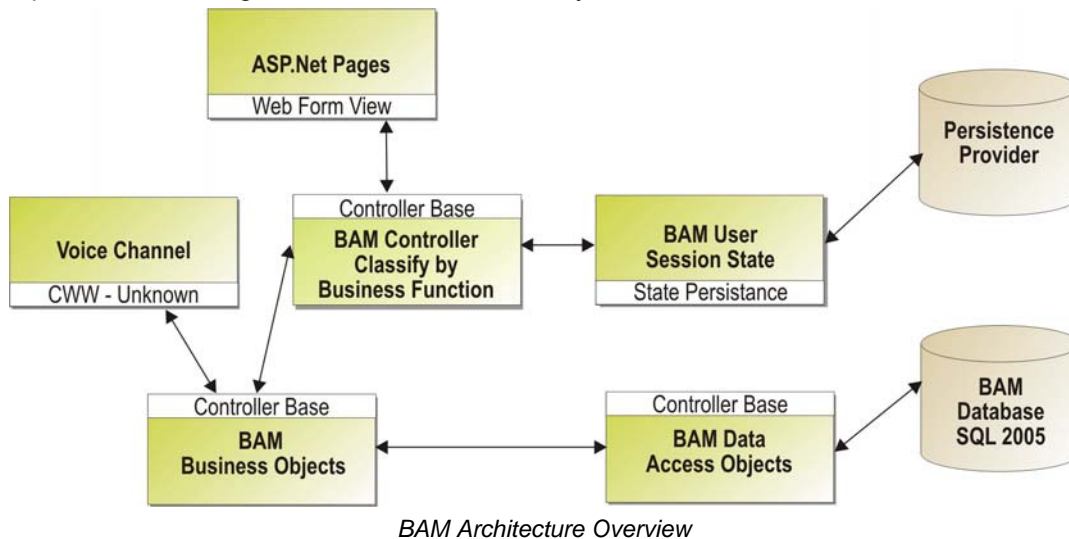
Phase 3A	Phase 3B	Phase 3C	Phase 3D	Scenario
x				DUC019: Driver License Personal Identification Renewal OSRS
x				DUC020: Driver License Personal Identification Duplicate
x				DUC021: Driver License Personal Identification Temporary Card
x				DUC023: Motorcycle Endorsement
			x	DUC024: Financial Responsibility
xN			x	DUC025: Combine Process
IN			x	DUC026: Termination of Failure to Comply
			x	DUC027: Mandatory Actions
x			x	DUC029: Corrections
			x	DUC030: Crashes
			x	DUC031: Abstract of Conviction
			x	DUC032: Court Ordered Suspension
			x	DUC034: Implied Consent
			x	DUC035: 625G
I			x	DUC036: Reinstate Driver Privileges
			x	DUC037: Mandatory Actions Circuit Court Restricted Driver's License
			x	DUC038: Restricted Driver's License
			x	DUC039: Referred 95 98
			x	DUC040: Administrative Appeals / Scheduling
			x	DUC041: Re-exams Scheduling
	I		x	DUC042: Clear Repeat Offender VIN Hold
			x	DUC043: Medical Referrals (OC-88)
			x	DUC044: Circuit Court Appeals Scheduling
			x	DUC045: Ignition Interlock Violations
	I		x	DUC046: Registration Denial
I			x	DUC047: DI4V DI4P
			x	DUC048: Cancel driving privileges
x				DUC049: Deceased Matching
I			x	DUC050: Driver Responsibility
I			x	DUC051: Child Support Suspensions
			x	DUC052: FAC Billing
x				DUC053: Minor Restricted
xN				DUC054: Moped
xN				DUC055: Commercial Driver License Duplicate - Web
xN				DUC056: Commercial Driver License Corrections
xN			x	DUC057: Commercial Driver License Helpdesk Other Change State of Record
xN				DUC059: Seasonal CDL
x	x			DUCG002: Verify Documents
x	x	x	x	DUCG003: Create Update Customer Record
x			x	DUCG005: Capture Photograph
x	x		x	DUCG006: Verify Information
x			x	DUCG009: Card Processing

Phase 3A	Phase 3B	Phase 3C	Phase 3D	Scenario
x			x	DUCG010: Scrambled Test
x				DUCG011: Issue Medical Test
x				DUCG012: Issue Visual Test
x			x	DUCG013: Road Tester
xN				DUCG017: Issue TIP
xN				DUCG018: Issue TOP
				Miscellaneous Financial
			x	MUCG001: Suspension
	x		x	MUCG002: Create Update Other Customer Record (Consider consolidating with DUCG003: Create Update Customer Record)
		x		MUCG003: Bill Clients
		x		MUCG004: Update ARS
		x		MUCG005: Installments
IN		x/I (fin)		MUCG006: NSF
		x		MUCG007: Reconciliation & Financial Adjustments
		x		MUCG008: EOD - Branch
IN	I	x		MUCG009: Warehouse Stocking (A.K.A. Inventory)
		x		MUCG010: BOD
				Miscellaneous 3 & 5 List Sales and Communication/Professional Licensing
	x	x	x	MUC011: List Sales
	x	x	x	MUC012: Direct Access
	x			MUC013: Parking Ticket Look-Up Establishment
			x	MUC014: Notary Sales
		I	x	MUC015: RLU
		I	x	MUC016: Subscription Services
			x	MUC017: Automotive Occupational List Sales
		I	x	MUC018: Licensing Drv Trng Schools, Drvr Instr or 3rd Prty Testers
		I	x	MUC019: Licensing Dealers, Rpr Facilities, Mech, Salvage Agnts
		I	x	MUC020: Licensing Notary
		I	x	MUC021: Licensing Motorcycle Safety Pgm
	I		x	MUCG011: Establish Customer Account (Consider consolidating with DUCG003: Create Update Customer Record)
				Miscellaneous 7 QVF
x				MUC101: Disability Placard Online Duplicate
xN				MUC103: Disability Placard Online Renewal
x				MUC104: Disability Placard Original Online Application
xN				MUC105: Disability Placard Original Renewal Duplicate - In Branch
	x			MUC106: Qualified Voter File Voter Registration - Web Kiosk
	x			MUC107: Qualified Voter File Voter Registration - In Branch
	x			MUCG102: Register to Vote
	x			MUCG103: Validate Voter Registration Data
				Vehicle Scenarios

Phase 3A	Phase 3B	Phase 3C	Phase 3D	Scenario
	x/l		x	VUC001: Apply In-Branch for Vehicle Registration
	x/l		x	VUC002: Apply In-Branch for Vehicle Title
	x/l		x	VUC003: Apply Online for Original Authentic-Historic Plate
	x			VUC004: Apply Online for Duplicate Registration
	x			VUC005: Apply Online for Duplicate Title
	l	x/l	x	VUC006: Apply Online for International Registration Plan
	x			VUC007: Apply Online for Original Dealer-Sheriff Plate
	x			VUC008: Apply Online for Original Manufacturer Transporter Plate
	x/l			VUC009: Apply Online for Temporary Permit
	x	x	x	VUC012: Renew by Mail
	x/l	x/l	x	VUC013: Vehicle Renewal by Web Kiosk Phone
	x			VUC014: Retrieve Customer Application
	x/l			VUC015: Visit IRP Branch
	x			VUCG001: Create Update Vehicle Record
	x			VUCG002: Verify Customer Documents (Consider consolidating with DUCG002: Verify Documents)
	x			VUCG024: Provide New Original Document
	x			VUCG025: Verify and Shred Scanned Documents (Consider consolidating with GUC015: Scan Document)
	x			VUCG030: Create Application
	x			VUCG031: Manufacture Plate
	x			VUCG033: Validate Vehicle Title Data
	x			VUCG034: Validate Vehicle Registration Data
				Miscellaneous 2 Security
		x		MUC001: Investigate Fraud - Employee
		x		MUC004: Perform Audit - Centralized
		x		MUC005: Perform Audit - Centralized IRP
		x		MUC006: Perform Audit - Decentralized
		x		MUC007: Perform Audit - Ext Organization
		x		MUCG020: Process Complaint Referral
		x		MUCG021: Interview Employee
		x		MUCG022: Create Update Case File
		x		MUCG023: Conduct Investigations
		x		MUCG024: Create Investigation Report
		x		MUCG025: Coordinate Investigations Report
		x		MUCG026: Perform Recommended Actions
		x		MUCG027: Conduct Audits
		x		MUCG028: Respond to Audit Report
x	x	x	x	30 Reports will be produced

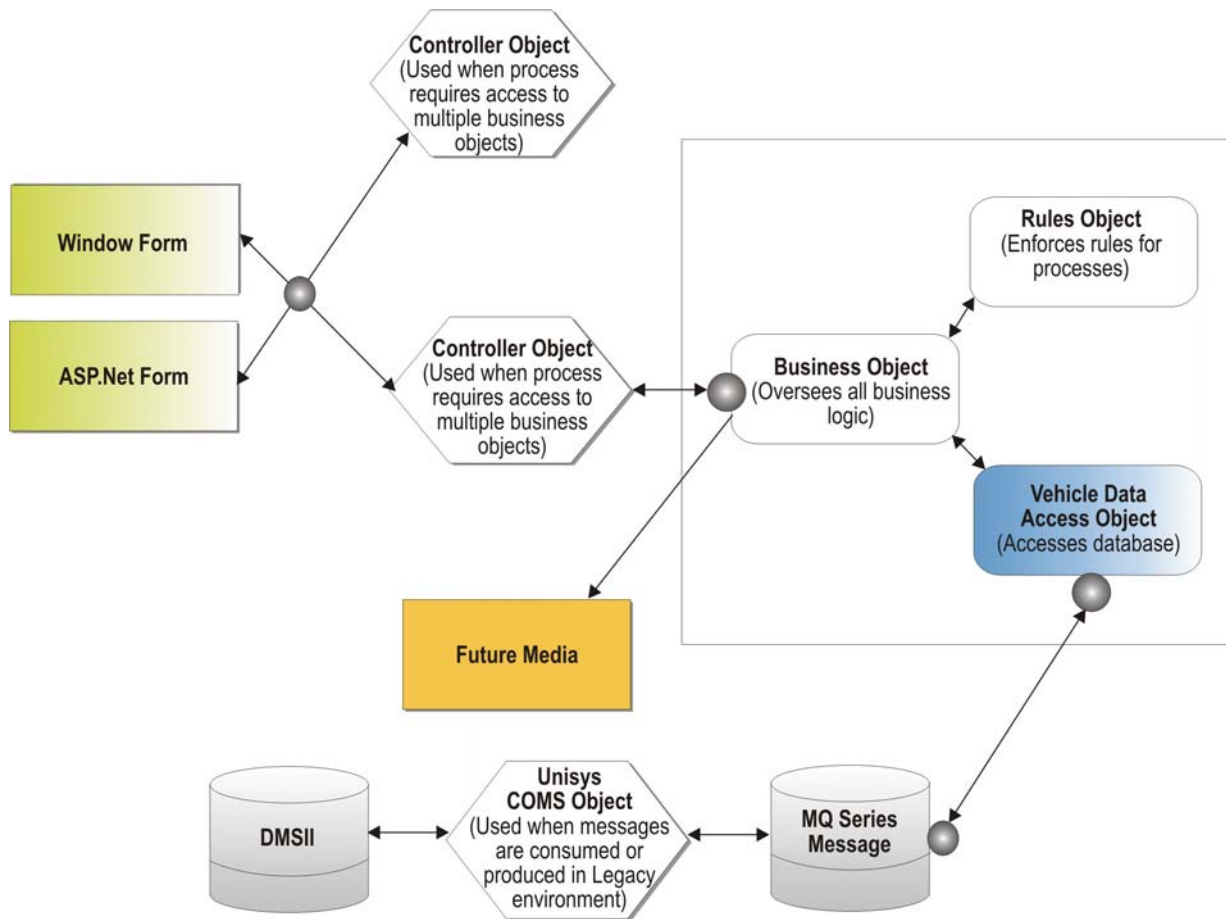
One of the most important tasks in developing the BAM application architecture is partitioning application responsibility. The BAM facilitated session Scenario evolution includes defining Actor Interaction. Actor Interaction is where one Actor in the system creates something of value for another Actor. Actors in UML can represent people or software systems. In the BAM architecture software system, Actors will be encapsulated to perform their respective responsibilities. This encapsulation will improve the quality and efficiency of the BAM phase integration from customer, vehicle, finance,

through Phase D problem driver. Figure 4.4.3-5 identifies the key characteristics of this architecture.

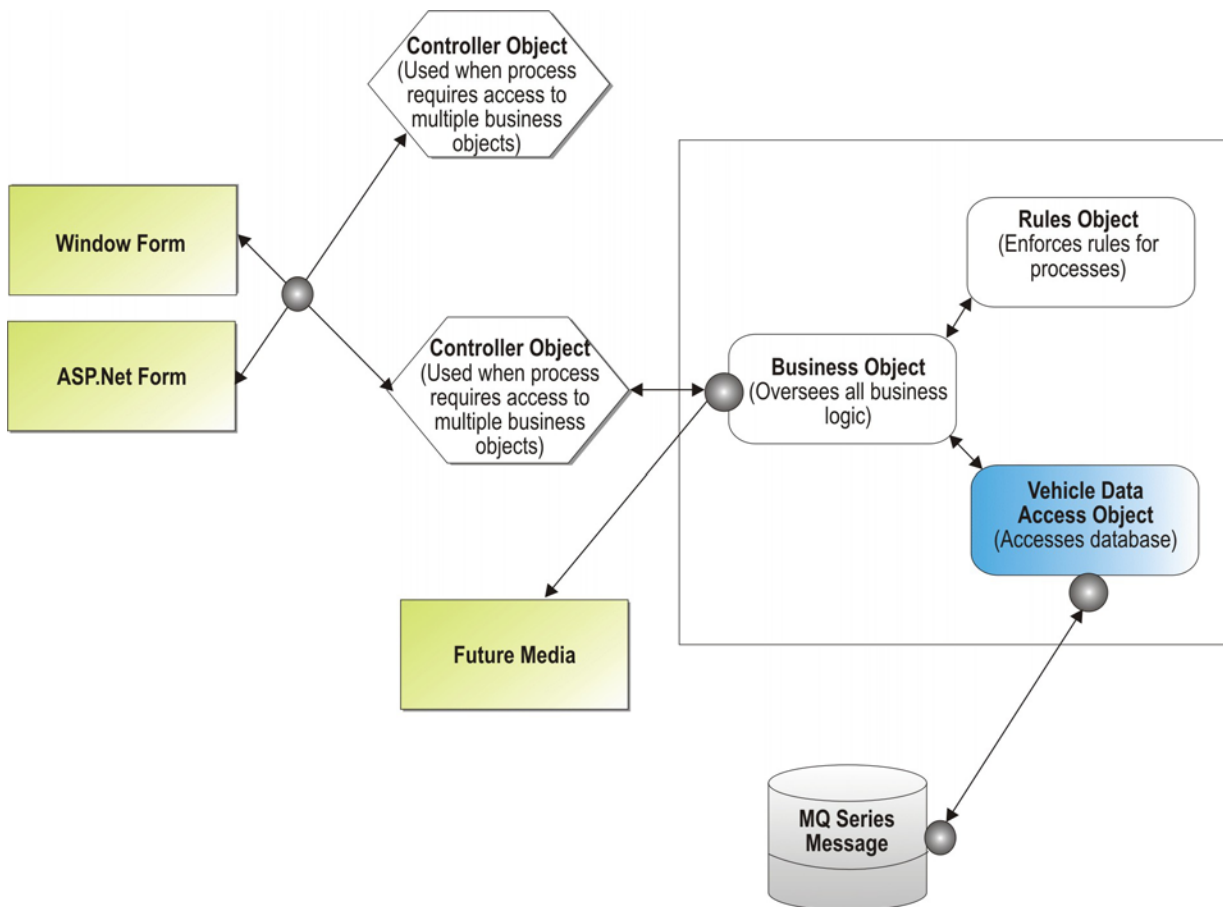


In the runtime environment at least two servers with the capability of instantiating every object will be provided, not only providing high availability but high performance as well. The following is a brief description of the BAM objects in runtime:

- ASP.Net pages provide the customer interaction view into the BAM system. Help field edits and help screens will be provided through the use of ASP.Net pages.
- Controller By Class follows the classic MVC pattern, supports separation of data (Model), from presentation (View), from presentation management (Controller). This separation is achieved through data binding and incorporating the concept of publish and subscribe event listeners also know as Actions utilizing .Net Remoting. This provides for workflow automation and configuration without reprogramming business and data functions that the controller uses.
- BAM Business Objects will implement configurable .Net Code for evaluating and applying business rules. These Business Objects will run on multiple physical servers providing high availability should one server fail.
- Data Access Objects (DAO) will support storage and retrieval of data associated with business entities. This includes transaction support for Atomicity, Consistency, Isolation and Durability (ACID). These Data Access Objects will run on multiple physical servers providing high availability should one sever fail. In addition these objects will help transition BAM from one Phase to the next. To illustrate compare Figure 4.4.3-6 with Figure 4.4.3-7. In Phase 3A the highlighted vehicle DAO will interface with the Legacy system. In Phase 3B the highlighted vehicle DAO will use the BAM SQL Database to retrieve the vehicle data. In both models the Business Objects and Model Controllers are not affected by the change to a DAO.
- Com Communication Wrapper (CCW) Objects will provide an interface mechanism for code or systems outside of BAM .Net managed code. For example, the Telephone “First Data Government” solution can directly interface with the same BAM Business Object that the Web screens will use.
- Session State provides the controller objects a way to progress from screen to screen and persist user activity without the use of client cookies. By keeping this information on the server antispysware and intrusive installation of browser plug-ins will be eliminated from the BAM user experience.



BAM Technical Architecture Phase 3A



BAM Technical Architecture Phase 3B

Update Repository Products

EDS will work with BAM Object Oriented System Analysis/Systems Development (OOSA/SD) utilizing the Rational Enterprise Suite of tools to maintain and create the planned UML deliverables. All Scenarios will be linked to business requirements, and corresponding Use Cases will be traced to functional requirements. This will be visible through the use of the Traceability Matrix capability of the Rational tool during Analysis and Design. A Traceability Matrix is a two dimensional array with rows of functional requirements and columns indicating the Scenario diagram that solves them. EDS plans to use the State standard for configuration management (Serena) to control the deliverables created outside the Rational Enterprise Suite.

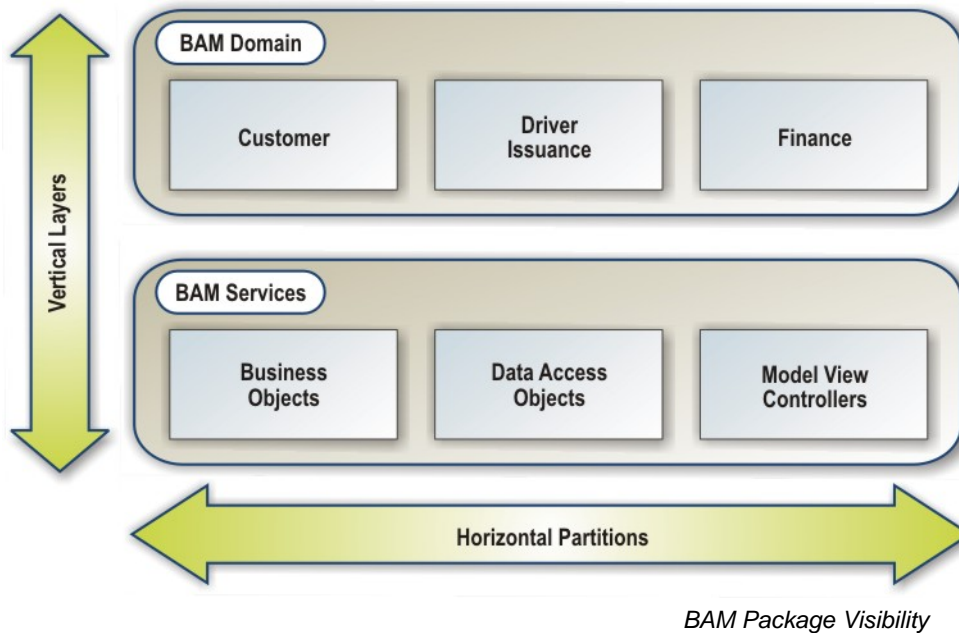
Requirements Document for Each Phase

EDS will use the Scenario diagram templates provided with the ITB deliverables for elaboration of the use cases in each phase of BAM. The Scenario diagrams will be maintained in the Rational tool, and resultant use case elaborated text will be stored in Microsoft Word under control of Serena.

Requirements Overview Document

To illustrate the BAM system architecture with UML notation, EDS will use packages. In the Rational tool this is called an Architecture Package Diagram. Elements that provide common services (Security, Customer, Driver Issuance) with relatively high coupling and collaboration will define the package domain.

A summarized level of these packages and requirements with dependencies (visibility) between them is a standard UML notation. EDS will create BAM packages to meet this requirement. The Figure below depicts how this UML package will format the deliverable. High-level requirements will trace to the BAM domain of services in the BAM architecture vertical layers, while the application partitions represent the horizontal division or parallel subsystems for a layer of BAM.



Deliverables from Task 3.2

EDS will maintain and create the phased BAM deliverables consistent with the ITB. A complete review of documentation provided in the ITB will be performed by all EDS team members assigned to BAM phase 3 development. EDS will provide a signed document affirming this review. Next, EDS will create and maintain the following deliverables for each phased BAM effort.

- **Requirements** – Traceability and definition will use Requisite Pro throughout the BAM project. This will provide a well defined and visible method to synchronize phased delivery with ongoing projects and enhancements of released phases.
- **Business Process Change** – The Scenario Diagrams maintained in Rational Rose will be the foundation of requirements to process traceability. Additionally, consistent with the ITB deliverables, EDS will create Activity Diagrams identifying process gaps.
- **Logical Class Model** – A logical and physical model of BAM will be maintained in Rational Rose. At the completion of sequence diagrams in the design phase of the current development cycle of BAM, EDS will review and refine the class model specification. For all software classes (and interfaces) that participate in the current BAM phase, a detailed design of methods will be accomplished.

Task 3.2 – Perform Analysis, Refine, and Requirements Definition

Deliverable	Measure of Success
Task 3.2 – Perform Analysis, Refine, and Requirements Definition	
1. Requirements Document, including Gap Analysis and Traceability Matrix – due for each phase (time frame to be determined based on Contractor's methodology and approach to development).	EDS will manage UML Outputs in Rational Rose and Requisite Pro. EDS will produce in Requisite Pro a requirements document with traceability to Scenario diagram that implements the requirement.
2. Requirements Overview Document – due for each phase (time frame to be determined based on Contractor's methodology and approach to development).	EDS will produce in standard UML notation a summarized level of UML packages and requirements with dependencies (visibility) between them.
3. Business Process Change Document – identifies new or changed business processes based on the agreed upon (high-level) requirements; due for each phase (time frame to be determined based on Contractor's methodology and approach to development).	EDS will create Activity Diagrams to show the change in the Business Process.
4. Logical Class Model – due for each phase at the onset of the contract. This will be required early on to be refined (there is a draft logical class model from Phase 2 included in Logical Data View for all phases of BAM). This exercise is required to ensure the contractor understands requirements for all phases of	EDS will maintain a logical and physical model of BAM in Rational Rose.

BAM – not just Phase 3A.	
5. Review and validation of documentation, including a signed document by the Contractor that the full repository of requirements documentation, the updated logical class model, the Technical Architecture Specification and the Implementation Strategy are now understood and owned by the Phase 3 Contractor.	EDS will provide a signed document affirming this review.

Task 3.3 – Design, Build, Unit Test System Including all Interfaces

Requirements of Task

BAM will be developed utilizing an incremental legacy modernization approach as identified in the Implementation Strategy. This requires the first three phases of BAM to interface with the current legacy environment, which creates three discreet areas of application design and build. Interfaces to and from the BAM System, which will include the current legacy system and modification to the current legacy system. The State will provide the technical expertise to the Contractor to design the legacy enhancements. The Contractor will be required to provide resource(s) to supplement the State staff in making the legacy changes.

The design task is intended to translate requirements into a set of deliverables that can be used to drive and support the building of software artifacts – code, configuration data, and rules. Each standard unit of development effort - whether an iteration cycle, a milestone, a functional module, or a release - will typically require the following items:

- Activity Diagrams
- Class Model
- Collaboration Diagrams
- Component Diagrams
- Data Dictionary
- Object Diagrams
- Package Diagrams
- Sequence Diagrams
- Use Case Diagrams
- Web page mockups for new or modified pages
- Algorithms to be deployed
- Business rules to be deployed in the rules engine
- Configuration of the application
- Framework to enable the necessary functionality.
- Descriptions of common user interface objects such as menus and other navigational items
- Workflow

The Contractor will define a complete set of design documents based on the Contractors proposed methodology. The contractor is required to design BAM and all of its required interfaces and legacy modifications. Some of the above will need to be reviewed and approved by business staff for purposes of this RFP, those items will be deemed the “Business Design”. The remaining items will need to be reviewed and approved by State technical staff; these items will be deemed the “Technical Design”. The Contractor and State will determine the exact components of each of these design documents upon contract award.

In addition to the items listed above, Technical Designs shall include a unit test plan and an integration test plan. The unit test plan describes how the developer will evaluate the resulting artifacts while testing the unit independent of all other units. The integration test plan describes how the developer will evaluate the resulting artifacts while testing the unit as a component of the system, emphasizing regression testing for common objects or other objects that have dependencies to other artifacts. The test plans should include test data, expected inputs and outputs, and any automated testing to be utilized.

The design documents must be concise and accurate. During testing, developers shall update the design documents to reflect any clarifications that were made during development and testing.

Deliverables from Task 3.3

1. Business Designs – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
2. Technical Designs – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
3. Security Review – due for each phase (based on the Technical Designs – prior to building the BAM system)
4. Unit Test Plan – due for each component or program (timeframe to be determined based on Contractor's methodology and approach to development).

Contractor Response:

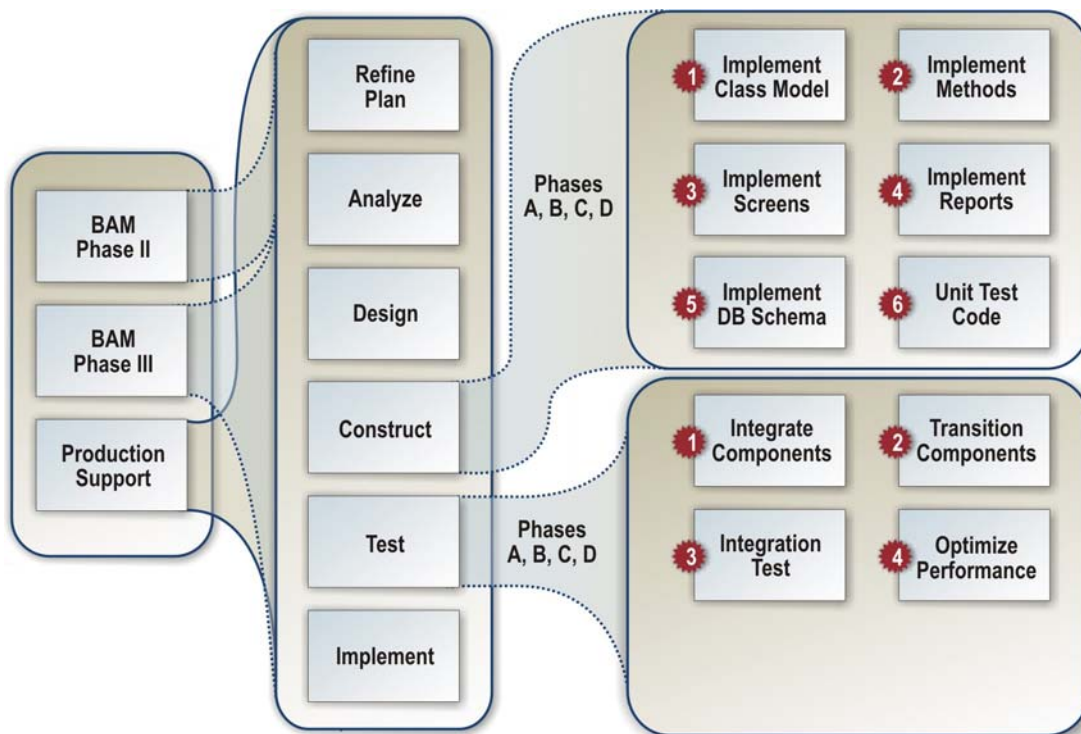
Task 3.3 – Design, Build, Unit Test System Including all Interfaces

Technical Design Documents

The foundation of the Technical Design will be UML for BAM systems Class Object, and Interfaces. These interfaces include the enhancements to BOS required to provide Com Communication Wrappers (CCW) to BAM during BAM Phase 3A. The enhancements to the BOS system (forms and functions) will be covered by the DIT legacy enhancement staff. Interfaces to create CCW will be performed by the EDS team working with DIT.

For BAM and its associated interfaces the OOSA and OOSD, UML methodology will result in a software system that is well analyzed, designed, constructed, and tested. When modification of UML deliverables is required the Rational repository will be updated to reflect the actual system design models by the contractor

From a development perspective this task takes what has been designed in logical models and makes it come alive in a machine. The figure below shows the activities that will be accomplished in this task. These activities will take on varying degrees of involvement from DIT and DOS SMEs. The following paragraphs in this section further describe these activities.



BAM Construct/Test Activities

Referencing Figure, BAM Construction and Testing activities will create the several systems artifacts. EDS will construct of BAM Phase 3 and will produce the following:

1. **Implement Class Model** – Superclass and Subclass relationships and their associated Inheritance schemes will be created.
2. **Implement Methods** – The class object software logic will be created to implement the internal logical functions and exposed interfaces designed in the sequence diagrams will be created.
3. **Implement Screens** – All ASP.NET forms that represent screen interfaces along with corresponding help fields and screens will be created.

4. **Implement Reports** – All report definition language and delivery mechanisms (online or batch) will be created.
5. **Database Schema** – The physical database schema and associated data attributes and relationships will be created.
6. **Unit Test Code** – The encapsulated method associated with controller, data access objects, and business objects will be tested.

Subsequent to Construction of BAM Phase 3 EDS will perform the following Testing Activities:

1. **Integrate Components** – EDS will test each Class Object Component to validate that its interaction responsibilities are complete.
2. **Transition Components** – As components pass integration tests, they will be incorporated into the BAM phased component packages they are a part of in preparation of Quality Assurance testing by the contractor
3. **Quality Assurance Test** – EDS will test released BAM systems against the quality assurance test plans.
4. **Optimize Performance** – As part of QA testing, EDS will test BAM system performance against nonfunctional requirements (response times, availability).
5. **Test Performance** – EDS will perform a volume test to meet the nonfunctional requirements and to make sure the BAM system meets or exceeds performance demands.
6. **Customer Acceptance** – EDS will perform the final user acceptance test and customer sign off that the system meets the defined requirements.

Completion of the defined construction and testing activities will position the BAM Phase 3 deliverables for Activity 5 – Testing And Software Implementation and Activity 6 – Implementation Support. The following paragraphs further describe these activities.

Unit Test Plan and Integration Test Plan

During construction EDS will develop the BAM system using an iterative approach. EDS plans that two iterations will be needed. During each iteration EDS will document what is discovered in Class, Methods, Database Schema and Sequences. As code is completed it will be promoted to the Quality Assurance environment. In the Quality Assurance environment, EDS will schedule the automated unit testing code to run in intervals to validate that all code still works as designed.

Deliverables from Task 3.3

During Task 3.2 DOS and DIT will be review and approve Design deliverables before the construction task begin. EDS will deliver the Business designs as elaborated scenarios and User Interface Specifications created with the direct participation of DIT and DOS. DOS and DIT (Security) will review and approve these Scenarios and User Interface Specifications before progressing to Class and Sequence Models (Technical Design). Technical Design will be supported by the creation of Class Methods, Attributes and Interactions. DIT will create and review these deliverables and, where appropriate, DOS will also review before construction. EDS will provide a Unit Test Plan that covers the scope and standards for all components. Each component will have Unit test cases developed to make sure the component meets the requirements for the component and Unit Test Plan. EDS will perform unit testing as part of the iterative development cycle. Individual components from the class model will build test data and scripts to validate BAM system responsibilities. EDS will develop automated Unit Tests where possible and run these tests on a scheduled basis to make sure defects are not introduced as components. The development of the Unit Test cases will use a test first design. EDS will develop the test cases for a component before a component is designed or coded. This provides for a simple design and reduces extra code and defects.

Deliverable	Measure of Success
Task 3.3 – Design Build Unit Test Including all Interfaces	
1 Business Designs – due for each phase (time frame to be determined based on Contractor's methodology and approach to development)	EDS will create the following UML Outputs to support business design: <ul style="list-style-type: none"> • Activity Diagrams • Scenario "Use Case" Diagrams • Package Diagrams
2. Technical Designs – due for each phase (time frame to be determined based on Contractor's methodology and approach to development)	EDS will create the following UML Outputs to support technical design: <ul style="list-style-type: none"> • Class Model • Sequence Diagrams • Navigation Maps
3. Security Review – due for each phase (based on the Technical Designs – prior to building the BAM System (see attachment Security Template)	EDS will perform the COBIT security review as described in Activity 2.
4. Unit Test Plan – due for each component or program (time frame to be determined based on Contractor's methodology and approach to development); understands requirements for	In the Quality Assurance environment, EDS will schedule the automated unit testing code to run in intervals to validate that

*Task 3.4 – Integration Testing***Requirements of Task**

The Contractor will have sole responsibility for developing source code, configuration data, and the integration of all systems in BAM. Once the individual components are developed, the Contractor will be responsible for end-to-end system integration testing. This includes testing all .Net objects, messages and message queues (sending and receiving), BOS changes, and all mainframe changes.

The Development Team shall perform integration testing in the development environment, ensuring defects are not introduced when the unit is combined with the other software artifacts for the given iteration or phase.

The Contractor shall test all of the resulting artifacts. The Contractor will check the resulting artifacts into the repository managed by the State and mark project artifacts as final when they are ready for promotion.

The Contractor should provide integration test results to the State when the integration test plans are completed satisfactorily and artifacts are marked for promotion, including source code, configuration data, and meta data such as rules used by the rules engine.

At no time will any emergency changes be made by the Contractor prior to the release of any Phase.

Deliverables from Task 3.4

1. Integration Test Plan - due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
2. Successful Completion of Integration Test – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).
3. Software artifacts – due for each phase (timeframe to be determined based on Contractor's methodology and approach to development).

Contractor Response:**Task 3.4 – Integration Testing**

The QA Center testing tool will allow EDS to perform integration testing constantly to make sure defects are not introduced through changed code. We will schedule Quality Assurance Test cases on regular intervals to test the system for defects. The Testing Coordinator will review the results of the scheduled test runs after each run. If tests fail, the Testing Coordinator will create a defect log to investigate the cause of the failure. For a complete description of this testing model refer to Activity 5, Task 5.2.

Deliverables from Task 3.4

The EDS team will provide Quality Assurance and Integration Test plans that include the following information:

- Tasks and responsibilities
- General approach
- Testing tools
- Types of tests to be executed
- Testing methodology
- Reviewers and approvers
- Testing procedures
- Project libraries to be used
- Quality assurance test case development strategy
- Defect tracking and resolution
- Review requirements
- Validate each requirement
- Quality assurance test data development
- Testing job streams
- Resources
- Resources required for testing
- Human resources
- Hardware and software resources

- Schedule

For a complete description of this testing model refer to Activity 5, Task 5.1. As shown in the table below, EDS will also produce several software artifacts. For Task 5.1, EDS will produce and deliver Class Models, Class Methods, Screens, Transition Components, and Software Objects.

Deliverable	Measure of Success
Task 3.4 – Integration Testing	
1 Integration Test Plan - due for each phase (time frame to be determined based on Contractor's methodology and approach to development)	The EDS team will provide a Quality Assurance and Integration Test Plan.
2. Successful Completion of Integration Test – due for each phase (time frame to be determined based on Contractor's methodology and approach to development)	The QA Center testing tool will allow EDS to perform integration testing constantly to make sure no defects are introduced through any changed code.
3. Software artifacts – due for each phase (time frame to be determined based on Contractor's methodology and approach to development)	All tested code will be managed in the Serena configuration management tool.

Task 3.5 – Develop Technical Documentation

Requirements of Task

The Contractor is required to produce and update technical documentation for the system, including system documentation (i.e., Operations Manual) and application programming interface (API) documentation. Final versions of these documents are due with each phase as well as any required interim production releases as agreed upon by the Contractor and the State.

The Operations Manual shall include the following components:

- Object model
- System architecture
- High level interaction between modules/packages
- Classes and Components
- Messages and Message Queues
- BOS/Mainframe updates
- Backup procedures
- Batch schedule and procedures
- Annotated configuration files
- Standard system tasks such as starting up and shutting down software and servers

The goal of the system documentation is to quickly and accurately communicate information on the technical architecture of the system, thereby reducing maintenance and support effort for the system. The Contractor shall create an Operations Manual documentation approach that will accomplish these goals. The documentation shall include all APIs in order to facilitate developer training and system maintenance. The State will review and approve the Contractors approach to documentation.

The Contractor shall also provide Release Notes for every phase of the system. These notes will document the changes in the system from the previous phase, and must be written for an end user to understand. The State will review and approve all documentation.

One electronic version and one hardcopy of the technical documentation shall be provided to the State. The State will take responsibility for copying and distributing this documentation to staff as required.

Deliverables from Task 3.5

1. System documentation (Operations Manual) – due at completion of Customer Acceptance Testing for each scheduled production phase.
2. API documentation – due at completion of Customer Acceptance Testing for each scheduled production phase.
3. Release Notes – due at start of Customer Acceptance Testing for each scheduled production phase.

Contractor Response:

Task 3.5 – Develop Technical Documentation

Systems Operations Manual and API Documentation

EDS will produce and update technical documentation for the BAM System. Technical documentation will include both a Systems Operations Manual and appropriate Application Interface Programming (API) documentation. The EDS Technical Development team will document, collate, and consolidate all necessary technical information for inclusion in a Systems Operations Manual and API documentation, as appropriate. EDS will then provide the consolidated technical information to PTD Technology (an EDS partner whose qualifications and experience are discussed in Activity 6). PTD Technology, in turn, will provide a highly skilled and experienced team of technical writers to organize and compile the technical information provided by the EDS Technical Development team into a smooth and professionally developed Systems Operations Manual and associated API documentation. Subsequently, SMEs will review the PTD Technology-generated System Operations Manual and associated API documentation to make sure that each adequately addresses relevant BAM System functions, features and their respective priorities. EDS and PTD Technology will update the System Operations Manual and generate API documentation within each Phase of the BAM System implementation. EDS will develop the Operations Manual and API documentation in parallel with the BAM System development. Such coordination will minimize the lag time that typically accompanies the generation of necessary final documentation. Both EDS and PTD Technology will continue to use the State standard documentation and repository tool, Rational Rose. EDS will submit each phased version of the Systems Operations Manual and API documentation to the State for final review and approval.

Release Notes

As with the System Operations Manual and API documentation, EDS will generate, edit, and submit Release Notes with each BAM System phase. The Release Notes will document changes made to the BAM System from the previous phase and will be written in a manner that makes them easy for the end-user to understand. Similarly, EDS will submit all Release Notes to the State for final review and approval.

The Operations Manual will include the following:

- Object model
- System architecture
- High-level interaction between modules and packages
- Classes and components
- Messages and message queues
- BOS and mainframe updates
- Backup procedures
- Batch schedule and procedures
- Annotated configuration files
- Standard system tasks (starting up and shutting down software and servers)

The EDS team will develop and write each phased version of the System Operation Manual, API documentation, and Release Notes in a manner that will permit users to quickly and accurately glean information regarding the BAM System technical architecture, thereby reducing the necessary maintenance and support effort. Finally, EDS will provide one electronic version and one hard copy of the Operations Manual, API documentation, and Release Notes to the State for subsequent copying and distribution of the documentation as the State deems appropriate.

Deliverables from Task 3.5

Deliverable	Measure of Success
Task 3.5 – Develop Technical Documentation	
1. System documentation (Operations Manual) – due at completion of Customer Acceptance Testing for each scheduled production phase	EDS, in conjunction with PTD Technology, will produce and deliver a Systems Operations Manual at the completion of Customer Acceptance Testing for each scheduled production phase.
2. API documentation – due at completion of Customer Acceptance Testing for each scheduled production phase	EDS, in conjunction with PTD Technology, will produce and deliver API documentation at the completion of Customer Acceptance Testing for each scheduled production phase
3. Release Notes – due at start of Customer Acceptance Testing for each scheduled production phase	EDS, in conjunction with PTD Technology, will produce and deliver Release Notes at the start of Customer Acceptance Testing for each scheduled production phase.

Task 3.6 – Manage Application Development Activities / Staff

Requirements of Task

The Contractor shall provide the following full-time people, Development Manager and Business Requirements Manager. These people will be identified as “Key Personnel” (reference 2.506, Staff) for the duration of each phase. The Contractor shall provide the following full time people, Data Architect and

Enterprise Integration Architect. These people will be identified as “Key Personnel” (reference 2.506, Staff) for the duration of the project.

The Contractor shall also supply an identified group of “Team/Technical Leads” for each major area of the system as defined by the Contractor. This can include functional areas such as driver or vehicle, or it could be strictly technical such as .Net, middleware, and mainframe support. The same person may serve as Team/Technical Lead of multiple areas if the Contractor justifies this.

The Development Team shall work with the State to develop appropriate processes and procedures to control the flow of development work, including the identification of project schedule tasks, task assignments, database change request processes, requirements, design, and construction reviews, builds, and promotions.

Within one month of contract start, the Contractor shall provide a Development Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to the attachment titled, *Contractor Staffing Plan Example*.

The Contractor shall also provide an organization chart for the Development Team, including the role(s) of each staff member.

Deliverables from Task 3.6

1. Development Team Staffing Plan – due one month after contract start, with updates as required thereafter.
2. Organization Chart – due one month after contract start; updated as changes occur thereafter.
3. Status Reports – due to the Technical Project Lead at close of business on first business day of each week for prior week’s activities. Status reports shall include:
 - a) Major tasks accomplished
 - b) Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task,
 - c) Clear identification of areas at risk of not meeting schedule
 - d) Additional issues affecting productivity or efficiency
 - e) Any other issues the Development Manager feels should be communicated

Contractor Response:

Task 3.6 – Manage Application Development Activities and Staff

EDS will produce and maintain the Application Development Team staffing plan as well as all other staffing plans. Specific to Activity 3, Application Development, EDS will assign a Development Manager reporting to the Project Control Office (PCO). The Development Manager will lead the EDS Development team and provide oversight and coordination of all development activities including: working with the State to develop appropriate processes and procedures to control the flow of development work, including the identification of project schedule tasks, task assignments, database change request processes, requirements, design, and construction reviews, builds, and promotions.

EDS will provide team and technical leads (who are SMEs) on a technical basis for data access, business object, model view controller, and model support. A final responsibility of the Development Manager will be to generate the Weekly Status Report containing the major tasks accomplished, progress to schedule including hours spent on tasks in progress and an updated estimate of hours remaining for the task, identification of risks that may impact the schedule, and other issues will be communicated.

Please refer to Activity 1, Appendix C – Contractor Staffing Plan for a complete list of staff assigned to this Activity.

As required in Task 3.6, the staffing plan provides for the full application development team for the duration of the contract without relying on any assigned State staff, with the exception of the legacy enhancements where EDS will augment the State staff. The Table below shows the Application Development Team Staffing Plan by man-months.

Activity Three: Development Team Staffing Plan (man-months)					
Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	Totals
Application Development					
Development Manager	12.50	9.00	6.50	6.00	34.00

Development DBA	12.00	9.00	6.50	6.00	33.50
Configuration Manager	24.00	13.25	3.25	3.25	43.75
Data Access SME	12.00	9.00	6.50	6.00	33.50
Business Object SME	12.00	9.00	6.50	6.00	33.50
Model View Controller SME	12.00	9.00	6.50	6.00	33.50
Model Support SME	22.50	9.00	6.50	6.00	44.00
Core Sr Analyst / Developer	36.00	36.00	26.00	24.00	122.00
Core Jr Analyst / Developer	139.75	83.50	79.00	73.00	375.25
	0.00	0.00	0.00	0.00	0.00
Legacy Interface Coordinator	6.25	0.00	0.00	0.00	6.25
Interfaces Sr Analyst / Developer	22.50	0.00	0.00	0.00	22.50
Interfaces Jr Analyst / Developer	75.25	0.00	0.00	0.00	75.25
(BOS) Interfaces Jr Analyst / Developer	21.50	0.00	0.00	0.00	21.50
	0.00	0.00	0.00	0.00	0.00
Legacy Enhancements Coordinator	6.25	9.25	0.00	0.00	15.50
(BOS) Enhancements Sr Analyst / Developer	0.00	0.00	0.00	0.00	0.00
(BOS) Enhancements Jr Analyst / Developer	0.00	0.00	0.00	0.00	0.00
(Augment) Enhancements Jr Analyst / Developer	22.50	18.00	0.00	0.00	40.50
Total man-months by Phase for Activity Three	437.00	214.00	147.25	136.25	934.50

Application Development Team Staffing by Man-Months

Deliverables from Task 3.6

Task 3.6 – Manage Application Development Activities/Staff	
1. Project/Contract Management Team Staffing Plan - due six weeks after contract start, with updates as required thereafter	The EDS development manager will produce and maintain input to Project /Contract Management team Staffing Plan for Activity 3. Please see Activity 1, Appendix D for the initial draft of this Staffing Plan.
2. Status Reports – due to the program manager at agreed upon day (typically Monday or Tuesday of each week) for prior week's activities. Status reports shall include: a. Major task accomplishments b. Major upcoming work c. Significant issues risk and concerns for the overall project d. Any other issues the EDS project manager feels should be communicated e. Updates to risks and other project documentation f. Issues the technical support engineer may report g. Issues affecting productivity or efficiency h. Progress to schedule, including hours spent on tasks in progress and estimates of remaining effort	Using the suite of PCO tracking tools, the EDS team will generate graphical metrics reports and will produce scorecards driven by empirical evaluation. EDS will collate the scorecards with the issues reports and status reports provided by each team coordinator. The EDS Project Manager will furnish these status reports weekly to the State. Section 4.3.2.1, Status Reporting, includes a more complete description of the process and sample reports.

Task 3.7 – Perform Application Development Training / Knowledge Transfer

Requirements of Task

It is the State's intent to be able to perform additional application development on its own at the completion of this contract. To this end, the Contractor shall work with the State to perform a "knowledge transfer" on the technical planning and support tasks identified previously. This knowledge transfer shall include involving State DIT personnel in application development activities from the beginning of the project.

The State intends to identify six to eight individuals to participate on a full-time basis in application development activities. These people will have the requisite skills to participate on the team as identified by the Contractor in the System Support Transition Plan (reference *Activity 8, Task 8.2 – Transition Support to State*). The Contractor is expected to communicate concerns regarding specific areas/individuals if the Contractor feels there is an elevated level of schedule risk; the State will pursue other methods of performing the knowledge transfer for the given area in this situation.

The State staff participating in these activities is meant to provide a smooth transition of application development activities upon completion of the contract. The Contractor should not rely on these individuals to reduce contractor-staffing levels on the application development team during the project; in fact, no guarantee is made as to the State's ability to provide these staff. The State requires the Contractor to be lead design on the new system while obtaining input from DIT technical staff. The State also requires the Contractor to determine best method to include DIT technical staff in development activities. The Contractor is entirely responsible for meeting the application development requirements of this contract, regardless of whether DIT staff participates in these activities.

Deliverables from Task 3.7

1. Application Development Knowledge Transfer Plan by Phase – due one month after contract start, with updates as required thereafter.
2. Application Development Knowledge Transfer – due by end of contract.

Contractor Response:

Task 3.7 – Perform Application Development Training and Knowledge Transfer

EDS will develop and employ an approach to knowledge transfer that will be integrated and the EDS methodology with the State's business and technical teams is an important first step toward achieving BAM System implementation success. Application development training and knowledge transfer is an important undertaking that must begin with the project start date and continue for the duration of the project. Accordingly, EDS will involve six to eight designated DIT staff members in Application Development Knowledge Transfer activities from the beginning of the BAM Phase 3 project. Early and thorough application development knowledge transfer will accomplish the important goal of facilitating a smooth transition of application development activities to DIT upon contract completion.

EDS will manage and lead the application development activities for all of the BAM Project phases (Phase 3A, 3B, 3C, and 3D). DIT staff members will provide input to EDS throughout the application development process via the six to eight designated DIT staff members that will be the primary recipients of the Application Development Knowledge Transfer. Further, EDS fully understands that, despite the availability of the six to eight designated DIT staff members, EDS will not reduce its application development staffing levels in corresponding measure. Instead, EDS will employ its application development methodology in a manner that most suitably exposes the six to eight DIT staff members to the widest range of application development activities commensurate with DIT staff member availability.

Once the BAM System has been fully implemented, the six to eight designated DIT staff members selected to be the recipients of the application development knowledge transfer will have been appropriately equipped with the necessary skills required to perform post-implementation application development for the BAM System. Accordingly, should EDS identify any knowledge transfer issues or concerns regarding the six to eight designated DIT staff members that could adversely impact the project schedule, EDS will notify the State. The State will then attempt to resolve the issue and potentially identify alternative methods for completing the knowledge transfer.

The EDS methodology for Application Development Knowledge Transfer will include both technical training (addressed in Activity 6) and shadowing and mentoring. For additional information regarding EDS methodology, please refer to Activity 8, Miscellaneous, Task 8.2 Transition Support to State, Create Training Program. EDS' knowledge transfer process will allow DIT personnel to quickly and accurately learn and master the application development environment.

Draft Application Development Knowledge Transfer Plan

EDS will deliver a final Application Development Knowledge Transfer Plan to the State one month after the contract start date. EDS has provided a Draft Application Development Knowledge Transfer Plan in Activity 3 Appendix A - Application Development Knowledge Transfer Plan.

Deliverables from Task 3.7

Deliverable	Measure of Success
Task 3.7 – Perform Application Development Training and Knowledge Transfer	
Application Development Knowledge Transfer Plan by Phase – due one month after contract start, with updates as required thereafter	EDS will use the Draft Knowledge Transfer Plan to develop a plan for Ongoing Application Development Knowledge Transfer.



Appendix D

Activity 4 – Data Conversion

Task 4.1 Plan for Data Conversions

Requirements of Task

The implementation of the BAM system will depend upon successful data conversion. A requirement for Contractors will be to have a well-defined conversion strategy that will be the foundation for a successful migration of data that is both effective and efficient.

The Contractor shall convert appropriate legacy data to the BAM system at each phase. Conversion shall include any supplemental data such as default values or standard data to make BAM a fully functional system. Data conversion, including the quality of the data, is the responsibility of the Contractor.

The State will supply a detailed data dictionary, subject matter experts for the legacy systems (business and technical), staffing to handle manual data reviews and modifications, data extracts, and direct access to mainframe and other systems as needed. Mainframe data required for conversion will be provided by the State in ASCII extract files. A working draft of the data dictionary is provided in located in the attachments.

One of the main considerations for the conversion approach is to develop the criteria for data conversion in conjunction with State staff. For Phase 3A, the State anticipates that the entire driver “header” file will be converted. There are approximately 10 million client, 10 million driver, 1.5 million PID, 1.7 million AKA and 10 million miscellaneous records related to Phase 3A activities. It is estimated that automated tools will handle the majority of the client and driver records; approximately 1 million client and 1 million driver records will require additional work. Of the 2 million records, it is anticipated that the State will have to manually fix 200,000 records. There are approximately 136 million records and 36 million activity records related to Phase 3B activities. For Phase 3B, vehicle transactions, it may be possible to leave some data in the legacy system or another file “as is”, until such time as the vehicle owner renews their vehicle registration. The benefit of such an approach would be to spread the detailed review and cleanup of the data over time. Phase 3C data conversion numbers are approximately a quarter million. Phase 3D data conversion volumes are approximately 42 million records.

The Contractor shall provide a Conversion Plan six months after contract start. This plan shall identify the approach for completing all conversion activities for all phases. The Contractor shall update the plan for each phase and as conversion plans change. The Conversion Plan shall address such items as how and when data cleansing is performed, how data integrity is maintained after cleansing and prior to conversion, timing issues in converting to the new system while continuing to support the existing business, and back-end data reporting and interfacing impacts. The plan shall discuss data extraction and transformation activities, data loading, conversion testing, and eventually decommissioning of the legacy system. The State will rely heavily upon the Contractor’s experience to successfully convert data to the new system.

The Contractor shall convert legacy data for testing the BAM application throughout development and ensure converted data is available as required for each phase. The Contractor shall report on the progress of conversion on a weekly basis.

Contractor Response:

During BAM Phase 2, the Enterprise Logical Data View deliverable was developed to support a single customer focus allowing all customer information to be easily and readily retrieved by authorized and authenticated persons. During BAM Phase 3, EDS will analyze and review the Enterprise Logical Data View and design and create the physical database. Additionally, the State of Michigan Legacy Systems data will be converted and migrated into the BAM database during each phase of the project, as indicated on page 33 of the ITB. EDS understands that the Michigan Department of State (DOS) has included Activity 4 in the ITB because the successful implementation of the BAM System will depend upon successful data conversion and migration.

EDS will provide data conversion services through our Global Solutions Management Systems (GSMS) model. GSMS provides process support for various types of application engineering and other work. The process activities for different types of work are grouped together into process configurations known as “work types.” These work types are tailored to the needs of specific projects. All work types, irrespective of the type of work supported, contain processes to support project management and review activities. GSMS is structured to

incorporate both project management and engineering capabilities.

The Contractor shall designate a Conversion Coordinator, to oversee the Conversion Team. This person will be the primary point of contact for the State for BAM data conversion activities.

Deliverables from Task 4.1

1. Conversion Plan – due six months after contract start; updated for each phase and as conversion plans change. The Conversion Plan shall contain estimated dates and shall be updated with actual dates for migration of data to production. The plan shall include a contractor-staffing plan.

Contractor Response:

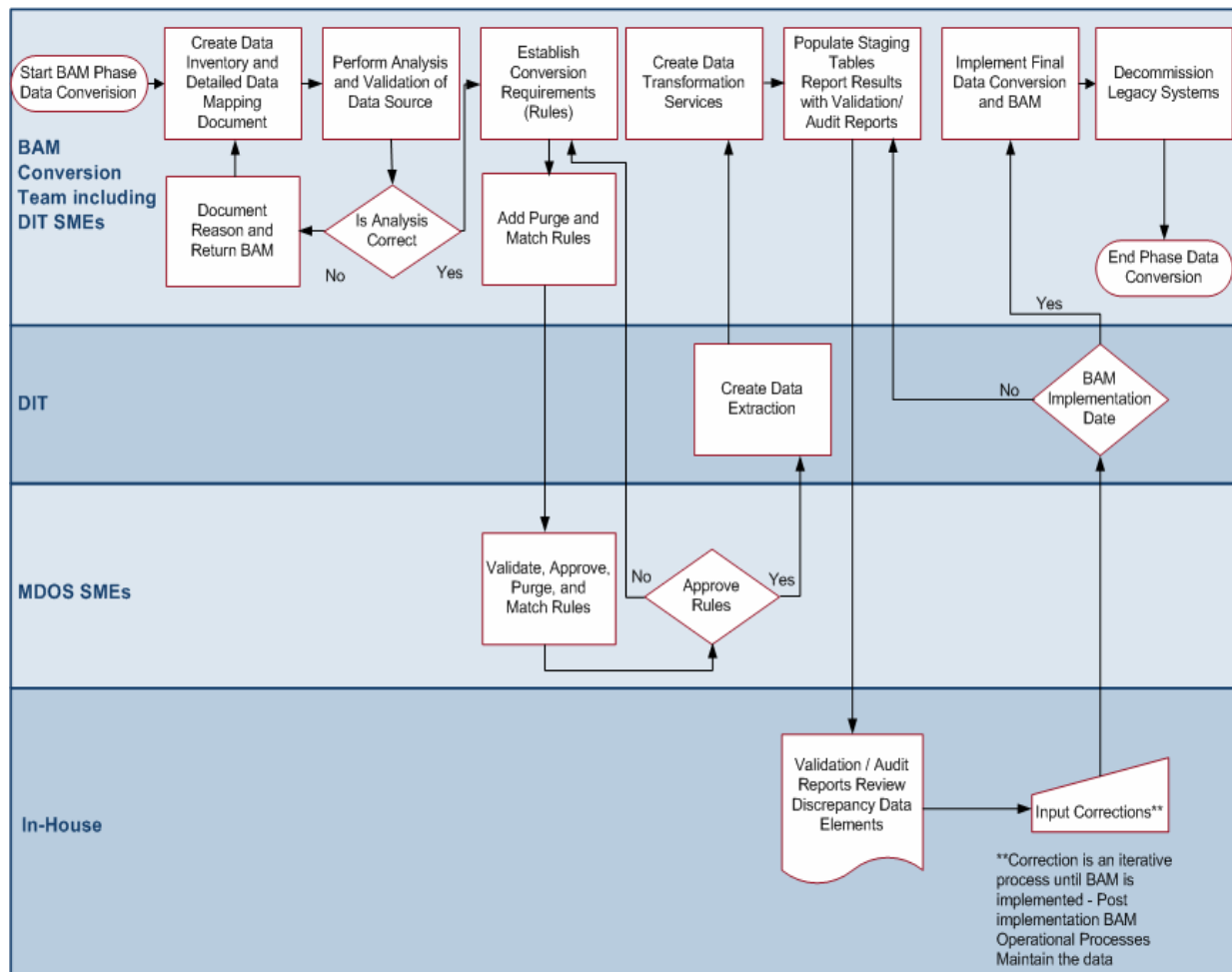
Task 4.1 Plan for Data Conversions

Conversion Strategy

The primary goal of the Conversion Strategy is to design and build a conversion process that is effective and efficient. The Conversion Strategy identifies existing data and data structures that need to be converted to support the design of the BAM system and defines the process for performing the conversion. EDS will use the Object and Component Engineering (OCE) Work Type of the GSMS model to build the conversion process. The OCE is a predefined process configuration that integrates the life cycle modules needed for application development using object-oriented or component-based techniques. EDS supports the Data Conversion activity with a conversion strategy that incorporates all of the proposed deliverables. EDS' conversion strategy includes:

- Complete data inventory
- Data mapping document
- Conversion requirements and rules, including match and purge rules
- Legacy Data extract
- Software artifacts for extracting and transforming the Legacy Data
- Software artifacts for loading the BAM Database

Validation and audit reports of data load of the BAM Database. Additionally, EDS will identify a data cleansing process that will be integral to the conversion process, which is defined in Task 4.5. Defined in Task 4.9 is the plan for decommissioning of the Legacy Systems after the BAM System is successfully implemented. The Data Conversion Process Flow is shown below.



BAM Data Conversion Strategy Process Flow

Convert Legacy Data

EDS will convert Legacy Data from the Unisys mainframe databases, numerous Departmental Access databases, and Informix databases as identified for each phase of BAM. Although data conversion (including the quality of the data) is the responsibility of EDS, the effort must collaborate with the State of Michigan Subject Matter Experts (SMEs) in order to be successful.

Both DOS and Michigan Department of Information Technology (DIT) staff will need to be committed to the Legacy Data Conversion process and will need to provide input on data standards, default values, and match and purge rules. The DOS staff will also be directly involved in reviewing the audit/validation reports and the converted data, and will be required to review and sign off on the audit/validation reports before proceeding with implementation. The State of Michigan will need to provide one dedicated full-time DIT person to the data conversion process, including the data cleansing task. This individual will need to have Unisys DMSII database skills and expertise in Legacy Systems database management.

Phase 3A Data Conversion

Phase 3A will consist of converting the entire driver "header" file data to the BAM database. The Driver database on the Unisys Mainframe is the authoritative source for State of Michigan customer data. As indicated on page 34 of the ITB, there are approximately 10 million client records, 10 million driver records, 1.5 million PID records, 1.7 million AKA records, and 10 million miscellaneous records related to Phase 3A activities.

The scope of the data being converted will include the following databases identified on page 27 of the Implementation Strategy:

Location / Unit	Database Name	Description
Unisys Mainframe	MDOSDB	Driver Database – customer and licensing datasets (driver, PID, AKA, etc.)
Unisys Mainframe	SIPDB	Street Index Database
Action Processing	RESIDENCES2.MDB	Residences Database that tracks drivers who have been investigated by the Investigations Unit because they are using a commercial address as their residential address

Location / Unit	Database Name	Description
Driver Update	DECEASEDJURISDICTION.MDB	Deceased Jurisdiction Database that generates the Michigan city when Driver Update staff enters the Department of Community Health code for that city
	90-DAY EXT.MDB	90 Day Extensions Database
	DECSHEETS.MDB	Declaration Sheets Database
	HAZDRIVERS.MDB	Hazardous Material Drivers Database
Action Processing	MRL-LOG2.MDB	Minor Restricted License Applications Database
CSS - miscellaneous	DTT.MDB	Driver Testing and Training Resource Lists Database

EDS anticipates 10 additional Access databases may be included in the above list for data conversion in Phase 3A. If additional Access databases are identified during the Refine and Analyze steps, the scope change will be routed to the EDS Project Manager.

Phase 3B Data Conversion

Phase 3B will consist of converting vehicle and voter information to the BAM database. As indicated on page 34 of the ITB, DOS estimates that there are approximately 136 million records and 36 million activity records related to Phase 3B activities. The records will be converted and matched using the customer number field that was added during the preliminary data conversion work, which took place during the ongoing DOS/DIT Data Alignment activity. Reference information, including the Branch Office information and Fee Code Library, will also be converted in Phase 3B.

The scope of the data being converted will include the following databases identified on page 28 of the Implementation Strategy:

Location / Unit	Database Name	Description
Unisys Mainframe	MVEHDB	Vehicle Database
Unisys Mainframe	VACTDB	Vehicle Registration Activity History
Unisys Mainframe	BRANDB	Branch Database
Unisys Mainframe	EFTDB	Electronic Funds Transfer Database
Conversion	ABSTRACT4.MDB	BDVR-103 Abstract Reporting Certifications Database
Enhanced Services	MANUFACTURER.MDB	Database to keep track of manufacturer motorcycle plates that were issued by DSU
	BRANCH ERROR RATE.MDB	Branch Error Rates Database
	COVERS1.MDB	COVERS Information Database
	DEALER DELETES1.MDB	Database of information that tracks incoming dealer requests when a dealer typed incorrect VIN then requests the incorrect record to be deleted
	MUNICIPAL'S.MDB	Watercraft, Snowmobile, and Snowmobile Dealers for Counties Database
	PERSONALIZED TRAILERS.MDB	Personalized Trailer Database
	SNOWMOBILE.MDB	Snowmobile Database
Vehicle Update	SURETY BONDS.MDB	Surety Bonds being held in Vehicle Update Database
	VANITYDATA.MDB	Vanity Plate Numbers Database

EDS anticipates 30 additional Access databases may be included in the above list for data conversion in Phase 3B. If additional Access databases are identified during the Refine and Analyze steps, the scope change will be routed to the EDS Project Manager.

Phase 3C Data Conversion

Phase 3C will consist of converting financial information to the BAM database. The volume of data that will require

conversion is approximately 250,000 records for Phase 3C, according to page 34 of the ITB. The scope of the data being converted will include the following databases identified on page 29 of the Implementation Strategy:

Location / Unit	Database Name	Description
DSU	DSUDATA.MDB	Suspense, Zero Balance, Reconcile, Refund Financial Database
OSRS	OSRSREFUNDS.MDB	Refund Database
	REFUNDS.MDB	Refunds Database that tracks customer requests for refunds.
Driver Update	REFUNDSDISP_BE.MDB	Driver Update Unit Refund Database

EDS anticipates 50 additional Access databases may be included in the above list for data conversion in Phase 3C. If additional Access databases are identified during the Refine and Analyze steps, the scope change will be routed to the EDS Project Manager.

Phase 3D Data Conversion

Phase 3D will consist of converting driver activity and driver responsibility information to the BAM database. The volume of data that will require conversion is approximately 42 million records for Phase 3D, according to page 34 of the ITB. The scope of the data being converted will include the following databases identified on page 30 of the Implementation Strategy:

Location / Unit	Database Name	Description
Unisys Mainframe	MDOSDB	Driver Database – driver activity datasets
Unisys Mainframe	ROFNDB	Repeat Offender Database
Abstract Processing	BANKRUPTCY.MDB	Database to track people who have filed for bankruptcy. Staff can search the records by driver license number and bankruptcy file number. The database is used to track information on financial responsibility and Failure to Appear in Court / Failure to Complete Judgment (FAC/FCJ) suspensions terminated by SOS due to the bankruptcy order.
Abstract Processing	DRF_CORRECTIONS.MDB	Database used to notify Treasury of small balance adjustments and closures of assessments. It was created as a workaround until programming was completed to send Driver Responsibility fee correction information to Treasury.
Action Processing	FOC6.MDB	Friend of the Court (FOC) Database - orders that are received in Action Processing. This database produces a report by counties for the number of orders received.
Investigations Division	CASEAPP2000.MDB	Case Information Database
Investigations Division	MS1.MDB	Case Information Database
	COURTS.MDB	Court Information Database used for several different functions including mailing labels
	DIRECT2000.MDB	Direct Access Customer Information showing account number, organizational code, address, e-mail information, and status Database
	NOA.MDB	Notice of Adjudication Database
Record Lookup	RLUGOVT.MDB	Database of all government accounts for Record Lookup displaying the name, account number, and mailing address for the organization

EDS anticipates 50 additional Access databases may be included in the above list for data conversion in Phase 3D. If additional Access databases are identified during the Refine and Analyze steps, the scope change will be routed to the EDS Project Manager.

Develop Conversion Approach Criteria

EDS and the State of Michigan will team together to develop the criteria and rules for data conversion. EDS will document all of the criteria along with conversion requirements using the Requisite Pro tool of the Rational Suite. A Requirements document, generated from Requisite Pro, will indicate all of the requirements, criteria, rules, and data conversion standards.

The DOS SMEs will provide input regarding rules, legislative requirements, standards applied to the Legacy Data, and rules regarding volumes of historical data that will need to be converted.

EDS will also use the approach to validate data during the conversion process using the appropriate interfaces. An example is Social Security Number verification using the Social Security Online Verification (SSOLV) interface, which will include marking the converted records with the verification dates.

Data Conversion Plan

EDS will provide a Preliminary Conversion Plan six months after contract start. Each BAM phase will have its own separate Conversion Plan. EDS will be responsible for updating the plan as conversion tasks are identified or clarified. The Conversion Plan will contain discrete tasks for:

- Data cleansing
- Maintaining data integrity after cleansing and prior to conversion
- Interface impacts
- Data extraction and transformation activities
- Data loading activities
- Conversion testing
- Data auditing and validation reporting
- Scheduling issues regarding converting to the BAM system while continuing to support the existing business
 - Decommissioning of the Legacy System

The Conversion Plan will also contain a conversion schedule with estimated start and finish dates. The conversion schedule will be updated with actual dates as tasks are completed for the migration of the Legacy Data to production by the contractor.

A draft Data Conversion Plan is provided in Activity 4 Appendix A - Draft Data Conversion Plan By the contractor.

Convert Legacy Data for Testing

The Activity 5 tasks of testing the BAM System will utilize the output from the Activity 4 data conversion tasks. EDS will test the data conversion using the processes and procedures developed in Activity 5 for Test Planning and Test Execution. Converted Legacy Data will be provided for the testing of the BAM application throughout development and testing for all BAM phases. EDS will ensure converted data is available as required for each type of testing: Unit Testing, Quality Assurance Testing, and User Acceptance Testing. Data conversion activities will occur concurrently with application development activities. EDS will utilize an iterative approach to development that will ensure that multiple cycles of data conversion and testing will occur. Phase 3A will convert customer and driver license data, Phase 3B will convert vehicle data, Phase 3C will convert financial data, and Phase 3D will convert driver activity and driver responsibility data.

Task 4.2 – Inventory of Legacy Data

Requirements of Task

The Contractor shall be responsible for creating an inventory of all legacy systems and data fields, which will be converted. An analysis will be required to clearly identify assumptions and structures existing in the underlying data and shall be included in the inventory of data.

Deliverable from Task 4.2

1. Inventory of Legacy Data – due three months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases.

Contractor Response:

EDS will create an inventory of all Legacy Systems and data fields, which will be converted. The inventory will be subdivided by phase. An analysis of both the data dictionary and the Legacy Systems source code will be required to clearly identify assumptions and structures existing in the underlying data and shall be included in the inventory of data.

The Inventory of Legacy Data will provide input to the Detailed Data Mapping document. A complete inventory will require the total effort of both EDS and the State staff.

Task 4.3 Conversion Requirements Document

Requirements of Task

The Contractor shall be responsible for producing a Conversion Requirements Document that contains the rules regarding the amount and type of data to convert. The quality of the data will be evaluated and documented. Data volumes should be documented as well as an analysis of specific questions such as how much historical data will be converted, what are the legal and business issues for maintaining data, and whether or not data marked to be purged will be converted. Definitions for key fields need to be identified and consistent, as well as all data parameters. The conversion criteria should be consistent with the State data retention requirements. These criteria will be reviewed with the Contractor.

Deliverable from Task 4.3

1. Conversion Requirements Document – due five months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases.

Contractor Response:

EDS will produce a Conversion Requirements Document. EDS will use the Requisite Pro tool from the Rational Suite to document all of the conversion rules for the BAM database, such as:

- Quantity of historical data to be converted
- Legal and business issues for maintaining data
- Whether or not data marked to be purged will be converted

The Conversion team will work directly with the DIT and DOS staff to analyze the Inventory of Legacy Data and the Detailed Data Mapping document to identify the conversion requirements which will include identifying and documenting data standards. Definitions for key fields and data parameters need to be identified and created consistently. The conversion criteria will also need to be consistent with the State data retention requirements.

The State of Michigan SMEs will provide input, review, and approve the Conversion Requirements Document.

Examples of possible criteria for conversion for the different phases are indicated in the following table:

Phase	Requirement / Rule / Criteria
Phase 3A – Driver License Issuance	Customer Number must be unique
	Customers must be assigned a type: individual, business, etc.
	Deceased customers will not be converted
	A customer may have more than one address
	A customer must have at least one address which will be identified as type “Residence”
Phase 3B – Vehicle Title and Registration	Records marked as purged will not be converted
	Only historical data from the past 10 years will be converted
Phase 3C – Financial	Only historical data from the past 10 years will be converted
	Fee codes must be defined
Phase 3D – Driver Activity and Driver Responsibility	Outdated codes will not be converted
	Records marked as purged will not be converted

Task 4.4 - Detailed Data Mapping Document

Requirements of Task

The Contractor shall be responsible for the completion of a Detailed Data Mapping Document, which will map the data elements from their source(s) in the legacy systems to the BAM system. This document must include a Data Gap Analysis that identifies missing or corrupt data items in the legacy system(s) requiring manual cleanup or data entry; fields in the legacy system that are required to run the current business but

do not have corresponding fields in the BAM system; and fields that are mandatory for the processes in the BAM system, but do not exist in the legacy system(s) shall be identified and remedied to ensure that the BAM system operates effectively and accurately. This should be documented in backward-forward mapping spreadsheets. Each target field should be identified both by the database (file) location and the screen/report location. Every field should be categorized by type of match; convert as is, not converted, transform (associated it to a rule), data created (e.g., BAM system requirement, not in legacy), no match-do not populate. Data fields that are not in the legacy system will have to have default values determined, which will identify how these fields will be populated during conversion.

Deliverable from Task 4.4

1. Detailed Data Mapping Document – due five months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases.

Contractor Response:

Task 4.4 - Detailed Data Mapping Document

EDS shall be responsible for the completion of a Detailed Data Mapping Document, which will map the data elements from their source(s) in the Legacy Systems to their target(s) in the BAM System. The Detailed Data Mapping Document will ensure conversion goals of complete and accurate data migration. EDS will build on the Data Mapping Model created during BAM Phase 2, which is provided in the Logical Data View Document. The existing Data Mapping Model clearly provides:

- Backward / forward mapping in spreadsheet format
- Data Gap Analysis by identifying gaps of missing or corrupt data items in the Legacy Systems
- Fields in the Legacy Systems that are required to run the current business but do not have corresponding fields in the BAM System
- Fields that are mandatory for the processes in the BAM System, but do not exist in the Legacy Systems

Columns for individual source and target data elements and identification of the screen/report location of each target field will be added to the spreadsheet. Each field will be categorized by type of match: convert as is, not converted, transform (associated it to a rule), data created (e.g., BAM System requirement, not in legacy), or no match – do not populate. Data fields that are not in the Legacy System will have default values identifying how these fields will be populated during conversion.

A sample Data Mapping Document is provided at the end of this section.

Task 4.5 – Data Cleansing or Scrubbing

Requirements of Task

The Contractor shall be responsible for the cleansing of the legacy data – whether automated or manual. It is the responsibility of the Contractor to determine data conversion requirements and to utilize State owned software, develop or purchase automated conversion software and scripts for data cleansing and actual conversion. State staff will be available for assistance for any manual data cleansing activities as described above. The Contractor is responsible for designing (if applicable), constructing (if applicable), testing, and executing all conversion software and scripts. The quality of the data conversion shall be the Contractor's responsibility.

Deliverables for Tasks 4.5

1. Cleansing and conversion programs (software artifacts) – due at beginning of Quality Assurance Testing for all phases.

Contractor Response:

Task 4.5 – Data Cleansing or Scrubbing

Data scrubbing is the process of fixing or eliminating individual pieces of data that are incorrect, incomplete or duplicated before the data is passed to another application. Data quality and integrity are critically important in any system. When a new development project such as BAM is planned, the quality of the data migrated is a huge risk that will need to be mitigated by both EDS and the State of Michigan. Data cleansing or scrubbing is one way of mitigating the risk of migrating invalid or corrupt data.

The thorough planning and execution of the cleansing process will determine the quality and integrity of the data that will be loaded into the BAM database. Data cleansing is a major project that requires a great deal of expertise and technical

resources. EDS will work closely with the State of Michigan's dedicated database staff to maximize this effort and minimize the risk. As stated in Task 4.1 – Plan for Data Conversions, the State of Michigan will need to provide one dedicated full-time DIT person to the data conversion process including the data cleansing task. This individual will need to have Unisys DMSII database skills and expertise in database management of the Legacy Systems.

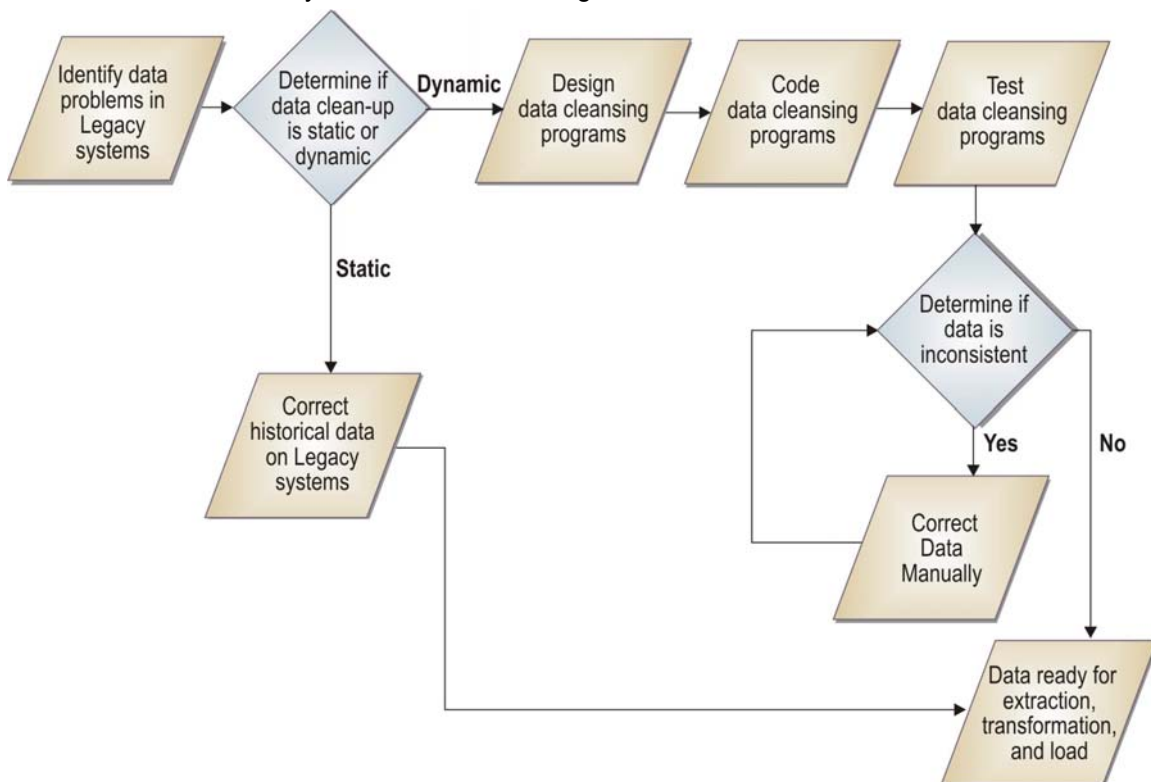
Part of EDS' data cleansing strategy and analysis will determine which data will require static or dynamic clean-up. Static clean-up involves the correction of historical data such as incorrect addresses or phone numbers. Dynamic clean-up is more complicated and involves more effort because it includes the clean-up of data problems created by integrity or processing issues with the current systems, such as inconsistent edits between the BOS and Mainframe Systems. EDS and the DIT staff will determine together whether this data is cleansed as a result of the conversion process itself or in post-conversion with data clean-up scripts. Although data cleansing can occur after Data Extraction, Transformation, and Loading (ETL), EDS will cleanse the data as early as possible in the process in order to have accurate data for the ETL process.

The EDS team's proposed process has been successfully implemented in other programs of similar size and complexity. Thorough test plans will be developed to confirm that data are converted correctly and completely. An integral part of the test plan will be a reconciliation process that includes data counts and validation to confirm the accuracy of our data conversion effort. Any rejects will be reviewed for correct handling. EDS also will verify that no data loss occurs by executing test conversion passes and data cleansing. EDS will work with DOS and DIT personnel to review the results of the test conversion to identify and correct incomplete, inconsistently formatted, and inaccurate data problems.

The data cleansing analysis can occur concurrently with the data requirements identification, data mapping, and conversion strategy tasks, but it must be completed before data extraction, transformation, and loading.

The process flow for data cleansing is shown in the *BAM Data Cleansing Process* figure below.

Automated, specialized software tools use sophisticated algorithms to parse, standardize, correct, match, and consolidate data. Their functions range from simple cleansing and enhancement of single sets of data to matching, correcting, and consolidating database entries from different databases and file systems. EDS anticipates that 3rd party automated tools will not be needed because data sources and edit rules are sufficient to convert the data. The Legacy Mainframe application already uses address standardization software, so the majority of addresses will not require cleansing. State staff will be available to assist with any manual data cleansing activities.



BAM Data Cleansing Process

Phase 3A Data Cleansing

As indicated on page 34 of the ITB, there are approximately 10 million client and 10 million driver records related to Phase 3A activities. Approximately 1 million client and 1 million driver records will require additional work. Of the 2 million records, the State of Michigan will provide resources to manually fix 200,000 client and driver records. EDS also plans to use DIT staff to help with existing match code on the Mainframe so that it can be re-used for Data Conversion. Existing BOS Screens can provide the edit and input for online updates for data cleansing. Data sources and edit rules are sufficient to cleanse and convert the data. EDS will design, code, and test data programs and procedures to

automatically cleanse the majority of the data; therefore, EDS will not use any 3rd party tools for data cleansing. EDS will perform the data cleansing effort as an integral part of the overall BAM effort. The EDS resources will be working closely with the State's team to provide subject matter expertise, leadership, and guidance for this effort.

Phase 3B Data Cleansing

Phase 3B will include conversion of the vehicle data base. As indicated on page 34 of the ITB, DOS estimates that there are approximately 136 million records and 36 million activity records related to Phase 3B activities. The State of Michigan will again provide resources to manually fix Phase 3B records. For the majority of vehicle transactions, registration renewals are required every year. EDS fully supports the Data Alignment activity begun by the State that involves data capture of multiple names and association of Driver License Numbers to vehicle clients, which will provide a cleaner vehicle database for conversion during Phase 3B. As in Phase 3A, EDS will perform the data cleansing effort for Phase 3B as an integral part of the overall BAM effort. EDS' resources will be working closely with the State's team to provide subject matter expertise, leadership, and guidance for this effort.

Phase 3C and Phase 3D Data Cleansing

The volumes of data that will require conversion are approximately 250,000 records for Phase 3C and 42 million records for Phase 3D, according to page 34 of the ITB. EDS will utilize the 10% formula to estimate the numbers of records requiring additional work and manual data cleansing assistance by the DOS staff. The actual numbers will be determined during the Refine and Analyze steps of each BAM Phase. EDS also anticipates that the conversion process for BAM Phases 3C and 3D will be refined from the experience the team gathers during Phase 3A and Phase 3B conversions, and that economies of scale will be gained based on two prior successful data conversions.

Task 4.6 – Data Extraction, Transformation, Loading

Requirements of Task

Electronic data will need to be pulled from the legacy system(s) into extract file(s) so that the data can be imported into the BAM system. The State has data in MS Access, Oracle and Informix databases and DMSII databases, KEYEDIOII and flat files on the mainframe. Compiling this data into a format for loading to the BAM system should be defined. The programs and or scripts should be designed and coded to the mapping rules.

A multi-step process to execute and test the extract and load programs will be required. The Contractor will conduct an audit of "data to be converted" before and after conversion to verify the accuracy and correctness of the data conversion process. Approval of the results by the State is required. Extract programs must be efficient so that they can run in a specified time frame (e.g., the entire conversion in a 3-day weekend, including loading and testing). Performance is important, but the key is data integrity and an assurance that all data is correctly loaded.

Deliverables for Tasks 4.6

1. Converted data – due throughout development and testing for all phases; production version is due at beginning of Quality Assurance Testing for all phases.

Contractor Response:

Task 4.6 – Data Extraction, Transformation, Loading to

The State of Michigan will provide extract files of the Legacy Systems data be loaded into the BAM database. During conversion planning, the layout of the extract files will be determined and agreed upon by the EDS and DIT team members of the conversion team. EDS and DIT staff will agree on a consistent process for creating the extract files so that delays in loading the Legacy Data into the BAM Database are avoided and the implementation schedule is not impacted. Critical success factors for Data ETL are shown in the following table:

Data Extraction, Transformation, and Loading (ETL) Critical Success Factors
Include all current records – this will identify any transformation problems early on in the development and testing
Identify all required fields – if these aren't available we need to address this early. The data mapping document will identify these and the extract program will need to include them
Include exact matches for all code fields. If the codes for gender in the BAM database are identified as M for Male and F for Female, the extract file should not have values other than M, F, or blank populated in the extract records
Create the Formal Acceptance Test / Production extract files exactly the same way as the test files were created
Review and correct errors in a timely manner during development and implementation

EDS will identify a process where data is loaded in steps to assure an efficient process that loads data correctly. Because

of the volume of data that will need to be loaded, multiple extract files will be used. Each extract file will be assigned an identifier, usually a file type and a record type, to uniquely identify the extract file and determine its sequence in the data load process.

Since the platforms are different between the existing Legacy Systems and the BAM System, data will need to be transformed from one data type to another. Data types for BAM will be determined during logical database design and implemented with the physical database creation. The most efficient data types for attributes will be utilized in the design of the BAM database. A clear example of data transformation will be dates in the system. The current Legacy Systems frequently uses Julian dates for data attributes and these will need to be transformed into SQL Server date data types. Also, the Legacy Systems store full names in one field and those names will have to be transformed into their individual parts in the BAM database.

EDS will utilize Microsoft SQL Server 2005 Data Transformation Services (DTS) to load the data from the Legacy extract files into staging tables for loading into BAM. DTS is a set of graphical tools and programmable objects that allow extraction, transformation, consolidation, and loading of data from disparate sources into single or multiple destinations. EDS will design, code, and test the DTS scripts.

EDS will design, code, and test stored procedures, C# programs, or .NET programs, which will be coded to populate the BAM tables from the staging tables.

The entire ETL process must be efficient so that it can run in a specified time frame (e.g., the entire conversion in a 3- day weekend, including loading and testing). Performance is important, but the key is data integrity and an assurance that all data is correctly loaded.

Compiling and Formatting Data

As part of the conversion strategy, EDS will identify the sequence and the process for executing the data loading scripts. The approach being used breaks the tasks of data migration into manageable steps. The data will be migrated in units, facilitating check-points within the process. The programs and or scripts will be designed and coded according to the data mapping rules and will be executed according to a logical, defined sequence.

Example of a possible load sequence for Phase 3A:

Load Sequence Number	Description
1	Load Customer data
2	Load Driver License data
3	Load PID data
4	Load GDL data
5	Load CDL data

Audit of Data to be Converted

EDS will conduct an audit or validation of data to be converted to verify the accuracy and correctness of the data conversion process. Individual ETL steps will include validation reports that include the number of records extracted from the Legacy Systems and the number of records loaded into the staging tables. The reports will list error records with predefined error messages that will allow correction of the data before the next iteration of the process.

The quality of the data will be evaluated and documented. After reviewing the results, appropriate State of Michigan personnel will sign off on the results before the conversion data and process are accepted for production cutover.

Task 4.7 – Conversion Testing and Cutover to Production

Requirements of Task

It is assumed that the conversion process is iterative until the specific goals are accomplished (identified in the Conversion Requirements Document). State will provide staff to validate data. After the data has been validated, the system processes (e.g., in Phase 3A an example is change of address or renewal of an operator license) should be ran against the data. Multiple cycles of mock conversion into the BAM system will ensure accuracy. On each cycle, record selection and field mapping are required.

The Contractor and the State shall identify a conversion window when transaction activity is at a low volume and the legacy system can be frozen and data extracted. A freeze “point” is critical and downtime must be minimized. If data cannot be frozen, programs will be required to keep the BAM and legacy system synchronized. The legacy system is dynamic, daily updates occur, branches are open Monday through Saturday, renewal by web and renewal by phone are available 24x7.

Deliverable from Task 4.7

1. Data Validation – due two weeks prior to cutover to production.

Contractor Response:

Task 4.7 – Conversion Testing and Cutover to Production

Conversion Testing

EDS will utilize multiple steps in testing the Conversion process. First, the extracts will be tested for correct format and correct volumes. Second, the transformation and load scripts will be tested for execution and accuracy. When the individual components of the Conversion process are successfully tested, integration testing and UAT testing as identified by the Activity 5 tasks will be utilized to test the Conversion process in conjunction with the BAM System processes, such as change of address or license renewal.

Please refer to Activity 5 for further detail on the EDS Testing Process.

Cutover to Production

EDS and the State shall identify a conversion window for loading production data into the BAM system. Because of the volume of data, the conversion process will be done in steps. Data that is static can be converted any time prior to production, but dynamic data will have to be loaded after a System freeze point has been identified.

The freeze point is critical and downtime must be minimized. The freeze point will be determined as a point in time when transaction activity is at a low volume and the Legacy Systems can be frozen and data extracted. Because the Legacy Systems are dynamic (updates occur daily, branches are open Monday through Saturday, and renewal by Web and phone are available 24x7), a fixed freeze point may not be indicated. If a fixed freeze point cannot be identified, EDS will design, code, and test software programs that will keep the BAM and Legacy System synchronized.

Task 4.8 – Manage Data Conversion Activities / Staff

Requirements of Task

The Contractor shall provide a full-time person, Conversion Coordinator, to lead the Conversion Team. This person will be identified as “Key Personnel” (reference 2.506, Staff), for the duration of each phase. This person will be the primary point of contact for the State.

The Conversion Team shall work with the State to develop appropriate processes and procedures to control the conversion process, including the identification of project schedule tasks, task assignments,

Within one month of contract start, the Contractor shall provide a Conversion Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to the attachment titled *Contractor Staffing Plan Example*.

The Contractor shall also provide an organization chart for the Conversion Team, including the role(s) of each staff member.

Within six months of the start of the contract the Contractor will develop data cleansing/scrubbing resource plan. The plan will describe the efforts required by the State for the manual cleansing for the data conversion. The State will review and approve the data cleansing/scrubbing resource plan. Once the plan has been agreed upon the State will supply staff to complete manual data cleansing activities.

Deliverables from Task 4.8

1. Conversion Team Staffing Plan – due one month after contract start, with updates as required thereafter.
2. Conversion data scrubbing/cleansing resource plan – due six-months after contract start for Phase 3A and three months after (start of phase) for all following phases, with updates as required thereafter.
3. Status Reports – due to the Technical Project Lead at close of business on first business day of each week for prior week’s activities. Status reports shall include:
 - a)Major tasks accomplished
 - b)Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task,
 - c)Clear identification of areas at risk of not meeting schedule
 - d)Additional issues affecting productivity or efficiency
 - e)Any other issues the Conversion Coordinator Manager feels should be communicated

Contractor Response:

Task 4.8 – Manage Data Conversion Activities / Staff

Conversion Coordinator

Specific to Activity 4 – Data Conversion, EDS has assigned Steve Sinicki as the Conversion Coordinator reporting to Enterprise Integration Architect Noel Clark. Mr. Sinicki will oversee the Conversion Team and will plan and implement conversion, data match, and data support activities with the State. Mr. Sinicki brings over 20 years of varied experience in all phases of business application projects and many development and operating environments. Recently he provided data conversion expertise for the Pennsylvania Medicaid project. He was the technical lead for the Encounter Claims Conversion area and led the technical design and construction efforts for this conversion. The Conversion Coordinator will also generate the Weekly Status Report containing all the major accomplishments, major upcoming work, significant issues, and Conversion Team concerns, and maintain updates to risks and other project documentation. Please refer to Staffing Appendix A, Key Personnel Resumes to review Mr. Sinicki's experience and expertise.

Conversion Team Organization Chart

John Dullock will produce and maintain the Conversion team staffing plan as well as all other staffing plans. The Conversion Team will work with the State to develop appropriate processes and procedures to control the conversion process, including the identification of project schedule tasks and task assignments. The BAM Conversion Team Organization Chart is shown in Figure 4.4.4-4.

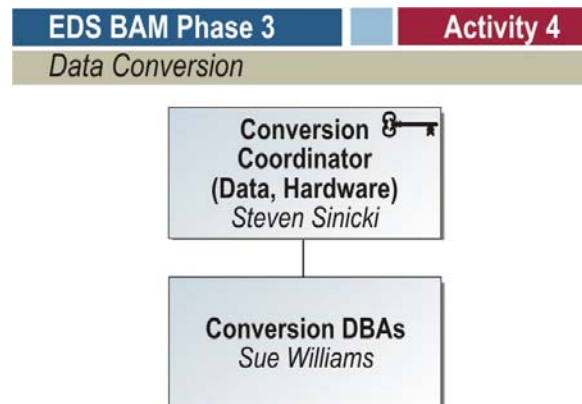


Figure 4.4.4-4, BAM Conversion Team Organization Chart

Role	Responsibility
Conversion Manager	Oversee the Conversion Team and plan and implement conversion, data match, and data support activities with the State. The Hardware/Conversion Coordinator will also generate the Weekly Status Report containing all the major accomplishments, major upcoming work, significant issues, and concerns for the Conversion Team, as well as maintaining updates to risks and other project documentation.
Conversion DBAs	Oversee the database conversion tasks and work with the State of Michigan DBA to identify all requirements for conversion. Also, design, code, and test data cleansing and data conversion programs and scripts.

Data Cleansing/Scrubbing Resource Plan

The Conversion Team will develop a data cleansing/scrubbing resource plan. The plan will describe the efforts required by the State for the manual cleansing for the data conversion. The State will review and approve the data cleansing/scrubbing resource plan. Once the plan has been agreed upon the State will supply staff to complete manual data cleansing activities.

Task 4.9 – Decommissioning of Legacy Systems

Requirements of Task

One of the final steps in the conversion effort will be to develop a detailed plan to decommission the legacy systems.

Deliverable from Task 4.9

1. Decommission of Legacy System Plan – due one month prior to the ending of each phase and pertinent to the particular portions and complete decommission of a system or partial decommission.

Contractor Response:

Task 4.9 – Decommissioning of Legacy Systems

The final step of any successful Data Conversion is the decommissioning of the Legacy Systems. EDS will incorporate this task into the Conversion Plan. The decommissioning of the system will occur after a successful implementation of the BAM System and after a specified period.

This ensures that the Legacy System, which holds critical information, will not be shut down until the BAM system has stabilized.

Providers and consumers of the Legacy Systems being decommissioned will need to be notified of and also participate in the data conversion process. They will need to provide input to the process and also make plans to cutover to the BAM System during implementation.

The Conversion Plan will include discrete tasks for decommissioning the Legacy Systems, including backups of critical data, decommission schedule, archiving application software, and scheduling planned communications.

Activity 4 Deliverables

The deliverables defined for ITB Activity 4 – Data Conversion are listed below. All of these activities will be completed as part of this section along with all other deliverables described in the section.

Deliverable	Measure of Success
Task 4.1 – Plan for Data Conversions	
Conversion Plan – due six months after contract start; updated for each phase and as conversion plans change	The Conversion Plan identifies all of the tasks associated with the data conversion from the Legacy Systems to the BAM Database. It provides in one location the Conversion project's goals and objectives and forms the foundation for a successful migration of data that is both effective and efficient. The Conversion Plan contains a schedule of tasks, with estimated start and finish dates. The staffing plan will not be included in the Conversion Plan, but will be part of the project staffing plan.
Task 4.2 – Inventory of Legacy Data	
Inventory of Legacy Data – due three months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases	Working collaboratively with the State of Michigan, identification of the Legacy Data currently existing will be completed in an accelerated timeline. The EDS resources assigned to BAM already have knowledge and experience with the Legacy Data from the thorough documentation provided by the State and extensive facilitated sessions from BAM phase 2. This will allow completion of this task in the aggressive three-month time frame for phase 3A. EDS also has an established trusted partnership with DOS and DIT.
Task 4.3 – Conversion Requirements Document	
Conversion Requirements Document – due five months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases.	EDS will provide a Conversion Requirements Document using the Requisite Pro tool to document all of the data conversion requirements, criteria, and rules. Requirements include purge, match, and sort rules; and historical data selection parameters.
Task 4.4 – Detailed Data Mapping Document	
Detailed Data Mapping Document – due five months after contract start for Phase 3A; due at the completion of Technical Design for all subsequent phases.	EDS will provide a Detailed Data Mapping Document, which builds on the Data Mapping Model from the Logical Data View document. Please refer to attached documents for this section for an example of a proposed data mapping document. The Data Mapping Document will include: <ul style="list-style-type: none"> • Source data elements from the Legacy Systems and corresponding target data elements to the BAM System. • Data Gap Analysis identifying missing or corrupt data items in the Legacy Systems, fields in the Legacy Systems that are required to run the current business but do not have corresponding fields in the BAM System, and fields that are mandatory for the processes in the BAM System but do not exist in the Legacy Systems. • Identification of remedies for missing or corrupt data. • Backward / forward data mapping.

Deliverable	Measure of Success
	<ul style="list-style-type: none"> Database (file) location and the screen/report location for each target field. <p>Category of match for each data field:</p> <ul style="list-style-type: none"> convert as is not converted transformation rule new field required by BAM <p>Default values for data fields that are not in the Legacy System but will require population during conversion.</p>
Task 4.5 – Data Cleansing or Scrubbing	
Cleansing and conversion programs (software artifacts) – due at beginning of Quality Assurance Testing for all phases.	Data cleansing and data conversion are discrete tasks, but are tightly coupled. EDS and DIT staff will work together to design, code, and test all software programming involving the data cleansing functions if it occurs on the mainframe system prior to data ETL processes. EDS will be responsible for design, code and test scripts, stored procedures, and programs required for the data conversion process. EDS will also design, code, and test any data cleansing programs if the data cleansing occurs post-conversion.
Task 4.6 – Data Extraction, Transformation, Loading	
Converted data – due throughout development and testing for all phases; production version is due at the beginning of Quality Assurance Testing for all phases.	EDS will provide converted Legacy Data throughout the development and testing for all phases of the BAM project. EDS will provide the production version of the converted data in the BAM database at the beginning of Quality Assurance Testing and User Acceptance Testing for all BAM phases.
Task 4.7 – Conversion Testing and Cutover to Production	
Data Validation – due two weeks prior to cutover to production	EDS will provide conversion validation reports to the State for Review and Sign-off prior to production. The reports will verify the accuracy and correctness of the data conversion process
Task 4.8 – Manage Data Conversion Activities / Staff	
Conversion Team Staffing Plan – due one month after contract start, with updates as required thereafter	EDS will produce/maintain the Conversion Team Staffing Plan.
Conversion Data Scrubbing/Cleansing Resource Plan – due six-months after contract start for Phase 3A and three months after (start of phase) for all following phases, with updates as required thereafter	EDS will produce/maintain the Conversion Data Scrubbing/Cleansing Resource Plan.
<p>Status Reports – due to the Technical Project Lead at close of business on first business day of each week for prior week's activities. Conversion team status reports shall include:</p> <p>Major tasks accomplished</p> <p>Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task</p> <p>Clear identification of areas at risk of not meeting schedule</p> <p>Additional issues affecting productivity or efficiency</p> <p>Any other issues the Conversion Coordinator Manager feels should be communicated</p>	The EDS Conversion Coordinator will provide ongoing status updates to the Technical Project Lead specific to conversion tasks. The status updates will include the following: major tasks accomplished; progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task; clear identification of areas at risk of not meeting schedule; additional issues affecting productivity or efficiency; and other issues the Conversion Coordinator feels should be communicated.

Deliverable	Measure of Success
Task 4.9 – Decommissioning of Legacy Systems	
Decommission of Legacy System Plan – due one month prior to the ending of each phase and pertinent to the particular portions and complete decommission of a system or partial decommission.	EDS will provide, as part of the Conversion Plan, the detailed steps that are required to decommission the Legacy System. Since BAM is being implemented in phases, the decommission may occur partially in each phase or completely after Phase 3D is completed.

BAM PHASE 3 SAMPLE DATA MAPPING DOCUMENT

CR# (optional)	Document Version #	Approval Date	Modified By	Section, Page(s)and Text Revised

Phase 3A Data Mapping Spreadsheet

Location Name/ID	Database Name	Entity Name (Dataset)	Source Data Element	Screen/Report Location	BAM Class	BAM Target Element	Type of Match	Default Value	Notes
Unisys Mainframe	MDOSDB	Client	Client ID				X		This field may be populated and stored in the staging tables; for cross-referencing from BAM to Legacy
		Client	Client Name		Individual Customer	First Name	T		
					Individual Customer	Middle Name	T		
					Individual Customer	Last Name	T		
		Client	Street		Address	Street	C		
		Client	City		Address	City	C		
		Client	State		Address	State	C		
		Client	Zip		Address	Zip	C		
		Client	Zip Extension		Address	Zip	C		
		Client	Zip DPBC		Address	DPBC	C		
		Client	Client Name Suffix		Individual Customer	Name Suffix	T		
		Client	County		Address	County Code	C		
		Client	Birth Date		Individual Customer	Birth Date	T		
		Client	SSN		Individual Customer	SSN	C		Verification with SSOLV
		Client	Height		Individual Customer	Height	C		
		Client	Weight		Individual Customer	Weight	C		
		Client	Eye Color		Individual Customer	Eye Color	T		

Location Name/ID	Database Name	Entity Name (Dataset)	Source Data Element	Screen/Report Location	BAM Class	BAM Target Element	Type of Match	Default Value	Notes
		Client	Sex		Individual Customer	Gender	T		
					Customer Verification	SSOLV Return Date	N		
					Customer Verification	SSOLV Return Code	N		

Type of Match Legend:

C = Convert as is

N = New data element; created

T = Transformation; associated to a rule

X = Do not convert



Appendix E

Activity 5 – Testing and Software Implementation

Contractor Response:

Activity 5 will focus on how the BAM team will test and implement the BAM system. The specific tasks of these activities are described in the following paragraphs. EDS realizes the importance of thorough quality assurance and performance testing to the success of implementing a quality product.

Task 5.1 – Develop Test Plans

Requirements of Task

The Contractor is required to develop a Quality Assurance Test Plan for each scheduled production release of the system for the duration of the contract. During development of Phase 3A if the Contractor is proposing iterative development, additional testing should be conducted at milestones, or checkpoints, when a substantial unit of functionality is completed. A draft version of the Phase 3A Quality Assurance Test Plan should be used to conduct this test.

The Quality Assurance Test Plan must clearly set forth how the quality assurance test is designed to fully test the BAM System functions and features included in the release. The plan must identify the inputs to the test, the steps in the testing process, and the expected results. The State may request that certain types of cases and transactions be included in the Quality Assurance Test Plan. The Quality Assurance Test shall be conducted in the Quality Assurance Testing environment.

As part of the Quality Assurance Test Plan, the Contractor shall also define test cycles and test scripts, and prepare the test data to address the functional and technical requirements of the given release. The plan should identify any software tools to be used during testing. The testing process must include the ability to advance the testing clock to provide for a complete test of the lifecycle of cases over many simulated months or years. The plan shall provide detailed descriptions of the test environment, regression testing procedures, test methods, workflow, and the defect identification and resolution process to be utilized during the quality assurance test. The test plan must be cross-walked to the requirements and design documents to ensure all requirements have been covered.

In addition, the BAM system must be able to meet the performance standards and capacity requirements described in the *Technical Requirements* contained in the attachments. The performance testing task will include all aspects of the BAM system including batch and online processes, all interfaces (messages), BOS and the mainframe.

The Contractor shall develop a Performance Test Plan to complete this testing. The plan must address volume tests, string/workflow tests, and stress tests to simulate real production conditions and loads. This plan must identify how the load and performance testing will ensure that the system has sufficient capacity to handle production loads. The Contractor shall define test scripts and prepare the test data to test the system against the load and performance requirements. The plan should identify any software tools to be used during testing. The State will provide assistance in developing the Performance Test Plan, and have final approval of the plan.

A Performance Test with actual converted data must be performed prior to the implementation of each phase.

The Contractor is responsible for facilitating sessions with the State to develop a UAT Plan that covers the breadth and depth of the functionality to be delivered. The UAT Plan shall include test criteria, test case scenarios, test data, and expected results from the perspective of the end user.

Deliverables from Task 5.1

1. Quality Assurance Test Plan – due one month prior to the start of Quality Assurance Testing for each phase.
2. Performance Test Plan – due at the start of Quality Assurance Testing for each phase.
3. User Acceptance Test (UAT) Plan – due one month prior to the start of UAT for each phase.

Contractor Response:

Task 5.1 – Develop Test Plans

Quality Assurance Test Plan

EDS will provide a Quality Assurance Test Plan for each scheduled production release of the BAM system, which is a very complex integrated system. Testing the integration of all the interfaces and components will be crucial to the success of the BAM Project. EDS has experience in testing large enterprise applications like BAM; for example, EDS planned, coordinated, and performed the testing for the General Motors Global Purchasing System (GPS), an enterprise purchasing application used worldwide. Establishing GPS required EDS to work with over 7,000 Integration and Quality Assurance test cases, 500 screens and over 30 interfaces.

The Quality Assurance Testing phase of the development cycle focuses on comparing the developed system to functional requirements and on testing the entire system as a whole from end to end. This type of comprehensive testing helps to ensure that the individual system units perform and interact with each other properly. For the BAM project, Quality Assurance Testing includes the following:

Test Type	Focus
Functional Testing	EDS will ensure that the screen navigation and other system functions work as expected. An example of this kind of test would be ensuring that the "Reset Password" button on the Menu launches the Password Reset page.
Scenario Testing	EDS will ensure the business processes that the user conducts on a daily basis using many inter-related areas of the systems can be successfully completed. The scope of this type of testing includes all Scenarios that are a part of each implementation phase.
End-to-End Testing	Testing the entire life of transactions across all supporting applications for functional and technical correctness. An example of this kind of test would be ensuring that when a customer is registered to vote at a branch, the Qualified Voter File gets the correct information.

EDS will develop the Quality Assurance Test cases during the Analysis and Design of each BAM Phase. Test cases will initially be developed with a description and a result during the creation of the Use Case Scenarios. These test cases will further be refined with input and steps to run a test case when the Use Case Scenarios are sequenced. In the diagrams of these Scenario sequences, it is demonstrated how system responsibility is assigned and how objects interface with other objects, actors and classes. This early modeling allows for the easy creation of test cases that will test each of these interactions among objects, classes, and actors. As the object model is further refined during the development phase, the test cases are also refined. Before the Quality Assurance Test plan is executed, it will be cross-walked against the requirements to make sure that all requirements will be tested.

EDS will develop the BAM System using an iterative approach. As code is completed during all iterations of development, code will be promoted to the Quality Assurance Test environment. In the Quality Assurance Test environment, the automated unit testing code will be scheduled to run in intervals to validate that all code still works as designed. EDS will integrate components before the Quality Assurance Test phase begins. At the end of the first iteration, the entire BAM System will be promoted to the Quality Assurance Test environment, which will have all automated unit tests running against the promoted code. This testing phase will ensure that the code runs as was designed—without defects.

The BAM Quality Assurance Testing team will comprise of Testers and Fixers. Testers will be responsible for testing all test cases, creating test Defect Logs, and retesting test cases that have been fixed after a failed test case. Fixers will be responsible for investigating and fixing defects found during testing.

EDS will work closely with Michigan Department of Information Technology (DIT), Michigan Department of State (DOS), and other parties that have updated their software to fit the requirements of the BAM System. That is, all changed systems are to be tested during the Quality Assurance Testing phase. For each of these systems, EDS will develop and track test cases. EDS will make certain these systems have completed testing before BAM is deemed ready for User Acceptance Testing.

The Quality Assurance Testing effort will utilize the Compuware Quality Assurance tool set. The QACenter suite of products will be used to track requirements, manage test cases, automate test scripts, track defects, and provide test result information.

Test scripts will be automated where feasible; i.e., not all test scripts will be automated. Manual test scripts will be documented in the QADirector product of the QACenter suite. Automated test scripts will be reused, where feasible, for the both Regression Testing and for the Performance Testing efforts.

Performance Test Plan

To make sure the BAM System meets the performance standards and capacity requirements as stated in the Technical Requirements, EDS will conduct facilitated sessions with the State of Michigan to develop a Performance Plan that will

include all aspects of the BAM System. Performance testing of the BAM System will be crucial to the success of the BAM Project. EDS has experience in Performance Testing enterprise applications in a Web and a mainframe environment. For example, EDS planned and performed the performance testing for the General Motors Global Quality Tracking System (GQTS), the GM enterprise's quality tracking system used world wide, 24x7, in 5 different languages.

The Performance Test Plan will address volume tests, string/workflow tests, and stress tests. EDS will gather information from the State of Michigan's resources to help determine the best test "stories" and test scenarios to create in order to give an accurate performance test of the BAM System. The State of Michigan will provide input for the Performance Plan with input including test cases, average and peak users, and average size. EDS will select Performance Tests that will touch all interfaces (including to the Unisys' mainframe), include all major business processes, and include batch programs. The State of Michigan will give final approval of the Performance Plan.

Performance testing is the systematic exposure of an application to real world, expected usage conditions in order to predict system behavior and to pinpoint and diagnose errors in an application and its infrastructure before it is deployed. EDS will execute Performance Testing at the same time as the Quality Assurance Test phase and in the User Acceptance Environment. Performance Testing will group tests together to create "stories" that will allow the BAM team to analyze the following three aspects of a system's quality of service:

- Performance (response times, stress tests)
- Scalability (throughput, volume tests)
- Reliability (availability and functional integrity, string/workflow tests).

The performance of the BAM System will be measured by measuring its response time. EDS will set a aseline for response times by performing a Performance Test with a small set of users. EDS will run several tests subsequently, while increasing the number of virtual users with each test. EDS will compare the results of the tests.

The scalability of the BAM System will be measured by its response times while increasing the size of the database. EDS will set a baseline for response times by performing a Performance test with a small set of data in the database. This small set of data will consist of the converted data from the Unisys mainframe and any other data that is to be loaded during implementation. EDS will run several tests subsequently while increasing the size of the database. EDS will compare the results of the tests.

The reliability of the BAM System will be measured by measuring its response times while running the application over a period of time. EDS will set a baseline will be set by performing a Performance Test over a short period of time. EDS will run several tests subsequently while increasing the duration of each test. EDS will comparted the results of the tests.

During the Performance Testing phase most problems are due to poor SQL performance, itself due to lack of indexes or how the SQL code is written. To reduce the number of performance issues that may arise during the Performance Testing phase due to database performance, the EDS team will take steps to minimize this problem during the development of all SQL. All SQL modified or written for the SQL database will have Explain Plans run and reviewed by the BAM data base administrator (DBA). Before any SQL code can be promoted to the next phase of development, the DBA must first approve.

After each group of performance tests, the results of the tests will be analyzed by EDS to determine ways to optimize the BAM System and infrastructure to improve performance. If the BAM System is optimized in any way, the changes will be logged and tested to validate and measure improvements.

The Performance Testing effort will utilize the Compuware Performance tool set, specifically the QACenter – Performance Edition. The testing tool will utilize the test cases developed for the Quality Assurance Test phase. These Quality Assurance Test cases will be grouped together to produce "stories" that will be tested.

EDS will conduct facilitated sessions with the State of Michigan to develop a User Acceptance Test plan that will cover the breadth and depth of all functionality to be delivered in the BAM System. The User Acceptance Test Plan will have developed test criteria, test data, and test case scenarios that cover each requirement given for the BAM System.

Deliverables from Task 5.1

Deliverable	Measure of Success
Quality Assurance Test Plan – due one month prior to the start of Quality Assurance Testing for each phase	<p>The EDS team will provide a Quality Assurance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • Tasks and Responsibilities • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • Quality Assurance Test Case Development Strategy • Defect Tracking and Resolution • Review Requirements • Validate Each Requirement • Quality Assurance Test Data Development • Testing Job Streams

Deliverable	Measure of Success
	<ul style="list-style-type: none"> • Resources • Resources Required for Testing • Human Resources • Hardware/Software Resources • Schedule
Performance Test Plan – due at the start of Quality Assurance Testing for each phase.	<p>The EDS team will provide a Performance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • Tasks and Responsibilities • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • Quality Assurance Test Case Development Strategy • Review Requirements • Validate Each Requirement • Quality Assurance Test Data Development • Testing Job Streams • Resources • Resources Required for Testing • Human Resources <ul style="list-style-type: none"> • Hardware/Software Resources • Schedule
User Acceptance Test (UAT) Plan – due one month prior to the start of UAT for each phase.	<p>The EDS team will provide a User Acceptance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • User Acceptance Test Case Development Strategy • Defect Tracking and Resolution • Review Requirements • Validate Each Requirement • User Acceptance Test Data Development • Testing Job Streams • Resources • Resources Required for Testing • Human Resources • Hardware/Software Resources • Schedule

Task 5.2 – Perform Quality Assurance and Performance Testing

Requirements of Task

The Contractor shall conduct quality assurance testing and performance testing in accordance with the Quality Assurance Test Plan and the Performance Test Plan. The Quality Assurance testing must be performed in the Quality Assurance (QA) Testing environment.

The Contractor shall resolve all defects and perform all other technical support required to successfully complete this testing. The Contractor must ensure that staffing levels are sufficient to address defects without interfering with other development and ongoing production support activities.

During this testing, the Contractor shall analyze and evaluate performance of all components of the system to be delivered, including the technical infrastructure as well as the actual application. The Contractor will be responsible for all technical architecture and application system modifications required to ensure system performance meets stated performance standards, reference attachment -*Technical Requirements*.

The Contractor shall prepare quality Assurance and Performance Test Results Documents. These documents must include enough information to permit the State to validate that the test plans have been successfully executed. These reports must also document any modifications made to the system. Any software or automated testing packages used by the Contractor during this testing, or the documentation thereof, must be provided as part of the test results to be added to the set of project artifacts. The Contractor shall conduct a walk-through of the testing process and the test results to enhance State understanding and to facilitate the approval process, including a review of performance metrics and general “lessons learned” from all testing participants.

The Contractor should partner with the State DIT testing group so that State employees will be well versed in the testing approaches and methodologies used by the Contractor. The Contractor should work to ensure State DIT testing staff are adequately trained in the use of the testing products and, to the extent possible, actively involved in testing the various releases. However, no guarantee can be made to the availability of this staff, and the Contractor shall retain full responsibility for the Quality Assurance Testing and Performance Testing of each release.

Upon completion of the Quality Assurance and Performance tests, the Contractor shall mark project artifacts as final when they are ready for promotion to UAT. The Contractor should provide test results to the State when the testing plans are completed satisfactorily and artifact are marked for promotion, including source code, configuration data, and meta data such as rules used by the rules engine.

At no time will the Contractor prior to the release of any Phase make any emergency changes.

Deliverables from Task 5.2

1. Quality Assurance Test Results Document – due at the completion of Quality Assurance Testing for each release.
2. Performance Test Results Document – due two weeks prior to the end of User Acceptance Testing for each release.
3. “UAT Ready” system – due at completion of Quality Assurance Testing for each release.

Contractor Response:

Task 5.2 – Perform Quality Assurance and Performance Testing

Perform Quality Assurance Testing

EDS will perform the Quality Assurance Testing according to the Quality Assurance Test Plan approved by the State of Michigan. The BAM Quality Assurance Test team will perform the testing and the resolution of defects during the Quality Assurance Test phase. Once all test cases have been completed successfully and all defects have been resolved, the BAM System will be ready for User Acceptance Testing.

EDS will perform the Quality Assurance Testing as described in the Quality Assurance Test plan without affecting production support or other development activities. The Quality Assurance Testing will be performed in the Quality Assurance Test environment but in a separate environment than that of the Production Support Quality Assurance Testing. This environment will have the ability to forward the test clock to test the entire life cycle over many simulated months and years.

The BAM Quality Assurance Testing team will mark any tests that do match the steps or results as described in the test case as a failed test case. The team will create a Defect Log describing the problem and will give any data or steps used to produce the defect. The Defect Log will then be assigned to a Fixer to investigate the defect and fix the defect. When

fixing the defect, the team's Fixer will follow normal development procedures, and he or she will document the fix in the Defect Log as well as in the code that fixes the defect. The Fixer will also enter in the code the Defect Log number and the Configuration Management Promotion Package. The Defect Log will be marked as ready for retest once the promotion package has been built to the Quality Assurance Test Environment, in accordance with the steps given in the Configuration Management plan. A detailed process for defect resolution will be described in the Quality Assurance Test Plan.

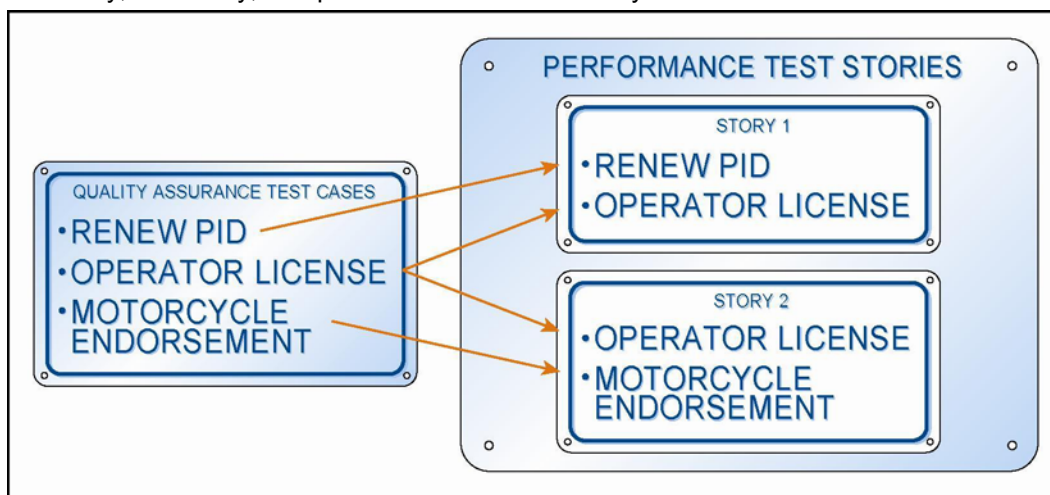
The use of the Compuware QACenter suite of testing tools will allow EDS to perform integration testing continuously to make sure defects are not introduced through changed code. To test that the system is free from defects, Quality Assurance Test cases will be scheduled on regular intervals. The results of the scheduled test runs will be reviewed after each run by the Testing Coordinator. If tests fail, the Coordinator will create a Defect Log and investigate the cause of the failure.

Perform Performance Testing

EDS will perform the testing of optimization of the BAM System during the Performance Testing Phase. BAM Performance Testing will be considered completed when the BAM System meets or exceeds all system performance requirements as described in the Performance Testing Plan.

Performance Testing will be performed as described in the Performance Test Plan. The Performance Testing will be performed in the User Acceptance environment before User Acceptance is executed. To ensure accurate testing and allow for repeatable performances, Performance Testing may only be conducted for one development arm at a time.

Test cases developed during the Quality Assurance Testing will be used to run the performance tests. EDS will use the Compuware QACenter Performance Edition testing tool to conduct Performance Testing. With the QACenter, we will monitor servers and databases along with response times for each transaction performed. The tool also gives EDS the ability to test the reliability, scalability, and performance of the BAM System.



Interplay of Testing Cases and Stories

As illustrated in the *Interplay of Testing Cases and Stories* figure above, test stories will group Quality Assurance Test cases together to provide real world situations for how the application will work; they will give an accurate measure of reliability, scalability and performance of the BAM System. To mimic real world situations, the stories will include the use of think time and different data for each transaction.

Quality Assurance and Performance Test Results Documents

EDS will provide Quality Assurance and Performance Test Result documents. The Quality Assurance Test results will document the results of how the Quality Assurance Testing has met the requirements set in the Quality Assurance Test Plan. The Quality Assurance Test results will include the following: list of Configuration Items changed for each defect, list of defects, and list of completed test cases. The Performance Test Results Document will document each set of performance tests, the changes applied before tests, and the effects of the changes. The Performance Test Results document will also show how the BAM System meets all performance requirements as defined in the Performance Test Plan. To give the State of Michigan an understanding of how the tests were performed and to facilitate the approval process, EDS will perform a walk-through of the testing processes along with the test results.

The following is an example of a list of completed Quality Assurance Test Cases; the list describes each test case and the result of the last run of the test case. This list will help EDS and the State of Michigan validate the results of all test cases and help determine that the BAM System was tested according to the Quality Assurance Test Plan.

Sample Access Project: Tests Summary Table

Test #	Test	Description	Last Result	Priority	Owner	Type	Functionality Tested	Created	Last Modified
1	Login Tests	These tests verify all of the customer authentication functions and the main login page.	N/A	Low	Default User	Test Folder		2/4/2002 10:42:41AM by Default User	2/4/2002 10:46:27AM by Default User
1.1	Verify single user login	Manual test to verify that the main login page is working. Uses login information for previously created test accounts to access application.	Failed	High	Default User	Manual Test		2/4/2002 11:47:41AM by Default User	2/4/2002 9:12:55PM by Default User
1.2	Verify login with different accounts	Uses an automated test script to login with different test accounts to verify that login functionality works correctly.	Running	Low	Default User	s-Tester Script		2/12/2002 6:06:48PM by Default User	2/12/2002 6:07:16PM by Default User
1.3	Verify login after new account created	Manual test to verify that a new user can login after they create a new account online.	Failed	Medium	Default User	Manual Test		2/6/2002 10:29:40AM by Default User	2/6/2002 10:29:54AM by Default User
1.4	Jim's Test	just a test	Not Run	Low	Administrator	Manual Test		6/10/2005 8:47:19AM by Default User	6/10/2005 8:47:19AM by Default User
2	Customer Account Tests	These tests verify the application's ability to provide accurate and timely customer account balance and portfolio information.	N/A	Low	Default User	Test Folder		2/4/2002 10:43:03AM by Default User	2/4/2002 10:53:05AM by Default User
2.1	Verify customer account balance	Manual test to login and verify customer account balance functionality	Failed	Medium	Default User	Manual Test		2/4/2002 9:01:21PM by Default User	2/4/2002 9:01:21PM by Default User
2.2	Verify customer stock portfolio	Manual test to login and verify customer stock portfolio functionality	Passed	Low	Default User	Manual Test		2/4/2002 9:20:36PM by Default User	2/4/2002 9:20:36PM by Default User
2.3	Verify balance and portfolio with multiple accounts	Uses an automated test script to verify the account balance and stock portfolio for each account.	Passed	Medium	Default User	s-Tester Script		2/6/2002 11:01:19AM by Default User	2/12/2002 6:04:03PM by Default User
3	Online Bookstore Tests	These tests verify that customers can search for and purchase financial management books and related items in the online bookstore.	N/A	Low	Default User	Test Folder		2/4/2002 10:44:22AM by Default User	2/4/2002 11:10:55AM by Default User
3.1	Verify shopping cart functionality	Verifies that users can add and remove items from shopping cart	Failed	High	Default User	Manual Test		2/4/2002 9:46:21PM by Default User	2/4/2002 9:46:27PM by Default User
3.2	Buy books online	Verifies the process of purchasing books online. Uses an automated test script to login, select a book, add to cart, then proceed to checkout.	Warning	Low	Default User	s-Tester Script		2/4/2002 10:50:58PM by Default User	2/6/2002 10:50:46AM by Default User
4	Online Stock Trades Tests	These tests verify that customers can buy and sell stocks online and ensures timely and accurate processing of any stock transactions placed through the online brokerage application.	N/A	Low	Default User	Test Folder		2/4/2002 10:44:50AM by Default User	2/4/2002 11:24:14AM by Default User
4.1	Buy and Sell Stock	Uses an automated test script to login and purchase stock, verify portfolio is updated, then sell stock and verify	Passed	Low	Default User	s-Tester Script		2/4/2002 10:24:54PM by Default User	2/6/2002 11:03:31AM by Default User

The following is an example of a list of defects found in Quality Assurance Testing and the status of the each test case. This report will help the EDS and State of Michigan team track the progress being made during Quality Assurance Test phase.

Sample Access Project: Issues Summary Table

Issue	Description	Assigned To	Status	Priority	Severity	Created	Last Modified
10: Login failed after new account was cn		Administrator User	2 - Open	High	Medium	2/6/2002 9:20:03AM By Default User	2/7/2002 12:08:56PM By Default User
11: Login access allowed with invalid pas:	Used automated test script to attempt logins with valid and invalid username/password combinations. With any valid username, application allows you to login even if your password is missing or incorrect. Verified with manual testing in a browser - looks like only the username is being verified but not the password.	Default User	1 - Reproduced	High	High	2/6/2002 9:25:23AM By Default User	2/6/2002 9:25:23AM By Default User
13: Test accounts not setup on latest bulk		Default User	5 - Fixed	Medium	Low	2/6/2002 9:29:52AM By Default User	2/6/2002 9:29:43AM By Default User
14: Error message on ticker search when	When performing a stock search by ticker symbol, if you enter a ticker value that returns no matches a database error is returned in place of the search results. Should actually return message "0 matches found." if no matching ticker symbols are found on a search.	Default User	2 - Open	Medium	High	2/6/2002 9:32:33AM By Default User	2/6/2002 9:32:33AM By Default User
15: Display issues when too many search	When a stock search by ticker or company returns too many search results, the search results table extends too far down the page and is difficult to read. These should be broken up to show 20 matches per page (ie. show search results return first 20 matches, then click to see next 20, etc. - similar to how major search engines display results).	Default User	4 - Rejected	Low	Low	2/6/2002 9:46:21AM By Default User	2/6/2002 9:46:21AM By Default User
16: Securities market value on account st		Default User	4 - Rejected	High	Medium	2/6/2002 9:53:40AM By Default User	2/6/2002 9:53:59AM By Default User
17: Average price displayed in customer p	In the customer Portfolio page, the average price displayed for each security is always the same as the last price. Average prices should be the average daily price from when the stock was purchased.	Default User	1 - Created	Medium	Medium	2/6/2002 10:01:52AM By Default User	2/6/2002 10:01:52AM By Default User
18: Chart portfolio feature does not work	The "chart your portfolio" feature uses an embedded MS Office control to display and graph your stock holdings. On Windows 98 machines the embedded control does not display. This works on Windows 98, NT and 2000.	Default User	1 - Created	Low	Low	2/6/2002 10:05:00AM By Default User	2/6/2002 10:05:00AM By Default User
19: Spelling errors on products page		Default User	5 - Fixed	Low	Low	2/6/2002 10:08:41AM By Default User	2/6/2002 10:09:31AM By Default User
20: Items being dropped from shopping c		Default User	1 - Created	High	Medium	2/6/2002 10:11:56AM By Default User	2/6/2002 10:16:30AM By Default User
21: Subtotals are incorrect on checkout p	When attempting to purchase items in quantities greater than 1, the calculated subtotal for that item is incorrect. Always shows the subtotal as the price for a single item even though I have entered a quantity greater than 1.	Default User	1 - Created	High	High	2/6/2002 10:15:53AM By Default User	2/6/2002 10:15:53AM By Default User

The table below is an example of a report made after a Performance Test, which will provide statistics needed for EDS and the State of Michigan team to determine where improvements need to be made within the BAM System or infrastructure.

Session Performance Report for LoadTest100_Build_1

Start Time:

7/10/2001 2:07:36 PM

End Time:

7/10/2001 2:13:37 PM

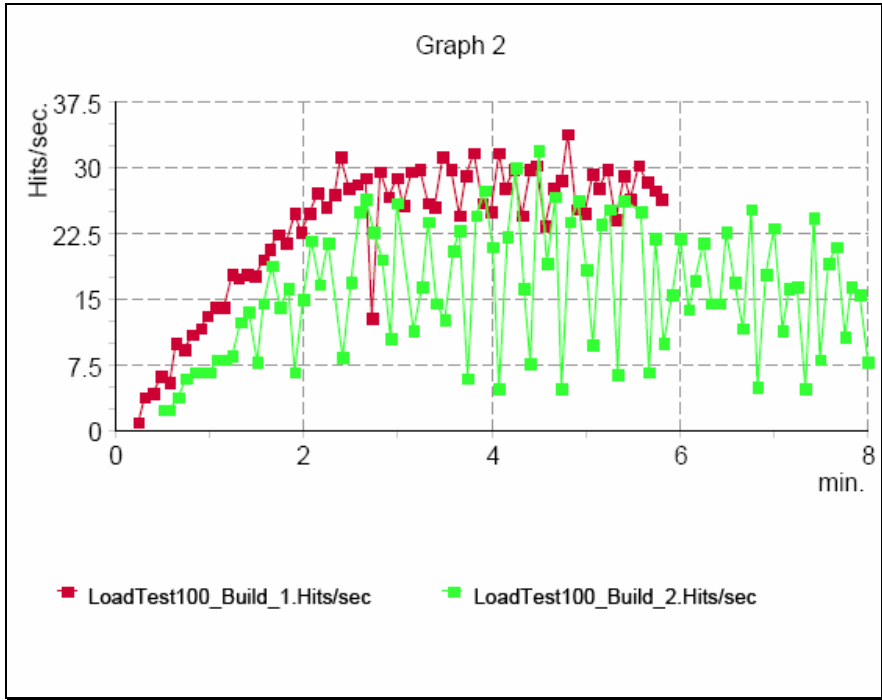
Duration:

00:06:01 (361 sec)

Name	Value	Min.	Max.	Avg.
LoadTest100_Build_1 Current				
Active Virtual Users	100	2	100	
Virtual Users With Errors	0	0	0	
Transactions Per Second	1.682	0.240	6.287	4.861
Pages Per Second	26.400	1.000	34.000	23.188
Hits Per Second	26.400	1.000	34.000	23.188
Kilobytes Per Second	120.574	3.181	145.162	105.212
LoadTest100_Build_1 Totals				
Transactions	1,628			
Transactions with Errors	0			
Pages	7,884.000			
Hits	7,884.000			
Kilobytes	35,772.149			

Test Report

The figure below is an example of a graph that comparing two separate performance tests. This type of graph will allow the EDS and State of Michigan team to compare performance tests after changes have been applied to optimize the BAM System.



Two Test Comparison

Training on Testing Methodologies and Products

EDS will work alongside the State of Michigan Department of Information Technology (DIT) testing group to complete the Quality Assurance and Performance Testing phase, which will help provide a smooth transition of the testing duties to the State of Michigan. EDS will hold small training sessions with up to ten State of Michigan resources to explain the testing methodologies used and how to use all testing tools. In these sessions, EDS will assign DIT resources tasks that will cover all aspects of the testing phase so they get hands-on experience with the Compuware QACenter suite of test tools and testing methodologies used by EDS. EDS mentors will assist each DIT staff person in completing her or his assignments. During the Performance Testing phase, EDS, State of Michigan DIT testing group, and State of Michigan Infrastructure group will work together to make decisions to optimize the BAM System and infrastructure. EDS will maintain the responsibility for the delivery of both the Quality Assurance and Performance Testing phases.

Test Results

EDS will provide a list of Configuration Items that are marked as ready for promotion to the User Acceptance Environment. At the completion of Quality Assurance and Performance Testing, all items defined as Configuration Items in the Configuration Management plan will be marked as ready for User Acceptance Testing. A list of the Configuration Items along with the revision number of the Configuration Items will be generated by the testing team. Once the User Acceptance environment is built and is ready for testing, only those items identified as defects in the User Acceptance environment may be changed. Moreover, those items will follow the normal development and promotion procedures before the test case that failed may be tested again. Prior to the release of a Phase will EDS will not make emergency changes.

Deliverables from Task 5.2

Deliverable	Measure of Success
Quality Assurance Test Results Document – due at the completion of Quality Assurance Testing for each release.	The Quality Assurance Test Results document will be delivered after the successful completion of the Quality Assurance Testing Phase. This document will include the information necessary to show the successful completion of the Quality Assurance Testing according to the Quality Assurance Test Plan developed by EDS and approved by the State of Michigan.
Performance Test Results Document – due two weeks prior to the end of User Acceptance Testing for each release.	The Performance Test Results document will be delivered after the successful completion of the Performance Testing Phase. This document will include the information necessary to show the successful completion of the Performance testing according to the Performance Test Plan developed by EDS and approved by

	the State of Michigan.
UAT Ready system – due at completion of Quality Assurance Testing for each release.	A UAT ready system will be given for a release of the BAM System after the State of Michigan signs off on the Quality Assurance and Performance Test Results Documents.

Task 5.3 – Conduct User Acceptance Testing (UAT)

Requirements of Task

The Contractor shall schedule, coordinate, monitor, and manage all User Acceptance Testing (UAT) activities. The State is responsible for providing end users and subject matter experts to perform the user acceptance testing. Users participating in User Acceptance Testing are expected to sign off on the test results at completion of UAT, providing their recommendation to the Program Manager for formal approval and readiness for production.

The Contractor shall provide support for the duration of UAT. This support must include both business and technical assistance. The support should be “dedicated” (i.e., individuals assigned to nothing else) throughout UAT of the given phase of the project. The testing process will include the ability to advance the testing clock to provide for a complete test of the lifecycle of cases over many simulated months or years.

The Contractor shall support the UAT by monitoring system performance, investigating why data was not processed, monitoring computer resource usage, participating in problem review meetings, creating and running batch schedules, investigating problems and identifying potential problems, informally training users by answering questions about the system, investigating and ensuring user access to the system in the UAT environment, and generally helping the users execute tests and review results.

The Contractor shall also correct all defects discovered during UAT in a timely manner by following normal application development procedures – modifying the appropriate configuration items in the Development environment, unit and integration testing the change, promoting the configuration item to the Testing environment, quality assurance testing the change, and promoting the change to the UAT environment.

User Acceptance Testing will occur for each scheduled Phase of the system. The Phase will be promoted to production only after formal State approval is given.

Deliverables from Task 5.3

1. Production ready system – due at completion of User Acceptance Test for each phase.

Contractor Response:

Task 5.3 – Conduct User Acceptance Testing (UAT)

EDS will coordinate, monitor and schedule all User Acceptance Testing activities according to the User Acceptance Test plan. EDS will maintain a repository of test cases and of test cases’ Defect Logs. EDS will provide resources to investigate all User Acceptance issues including business and technical assistance. EDS will also provide resources to run batch programs. All resources provided by EDS during the User Acceptance testing will be dedicated exclusively to successful completion of the phase.

During the User Acceptance Testing Phase, the User Acceptance Testing environment will be implemented as if it were a production system. This will give the users testing the system the ability to test in exactly the context that the production system will provide. Batch Jobs also will be scheduled the same as they would in production, to give the users a real experience when using the system. The User Acceptance environment will be flexible enough to handle all User Acceptance test cases. The User Acceptance environment will have the ability to restore data to its original form, that is, at the beginning of the testing phase.

During the User Acceptance Testing Activity, EDS will provide resources to monitor all aspects of the infrastructure and BAM System performance. With these resources, all testers will have the correct access to perform all test cases.

The Figure labeled *Defect Monitoring* is an example of the report used to monitor the status of defects for User Acceptance Testing.

Figure 4.4.5-4, Defect Monitoring

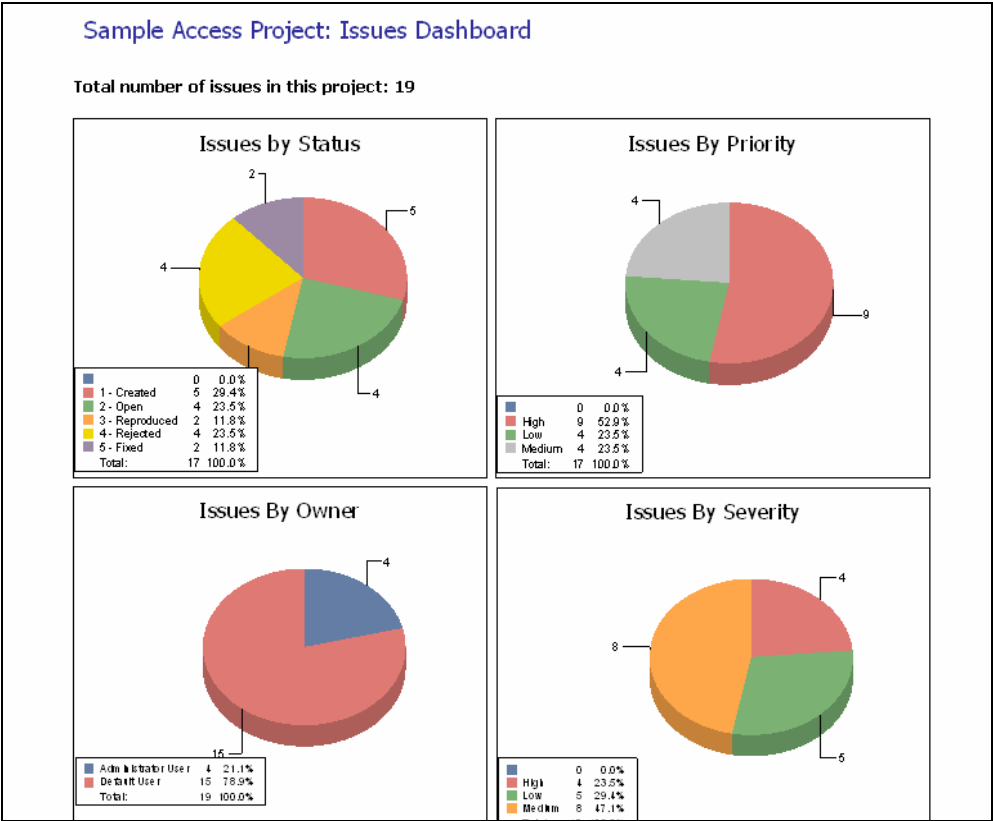
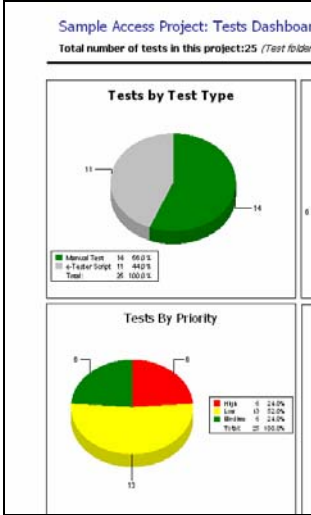


Figure *Test Status Report* is an example report that will be used to monitor the status of test cases. With this report, EDS and the State of Michigan can determine the overall progress of the User Acceptance testing phase.



Test Status Report

Correct Defects

Using normal development and promotion procedures, EDS will correct all defects discovered in the User Acceptance Testing. Changes to the BAM System during User Acceptance Testing will move through the Development and Quality Assurance environments. Once the defect has been tested successfully in Quality Assurance Testing, it will then be promoted to the User Acceptance Environment. Regression testing will also take place in the Quality Assurance and Development Environments to ensure that defects have not been introduced with the change in code. The report illustrated below in the figure labeled *Defect Status Report* will help EDS and the State of Michigan review and assign status on defects that have been recorded during User Acceptance testing.

Sample Access Project: Issues Summary Table

Issue	Description	Assigned To	Status	Priority	Severity	Created	Last Modified
10: Login failed after new account was created		Administrator User	2 - Open	High	Medium	2/6/2002 9:20:03AM By Default User	2/7/2002 12:06:56PM By Default User
11: Login access allowed with invalid password	Used automated test script to attempt logins with valid and invalid username/password combinations. With any valid username, application allows you to login even if your password is missing or incorrect. Verified with manual testing in a browser - looks like only the username is being verified but not the password.	Default User	1 - Reproduced	High	High	2/6/2002 9:25:23AM By Default User	2/6/2002 9:25:23AM By Default User
13: Test accounts not setup on latest build		Default User	5 - Fixed	Medium	Low	2/6/2002 9:28:52AM By Default User	2/6/2002 9:29:48AM By Default User
14: Error message on ticker search when	When performing a stock search by ticker symbol, if you enter a ticker value that returns no matches a database error is returned in place of the search results. Should actually return message "0 matches found." if no matching ticker symbols are found on a search.	Default User	2 - Open	Medium	High	2/6/2002 9:32:33AM By Default User	2/6/2002 9:32:33AM By Default User
15: Display issues when too many search results	When a stock search by ticker or company returns too many search results, the search results table extends too far down the page and is difficult to read. These should be broken up to show 20 matches per page (ie. show search results return first 20 matches, then click to see next 20, etc. - similar to how major search engines display results).	Default User	4 - Rejected	Low	Low	2/6/2002 9:46:21AM By Default User	2/6/2002 9:46:21AM By Default User
16: Securities market value on account statement		Default User	4 - Rejected	High	Medium	2/6/2002 9:53:48AM By Default User	2/6/2002 9:53:59AM By Default User
17: Average price displayed in customer portfolio	In the customer Portfolio page, the average price displayed for each security is always the same as the last price. Average prices should be the average daily price from when the stock was purchased.	Default User	1 - Created	Medium	Medium	2/6/2002 10:01:52AM By Default User	2/6/2002 10:01:52AM By Default User
18: Chart portfolio feature does not work	The "chart your portfolio" feature uses an embedded MS Office control to display and graph your stock holdings. On Windows 98 machines the embedded control does not display. This works on Windows 95, NT and 2000.	Default User	1 - Created	Low	Low	2/6/2002 10:05:00AM By Default User	2/6/2002 10:05:00AM By Default User
19: Spelling errors on products page		Default User	5 - Fixed	Low	Low	2/6/2002 10:08:41AM By Default User	2/6/2002 10:09:31AM By Default User
20: Items being dropped from shopping cart		Default User	1 - Created	High	Medium	2/6/2002 10:11:56AM	2/6/2002 10:16:30AM

Defect Status Report

Deliverables from Task 5.3

Deliverable	Measure of Success
Production ready system – due at completion of User Acceptance Test for each phase.	The BAM System will be production ready after the State of Michigan signs off that the User Acceptance Testing has been completed successfully as defined in the User Acceptance Testing Plan.

Task 5.4 – Perform Software Implementation

Requirements of Task

Prior to each phase, the Contractor is responsible for providing a Promotion and Software Implementation Plan to the State. With the States assistance, the Contractor shall test and verify this plan. The Contractor shall support the State in promoting the software release to each environment, including production, and will assist in the resolution of problems, issues, and errors as they arise.

The Contractor shall identify all software artifact dependencies, the build order for software artifacts, and the identification and execution (run) order for batch jobs in the Promotion and Software Implementation Plan. This information will be used for the promotion and software implementation process. The Contractor is responsible for writing the building scripts with the assistance from the State. The State will verify the build is correct, promote phases to QA Testing, UAT and Production. The State will execute and approve the software implementation plan.

Deliverables from Task 5.4

1. Promotion and Software Implementation Plan – due one month prior to the release build for Quality Assurance Testing for each phase.

Contractor Response:

Task 5.4 – Perform Software Implementation

Promotion and Software Implementation Plan

EDS will provide a Promotion and Software Implementation Plan that will contain detailed step by step instructions on how to promote the BAM System to each environment: Quality Assurance, User Acceptance, and Production. The Promotion and Software Implementation Plan will include estimated durations and start times for each task. The Promotion and Software Implementation plan will order the tasks as the system should be implemented, including the order of scripts and batch jobs. The instructions for each task will be written so the BAM System can be implemented by the State of Michigan. The Promotion and Software Implementation Plan will be tested during the promotion of code to Quality Assurance and User Acceptance Testing

The EDS Implementation Coordinator will work with the State of Michigan to develop the best way to implement the BAM System. Automated scripts will be written where possible to make the installation of the BAM System easier and to reduce the possibility of human error. During each implementation of an environment, EDS will provide resources to assist the State of Michigan with the implementation as well as resources to fix problems that may arise.

After each implementation EDS will provide release notes for the BAM System that list all artifacts that have been implemented. The release notes also will contain a baseline of configuration items that are included in the release of the BAM System.

Figure labeled, *Implementation Plan Tasks*, shows an example of tasking that may be used for the Promotion and Implementation Plan.

System Name:

BAM Release 1.0

IDs

C

Construction

QA

Quality Assurance

FT

User Acceptance Testing

PT

Performance Testing

IM

Implementation

	ID	Task Description	Responsible Person	Start Date/Time	End Date/Time	Completed	Duration	Notes
1.	C	Run Analyze on all tables.	Resource 1	07/15/2003	09/15/2003	X	2:00	
2.	C	Run Explain Plan on all SQL.	Resource 2	07/16/2003	09/08/2003	X	3:00	
3.	FT	Verify that all Construction CT's have been promoted	Resource 3	09/15/2003	09/15/2003		1:00	
4.	IM	Setup the WebSphere Application Server. See WebSphere_Appl_Server_Setup.doc	Resource 2	08/30/2003	08/31/2003		12:00	
5.	IM	Run build scripts for application	Resource 2	09/01/2003	09/01/2003		5:00	
6.	IM	Setup the IBM IHS web server. See Apache_Setup.doc.	Resource 2	09/02/2003	09/02/2003		3:00	

Implementation Plan Tasks

Deliverables from Task 5.4

Deliverable	Measure of Success
Promotion and Software Implementation Plan – due one month prior to the release build for Quality Assurance Testing for each phase.	The EDS Team will provide a Promotion and Software Implementation Plan before the promotion and implementation of the BAM System into the Quality Assurance environment. The State of Michigan will perform the steps in the plan and EDS will make modifications to the plan where necessary to improve quality and accuracy.

Task 5.5 – Manage Testing Activities / Staff

Requirements of Task

The Contractor shall provide a full-time person, Testing Coordinator, to lead the Testing Team. This person will be identified as "Key Personnel" (reference 2.506, Staff), for the duration of each phase. This person will be the primary point of contact for the State for all quality assurance and user acceptance testing activities.

The Testing Coordinator will be responsible for the coordination, execution and completion of testing activities, as well as resource assignments and monitoring of team progress. The Testing Coordinator will be responsible for training and transferring knowledge to the State staff. The State will provide resources to assist with testing and it will be the Contractor's responsibility to ensure the State knows processes and testing tools provided by the Contractor. The Testing Coordinator shall provide weekly status reports to the Contractor Project Manager for inclusion in the consolidated weekly status report. The Contractor Project Manager will also update the overall project plan based on updates from the Testing Coordinator.

Within six months of contract start, the Contractor shall provide a Testing Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to the attachment *Contractor Staffing Plan Example*.

Deliverables from Task 5.5

1. Testing Team Staffing Plan – due six months after contract start, with updates as required thereafter.
2. Status Reports – due to the State in a timely manner in order to meet weekly status report timeframes. Testing team status reports shall include:
 - a) Major tasks accomplished
 - b) Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task,
 - c) Clear identification of areas at risk of not meeting schedule
 - d) Additional issues affecting productivity or efficiency
 - e) Any other issues the Testing Manager feels should be communicated

Contractor Response:

Task 5.5 – Manage Testing and Software Implementation Activities / Staff

EDS has organized the staffing team to focus on the testing effort because EDS does recognize the importance of testing effort in the successful implementation of the BAM System. The testing team will be an independent group that will focus solely on testing the BAM System. This single focus will allow the testing team to make sure all requirements have been thoroughly tested and the system behaves as designed. Table 4.4.5-1 shows the Testing Team staffing by phase by man-month.

Activity Five: Testing Team Staffing Plan (man months)

Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	Totals
Testing and Software Implementation					
Development Manager	7.50	5.50	4.00	5.75	22.75
Testing Coordinator	20.00	14.50	8.50	10.25	53.25
Implementation/Production Support Coordinator	17.50	7.50	4.00	5.25	34.25
Development DBA	7.50	5.50	4.00	4.50	21.50
Configuration Manager	15.00	8.75	1.75	2.25	27.75
Data Access SME	7.50	5.50	4.00	3.75	20.75
Business Object SME	7.50	5.50	4.00	3.75	20.75
Model View Controller SME	7.50	5.50	4.00	3.75	20.75
Model Support SME	7.50	6.00	4.00	3.75	21.25
Core Sr Analyst / Developer	22.50	16.50	14.00	15.50	68.50
Core Jr Analyst / Developer	30.50	33.00	30.50	31.50	125.50
	0.00	0.00	0.00	0.00	0.00
Legacy Interface Coordinator	3.75	0.00	0.00	0.00	3.75
Interfaces Sr Analyst / Developer	15.00	0.00	0.00	0.00	15.00

Interfaces Jr Analyst / Developer	23.00	0.00	0.00	0.00	23.00
(BOS) Interfaces Jr Analyst / Developer	7.50	0.00	0.00	0.00	7.50
	0.00	0.00	0.00	0.00	0.00
Legacy Enhancements Coordinator	3.75	5.50	0.00	0.00	9.25
(BOS) Enhancements Sr Analyst / Developer	0.00	0.00	0.00	0.00	0.00
(BOS) Enhancements Jr Analyst / Developer	0.00	0.00	0.00	0.00	0.00
(Augment) Enhancements Jr Analyst / Developer	11.50	20.00	0.00	0.00	31.50
Total man-months by Phase for Activity Five	215.00	139.25	82.75	90.00	527.00

The Testing Coordinator will coordinate all testing activities, including Quality Assurance, User Acceptance, Performance, and Statewide User Acceptance testing. The testing team will also consist of testers who will focus directly on creating and running test cases. Part of the development team will become part of the testing team to help fix any defects found in the testing phases. The testing team will include technical as well as business experts to make sure all questions that may arise during testing will be answered.



Appendix F

Activity 6– Implementation Support

Task 6.1 – Prepare and Perform Technical Training

Requirements of Task

The contractor requirements for this section are broken down into the following high-level areas:

1. Identification of Requisite Skills
2. Plan for Technical Training
3. Provide Technical Training

The Contractor shall identify experience and training requirements for State DIT staff prior to participating in BAM project activities. The experience and training requirements, or requisite skills, for participation on the technical planning and support team, application development team, and ongoing production support team must be identified. Requisite skills for other areas for State participation proposed by the Contractor should also be identified. Based on the Requisite Skills document a comprehensive training plan will be provided to the State.

The Contractor will then provide all the recommend technical training for DIT staff as outlined in the Training Plan. It is expected that all technical training will be hands-on classroom training.

Deliverables from Task 6.1

1. Requisite Skills document – due one month after contract start
2. Technical Training Plan – due two months after contract start
3. Technical Training – based on the Technical Training Plan

Contractor Response:

Task 6.1 – Prepare and Perform Technical Training

EDS will provide the State with all of the tools and training to successfully use and support the new BAM system. With that in mind, EDS will carefully select PTD as the partner to perform all of the training functions. EDS and PTD have partnered with projects for the State of Michigan for more than 10 years. Over the past 25 years, PTD's reputation as a developer and provider of IT training has been well established. PTD has become synonymous over the years with high quality and straightforward IT educational services. Their training services comprise three main areas:

1. Instructor-led classroom training, which has become PTD's hallmark, in which commercial businesses, individuals, and government agencies sign up for a range of nearly 100 different courses of study on the most current IT applications
2. Contracted training services provided to commercial businesses and government, on proprietary applications, or as a part of the applications they develop
3. PTD's unique approach to Computer Based Training combining interactive training with software emulation and video assistance.

To prepare Michigan Department of State staff (DOS) for the transition to supporting the BAM system, PTD Technology will make sure the DIT staff has the necessary qualifications and experience to maintain the BAM System following its implementation. This will be accomplished beginning with a skills assessment survey of the DIT staff. Sample screens from the Skills Assessment System are provided below in Figures.6-1 and -2. The survey will enable EDS to identify the skills and levels they possess and which skills need to be learned to maintain the BAM processes. Working closely with the technical development team, EDS determines the level of skills needed to participate in the planning and development process and the skills needed to be on the support team. EDS also will identify and assess requisite skill sets for other areas of DIT participation (see Figure 6-3). PTD Technology will then perform a Skills Gap Analysis and consolidate assessment data into a single Requisite Skills document.

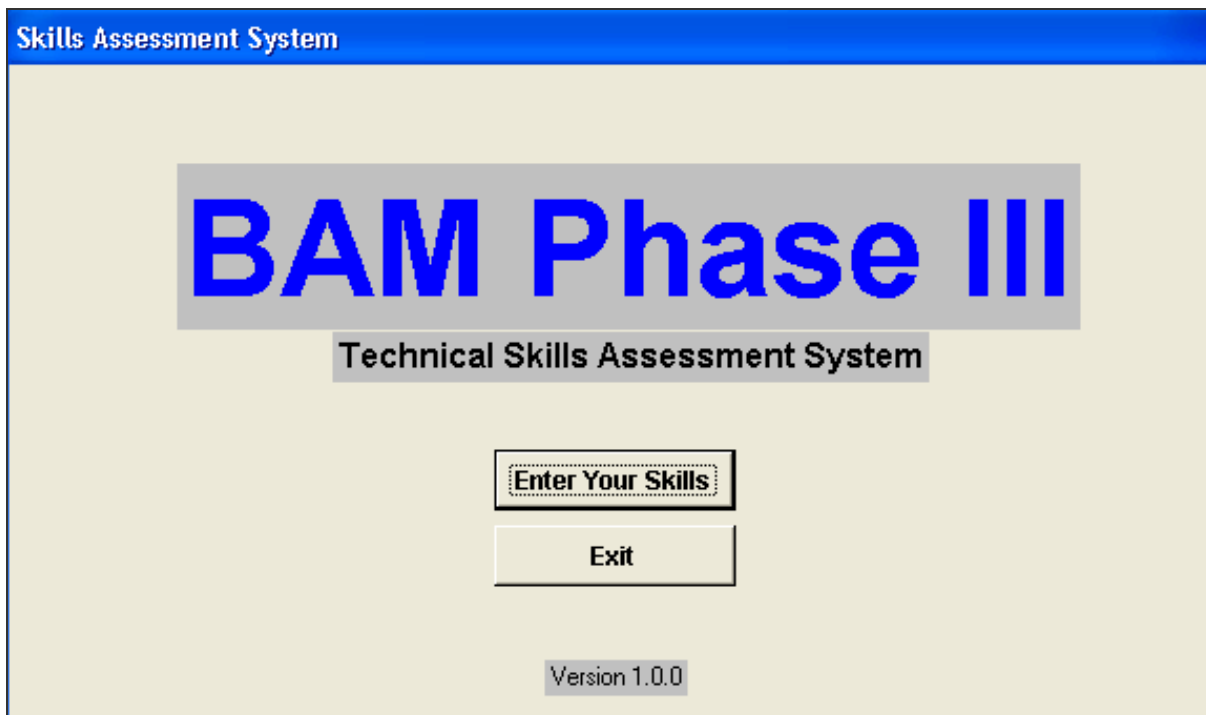


Figure 6.1 First Training Step: Assessment

Skills Assessment

Please select an Application Type from the list

You ...

Personal ID: 123456789 Phone Number: (517) 333-6363

Agency: Michigan Department of Information Technology Most Used: Database

Unit: Data Center Services Computer Platform: Windows Based S

Job title: Database Administrator

Your Skills ...

Application Type: Database

Application Name: SQL Server Backup and Recovery **Record Your Skills**

Application Type	Application Name

OK

Figure.6-2, Sample Data from Assessment

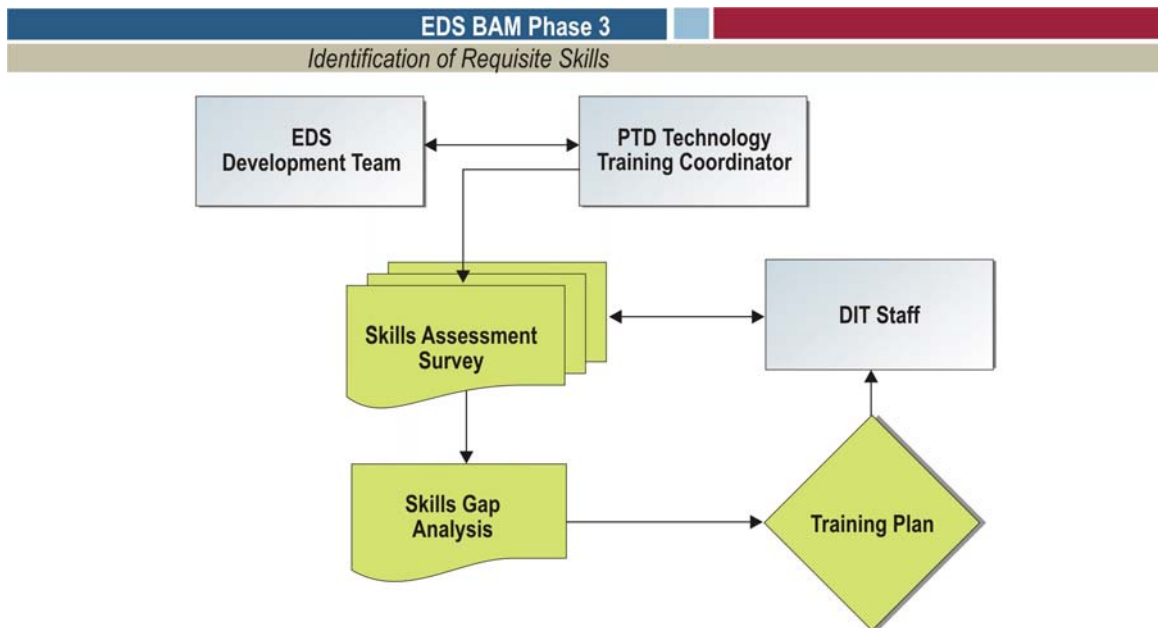


Figure.6-3, Pre-Training Analyses Process

Once the Skills Assessment Survey is run and the Skills Gap Analysis is concluded, a Technical Training Plan will be developed to focus upon those areas of individualized training the DIT staff must attain to participate in the planning, development, and proper maintenance of the BAM System. PTD Technology will obtain approval from the Michigan DOS and Department of Information Technology (DIT) for the training plan. The training plan will address each of the following components:

- **Logistics:** Details for training technical staff tailored to the training method most appropriately suited to each user (targeted training audience)
- **Schedule:** Training time line for executing technical staff training prior to the implementation date for each BAM Phase (Phases 3A, 3B, 3C, and 3D)
- **Materials:** Outline of all training materials required for each class, identified by training delivery method and tailored for the students (i.e., technical staff)
- **Courseware:** Training content that will ensure technical staff receive a sufficient quantity of training to adequately prepare them to perform their job within the BAM System environment -- including training on how to effectively maintain Online User Aids

All technical training delivered to the four to six DIT staff referenced in Task 8.2 of the ITB will be accomplished through hands-on classroom instruction with options for other training venues. It is expected that training will be required in six courses, mostly relating to .Net technologies. When training is complete, not only will the DIT staff be prepared to participate in and maintain the BAM System, but also they will have increased their technical skills dramatically. Their improved skills can of course be used in other areas of need in the future.

Deliverables from Task 6.1

Deliverable
PTD will produce and deliver a Requisite Skills document for DOS and DIT review one month after the BAM Phase 3 contract start date
PTD will produce and deliver a Technical Training Plan for DOS and DIT review two months after the BAM Phase 3 contract start date
PTD will produce and deliver technical training consistent with the training needs identified in the Skills Gap Analysis, reported via the Requisite Skill document and outlined in the Technical Training Plan along with training materials

Task 6.2 – Develop Online User Aids

Requirements of Task

The Contractor will develop Online User Aids. The Online User Aids should include screen and field help, an Online User Interface Guide, and an industry standard Electronic Performance Support System or

EPSS, all functioning as an integral part of the BAM system. The Online User Interface Guide and EPSS should be delivered in electronic format only, but be printable by the end user if desired. The Contractor will design and develop the Online User Interface Guide and EPSS to include:

- 1) Features most used in BAM
- 2) Features hardest to understand
- 3) Problems most significant to the end user
- 4) Features that cause the most calls to a help desk
- 5) Features that would potentially result in less training required, supplementing the training already received

The EPSS shall address the usage of the system from a business process (workflow) perspective, describing how to accomplish business processes associated with the new system. It should be easy to use by enabling users to quickly locate the particular help they need with options such as “how do I?” and step by step procedures. The Online User Interface Guide shall link to the procedures and policy manuals.

The Online User Interface Guide and EPSS must be available in conjunction with User Acceptance Test (UAT) tasks to allow for testing of the user instructions in parallel to the software.

The State is interested in this feature and will be asking for separate pricing as well as the Contractor's assumptions for ongoing upkeep and maintenance, this shall include both technical and business staffing requirements for maintenance.

Deliverables from Task 6.2

1. Online User Aids – due at completion of Quality Assurance Testing for each scheduled phase.

Contractor Response:

Task 6.2 – Develop Online User Aids

Understanding the initial intimidation that comes with learning a new system, PTD Technology will develop and produce an online help system consisting of two general parts. These two parts possibly could be integrated into a single unit to function as an integral part of the BAM system. The first part would consist of an Online User Interface Guide, which would include links to explanations and help for:

1. Features most commonly used in BAM
2. Features hardest to understand
3. Problems found to be the most significant to the user
4. Problems that result in the most common calls to the Client Service Center
5. Features that would potentially result in less required training, thus supplementing the training already received.

Along with the Online User Interface Guide would be the development of an EPSS (Electronic Performance Support System). The EPSS would consist of online help that is business feature driven. Difficult processes containing information or steps, which the user is likely to forget, can be worked up into mini-training sessions to deliver quick and precise help. It will be like having an instructor with each user throughout the day's processes. The end product would be easy to navigate and offer a variety of media to obtain the help and training a user needs at any given time. Some of the benefits to this system are:

1. Significantly reduces training time and cost, because employees have tools to teach them the information they need at the time they need it, which is the most effective time to train people (rather than at a convenient time for the trainer, a time when people do not have an immediate need for the information)
2. Increases employees' self-sufficiency and empowerment, because the information they need to do their jobs is easily accessible from their workstation (within the application) and can be tailored to their needs
3. Helps train difficult-to-reach workers (such as workers in outer regions)
4. Decreases paper documentation, such as user manuals, evaluations, and tests, as this information will be readily accessible online
5. Additionally, the EPSS can be used to help communicate information that will increase organizational productivity (e.g., lessons learned, helpful hints, shortcuts)
6. Reduces the number of calls to the Department of State Information Center (DSIC)

The EPSS will be business process-driven to make help easy to find and to walk the user through the workflow surrounding the area he or she is researching. Sections such as “How Do I” and categories such as “Driver License Renewals” will enable the staff to quickly locate the help they need. Again, they could simply follow basic instructions and guides or could have the choice to be walked through a short training to clarify the details and the reasoning behind what

they are to do.

These Online Aids will be developed in conjunction with the EDS Technical Development Team. Both the Online User Guide and the EPSS will be available to be tested with the BAM application. Coordination of design and development will permit users to test instructions in parallel with software testing.

Finally, PTD will integrate the following common components into the EPSS design and development:

- **Getting Started** – Contains all information relevant to processes and tasks that need to be performed; includes tasks such as logging on and off, resetting a password, and selecting responsibilities
- **What's New** – Provides a listing of HELP topics (see Figure 6-4) that have been added or significantly changed since the last application release, including topics that correspond to application changes
- **Process Information** – Describes the business processes, their work flow functions and tasks, and the *how-to* related to the business processes
- **Help Cards** – Provides detailed application reference information, alphabetized by feature, and providing step-by-step instructions for completing system tasks within the BAM System
- **Quick Links** – Provides *Information About* and links between other applications relevant to the BAM System
- **Site Help** – Provides an explanation of the EPSS Online Help System, why it is there, and how to use it.

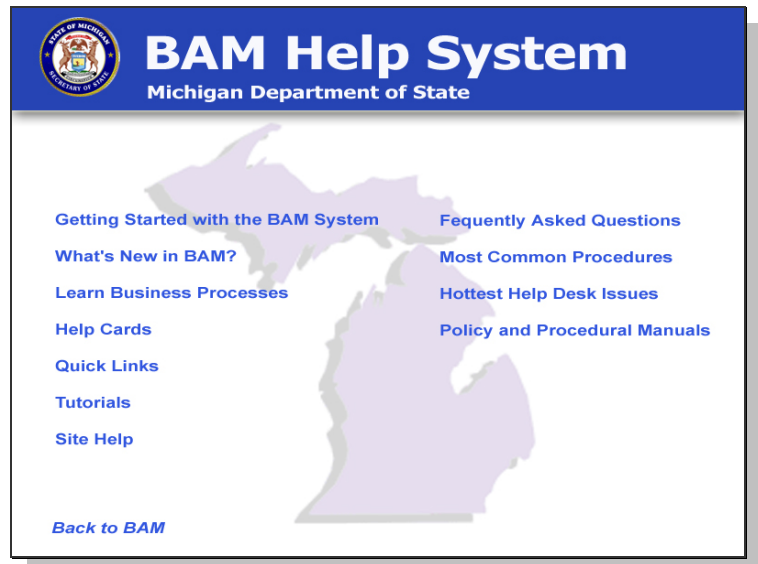


Figure 6-4, Help System Contents

Deliverables from Task 6.2

PTD Technology will deliver Online User Aids, to include an Online User Interface Guide and an Electronic Performance Support System (EPSS) which will remain available long after the project is completed. Both the Online User Interface Guide and the EPSS will directly provide users with clear and concise policy and procedural information addressing:

- Those features most frequently used in BAM
- Those features most difficult for users to understand
- Solution options for the most significant problems encountered by users
- Those features that cause the greatest number of calls to the Client Service Center
- Those features that could decrease the amount of future training necessary by supplementing/ building upon training that has already been delivered
- Links directly to relevant policy and procedure manuals
- Enhancement of new employee training

It is expected that the policies and procedures that are to be included in the EPSS will be provided by the State in Word or HTML format.

Task 6.3 – Prepare and Perform Business Training

Requirements of Task

The contractor requirements for this section are broken down into the following high-level areas:

1. Training Plan
2. Develop Training Materials
3. Develop and Maintain Training Data
4. Provide Classroom Training
5. Provide Post-Classroom Practice Exercises

1. Training Plan: The Contractor shall provide a Business Training Plan six months prior to the end of each phase for business training, and shall include a comprehensive approach to conducting training. Acceptable methods include the following, or some combination of the following:

- a. Facilitated classroom training
- b. Practical, hands-on exercises
- c. Web-based/webcast training
- d. Help references
- e. Early application releases to branch offices

The Contractor is free to propose appropriate techniques that will ensure end users are properly trained in the new system including the workflow and the application as it pertains to the business perspective. Regardless of the training approach proposed, the State will work with the contractor to ensure all branch and internal staff members are trained at appropriate times.

The items listed below are required components, but the Contractor should tailor each of these components. The State will evaluate and approve the Training Plan.

2. Develop Training Materials: The Contractor shall be responsible for creating an Instructor's Manual and a Student Manual to be used for training purposes. The State will approve all training materials prior to their use. Contractors should ensure time in the project plan for the approval of training materials. The State is primarily interested in the Instructor's and Student Manuals for end users. End users includes all DOS staff that will utilize BAM, as well as outside entities, such as Third Party Testers, Driver Education Programs, etc. The Contractor shall provide both an electronic version of all end user training material. The State will produce hard copies of training materials.

Both manuals should include curriculum by functionality, with sufficient examples and exercises to accomplish the stated training objective of assuring that end users gain the skills necessary to perform their job functions in the new BAM framework.

The Contractor's training plan and approach for business shall include training on how to effectively utilize the Online User Aids described above.

Additional training materials may also include Web Based Tutorials (WBT), videos and virtual classrooms. An introduction to these items should be provided during the classroom training, with the intent that these materials supplement the training received by students upon their return to their work location.

All training materials shall be delivered to, and become the property of, the Customer Service Administration, Procedures Sections upon completion of the final rollout for Phase 3A and 3B, Department Services Administration, Financial Services Division for Phase 3C, and split between the Legal and Regulatory Services Administration, Driver Assessment and Appeal Division and the Customer Service Administration, Bureau of Driver and Vehicle Records for Phase 3D (Phase 3D has driver activity training items specific to both areas).

3. Develop and Maintain Training Data: The Contractor will be responsible for developing and maintaining base data for all training activities, as well as refreshing the training data to its base state as appropriate. The responsibility for the training data continues for the duration of the contract.
4. Provide Classroom Training: The Contractor shall provide business process (workflow as it relates to the automated processes) training to the train-the-trainers. The Contractor will not be required to provide training in navigating in a browser-based environment or in basic keyboard skills.

Training for the train the trainers shall coincide with the schedule in the Project Work Plan for system deployment of all phases. The Contractor shall provide training to business train-the-trainers no more than 60 days prior to deployment (rollout) of each phase locally in Lansing. The State will provide facilities but the Contractor can also offer accommodations if they choose.

Train the Trainers should also obtain supervisory and management aspects of the system to train managers. These additional needs include topics such as quality assurance, reports utilization, managing workload, managing to standards of promptness, and other supervisory requirements. The trainers will be trained to be specialized and allow them to serve as the first line of support for end users. Train the Trainers should also receive training in providing instruction and support to outside entities, such as Third Party Testers, Driver Education Schools, and any other external agency that will

utilize the BAM system. Training activities for Train the Trainers must be broad and comprehensive to cover all end users.

The Contractor shall provide initial training for all trainers via a hands-on Classroom/Training Lab. Trainees shall have their own workstation. The Classroom training will begin with a high-level introduction and interaction with the system and will progress deeper into low-level end user system functionality and business workflows. The training will allow trainees to become site support staff post implementation (to assist the Contractor with support during implementation).

Classroom training will be business process driven, allow for site support activities, and specific to the trainee audience. The training within the classroom will utilize a training environment and the actual phase (i.e. 3A, 3B, etc.) application (i.e., not a mocked-up version or pre-release version). The classroom training should be hands-on and job-related.

The maximum class size shall be up to 25 students. The Contractor will ensure that all train the trainers that have completed the training curriculum will have the ability to correctly complete activities and functions within the BAM system corresponding to their day-to-day responsibilities.

Each trainee group will receive training that includes an overview of all the functionality, including a clear understanding of how their responsibilities relate to and rely upon all the other BAM functionality.

The Contractor shall provide training for up to 25 train-the-trainers which will include branch (two per region), representatives from internal support units, and representatives from the DIT Client Service Center.

5. Provide Post-Classroom Practice Exercises: The Contractor shall provide the capability for post-classroom, self-directed practice to allow recently trained end-users to build upon the initial classroom training. The post-classroom practical exercises shall enable end-users to practice, based on their job responsibilities, at work sites. Trainees will be supported in their practice efforts via the Online User Aids, Web Based Tutorials (WBT) and their classroom training material (Student Manual).

Deliverables from Task 6.3

1. Business Training Plan – due six months prior to the ending of each phase.
2. Approved Training Material – due 30 days prior to the first training session (except for Online User Aids).
3. Approved Classroom Training – due 60 days before going live with each phase (date to be coordinated with the Statewide User Acceptance Test date, see task 6.7)
4. Post Classroom Practice Exercises – available to all trainees upon completion of Classroom Training
5. Classroom Training Progress Report – due weekly upon the commencement of classroom training for each phase.

Contractor Response:

Task 6.3 – Prepare and Perform Business Training

Business Training Plan

PTD has provided desktop training, including technical training and training project management, to State and local governments since the mid-1980's. In addition to the State of Michigan and local government entities such as the City of Lansing, PTD Technology has provided training related services, project management, and quality oversight management for several state governments nationwide, as well as in Canada. Statewide training projects such as the Service Worker Support System (SWSS) and the Information System Support Technician (ISST) required custom curriculum development and statewide facility and instructor coordination and scheduling, in addition to PTD's highly rated training delivery. PTD has also shown its adaptability to its customers' needs and its prowess in utilizing emerging technology in its development of custom e-learning modules.

PTD currently oversees the Michigan Master Information Technology Training (MMITT) contract with the State of Michigan. This oversight includes providing desktop application and technical training to all State employees. PTD works closely with the State's training coordinators and liaisons to provide and schedule the requested training. PTD also works with the training liaisons to develop and maintain learning paths. To expedite the training process, PTD developed a Web catalog to handle class information, scheduling, and enrollment.

PTD will produce and deliver a Business Training Plan six months prior to the end of each Phase (Phases 3A, 3B, 3C and 3D) of the BAM System design and development. The Business Training Plan submitted for DOS evaluation and approval will include a combination of some or all of the following, to meet the needs assessed in the Business Training

Plan:

- Facilitated classroom training
- Practical, hands-on exercises
- Web-based and Webcast training
- Help references
 - Early application releases to Branch Offices

To verify that the PTD and DOS team has properly considered pertinent information regarding branch and internal staff members, business process workflow, and the BAM System as it pertains to the business perspective, PTD will conduct a Curricula Needs Assessment. As depicted in Figure 4.4.6-5, the Curricula Needs Assessment will:

- Identify or confirm all impacted branch and internal staff roles within the DOS environment with the purpose to provide overall direction to user training
- Categorize users and stakeholders by logical training groups for efficiency and effectiveness
 - Identify the appropriate delivery method to be used to train each group of stakeholders

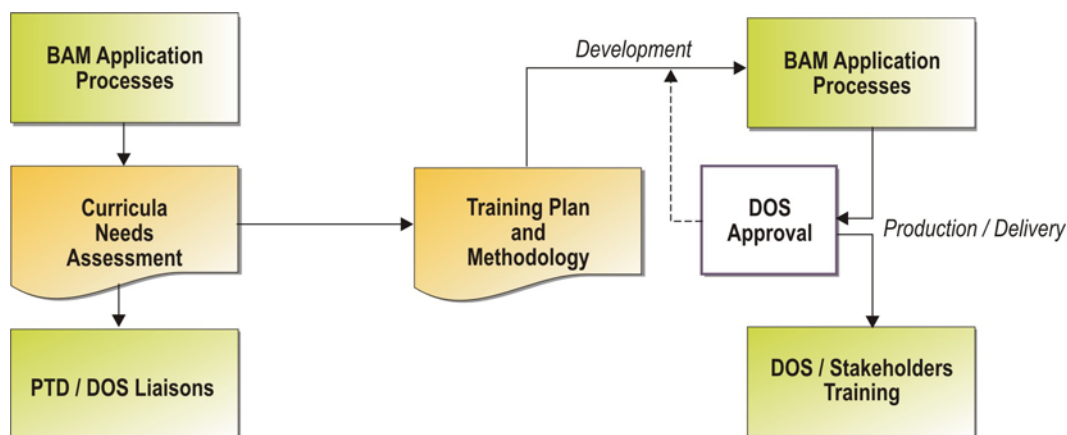


Figure 4.4.6-5, Assessment of Curricula

Following the Curricula Assessment, PTD Technology will develop and produce a Business Training Plan in direct cooperation with the DOS Staff (liaisons) and the EDS technical developers. The training plan will consist of each of the following:

- **Logistics:** Details for training all DOS branch staff, internal staff and appropriate external entities tailored to the training method most suited to each user and stakeholder group
- **Schedule:** Overall training schedule, which will include individual schedules for executing user and stakeholder training prior to the implementation date for each BAM Phase (Phases 3A, 3B, 3C and 3D).
- **Materials:** Outline of all training materials required for each identified training method and class, tailored for both Instructors (train-the-trainer) and the materials for each student (user)
- **Curricula:** Curricula to be employed that will ensure users receive a sufficient quantity of training to adequately prepare them to perform their job within the BAM System environment, including training on how to effectively use all Online User Aids

Develop Training Materials

PTD will develop two separate manuals to be used for training purposes. The first will be an Instructor Manual to be used by those DOS staff trained through the Train-the-Trainer venue. The second will be a Student Manual to be used by users trained via other venues. Both manuals will contain training information sufficient to enable users (for example, DOS branch and internal staff members, third-party testers, Driver Education program instructors) to gain the skills necessary to perform their job functions in the new BAM System framework. Additionally, both manuals will include a curriculum segmented by functionality and a sufficient variety of both examples and exercises to provide hands-on training. The content and structure of these materials will be the direct result of the Curricula Needs Analysis depicted above.

Supplementing both the Instructor and Student training manuals will be training for users on how to effectively utilize the

Online User Aids (i.e., Online User Interface Guide and EPSS). Additional training materials may include Web-based tutorials (WBT), and virtual classrooms. PTD acknowledges that all training materials shall be delivered to, and become the property of, the Customer Service Administration, Procedures Sections, upon completion of the final rollout of BAM Phase 3A and 3B; the Department Services Administration, Financial Services Division for Phase 3C; and split between the Legal and Regulatory Services Administration, Driver Assessment and Appeal Division, and the Customer Service Administration, Bureau of Driver and Vehicle Records, for Phase 3D. Further, PTD will provide an electronic version of all training materials to DOS.

Develop and Maintain Training Data

PTD will support the BAM training efforts by providing a stable training environment. The data set required for training users will be compiled and maintained by PTD. This training data will be available for conducting training classes, facilitating additional exercises as necessary, and for providing support as necessary after training has been completed. PTD will maintain the data set needed for support system and process training and will refresh content for both the Instructors and users as appropriate. To accomplish this, PTD will work with the EDS technical team to establish and maintain a Training Server (Model Office) that will serve as a mirror image of the BAM System. The purpose of the Model Office will be to permit users to practice within the BAM System prior to the *go live* date – without adversely affecting the BAM system or its development.

PTD will also work in close supervision with the DOS staff to develop and maintain training and practice data relevant to the user's daily work processes. This information and these examples will be vital in the preparation of the training plan and training materials.

Provide Classroom Training

PTD will structure and provide Business Processes Training for Train-the-Trainers. This training will coincide with the schedule in the Project Work Plan for the system deployment of all phases (i.e., 3A, 3B, 3C and 3D). PTD will provide business Train-the-Trainer sessions locally in Lansing using the State provided facilities as available or with the possibility of using the PTD facilities located in East Lansing.

The train-the-trainer sessions will provide each of the students with a hands-on, classroom training lab with each of the students having her or his own workstation. The training will utilize a production-level version of the BAM System (training environment). In addition to the step-by-step instruction in the application processes, these sessions will also consist of management aspects such as:

- Quality Assurance
- Using reports
- Managing workload
- Managing to standards of promptness
 - General supervisory requirements.

PTD will provide training for up to 25 Train-the-Trainers, which will include two trainers per DOS region, representatives from internal support units, and representatives from the DIT Client Service Center. Training will commence with high-level instruction that will be segmented into task-based, BAM System user functionality and business workflows. The ultimate goal will be to tailor Train-the-Trainer instruction in a manner that will enable trainers to become site support staff following BAM System implementation. PTD will ensure that all Train-the-Trainers who complete the training curriculum will have the ability to correctly complete activities and functions within the BAM System corresponding to their day-to-day responsibilities. This training will ultimately be supplemented and supported with the Online User Aids and the EPSS system.

Provide Post-Classroom Practice Exercises

To reinforce the concepts taught on both the BAM System and business processes, PTD will provide post-classroom practice exercises as a supplement to the training curriculum. Post-classroom practice exercises will be job related, focusing on the user's day-to-day responsibilities. PTD will design and develop post-classroom practice exercises to be efficiently delivered via Web-based, self-paced tutorials (WBT) containing scenario-based simulations as a part of the EPSS and Online Aids. Additionally, as depicted in Figure 4.4.6-6, trainees will be able to access their classroom training materials (including student manuals) through the intranet for additional post-classroom support.

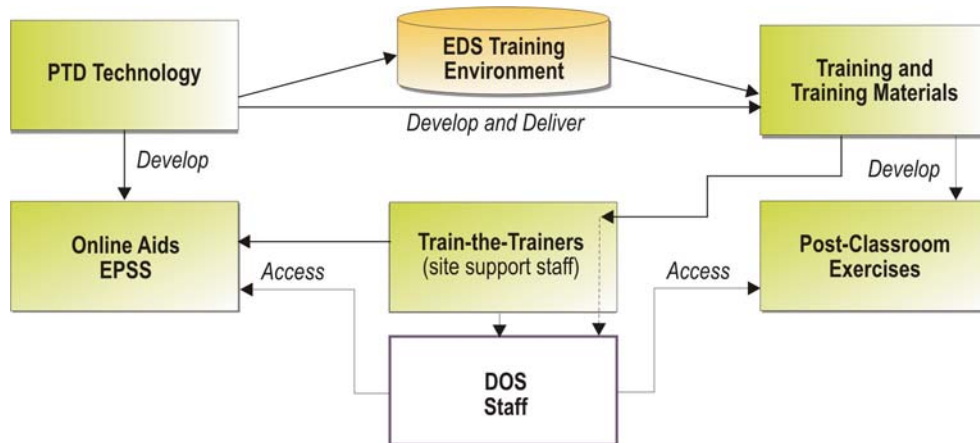


Figure 4.4.6-6, Post Classroom Training

Deliverables from Task 6.3

PTD will provide a Business Training Plan six months prior to the end of each BAM System implementation phase (Phases 3A, 3B, 3C and 3D).
PTD will deliver all training material (with the exception of Online User Aids – including Online Help and EPSS) to DOS for approval 30 days prior to the first training session.
PTD will deliver all Classroom Training to DOS for approval 60 days prior to the <i>go live</i> date for each BAM System implementation phase (i.e., Phase 3A, 3B, 3C and 3D) ensuring that submission is coordinated with the Statewide User Acceptance Testing (UAT) date.
PTD will make post-classroom practice exercises available to all trainees upon completion of their classroom training.
PTD will deliver a weekly Classroom Training Progress Report upon the commencement of classroom training for each BAM System phase (i.e., Phase 3A, 3B, 3C and 3D)

PTD Technology Training Preparation Process

As mentioned, PTD has been delivery quality technical and business training to the State of Michigan for the past 10 years. The consistent process PTD uses to prepare, present, evaluate, and revise training is detailed in Figures 6-7 through 6-11 below.

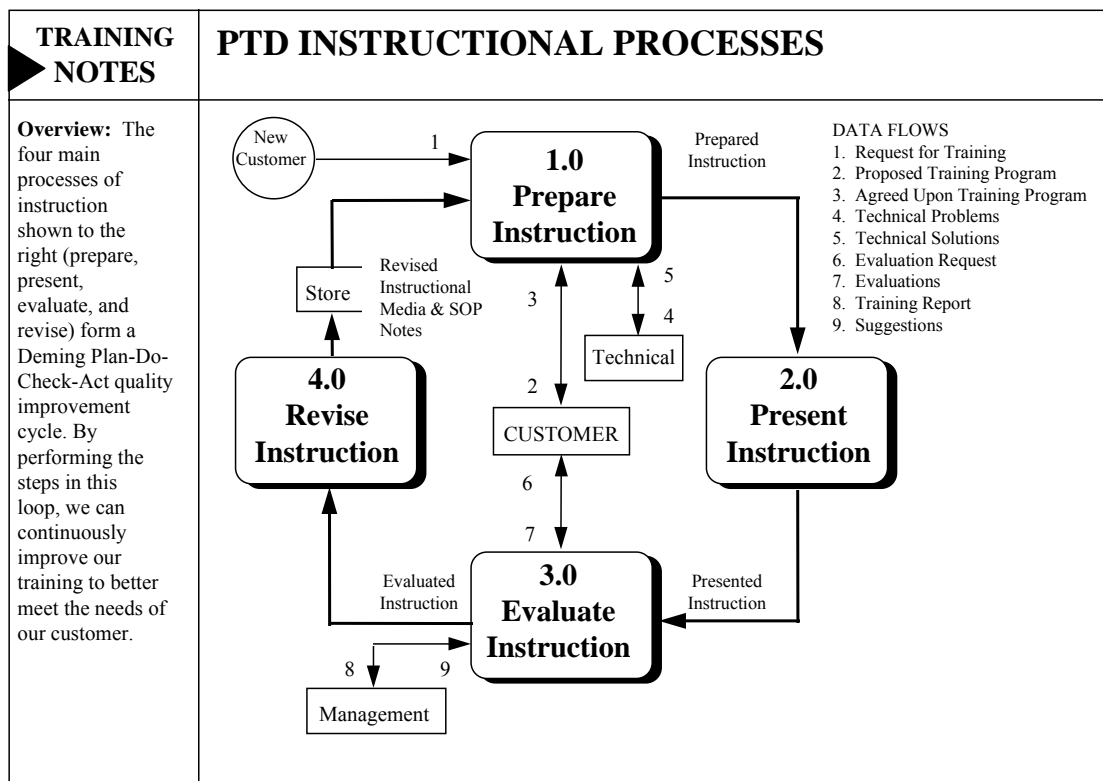


Figure 6-7, PTD Technology Training Preparation Process

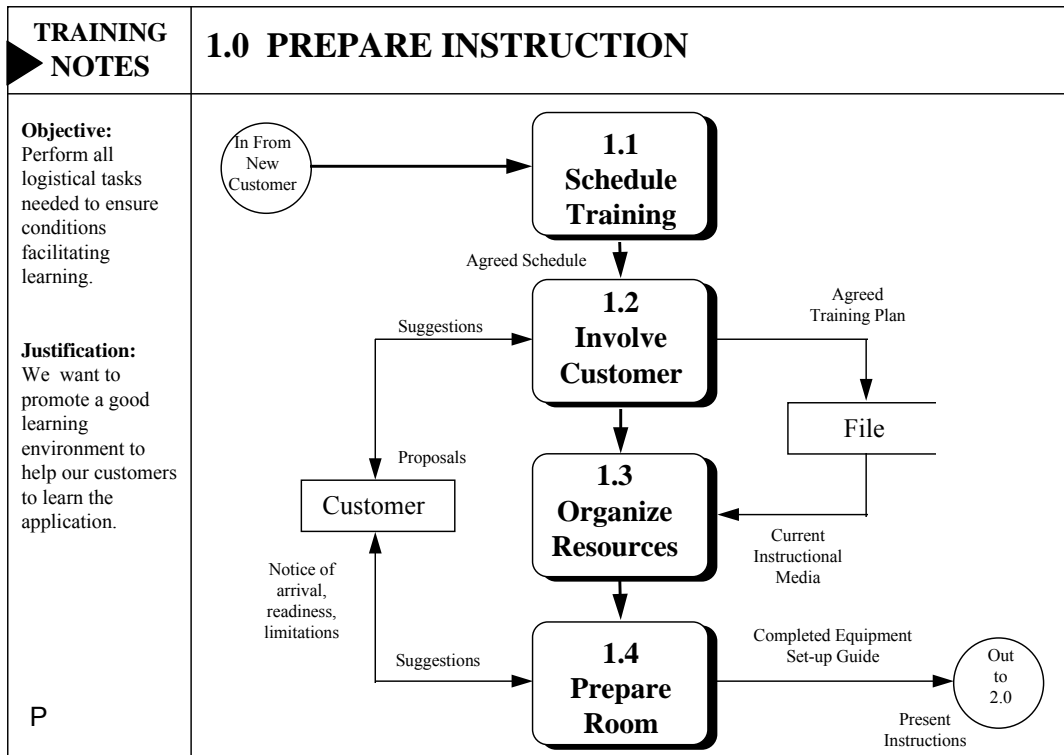


Figure 6-8, Prepare Instruction

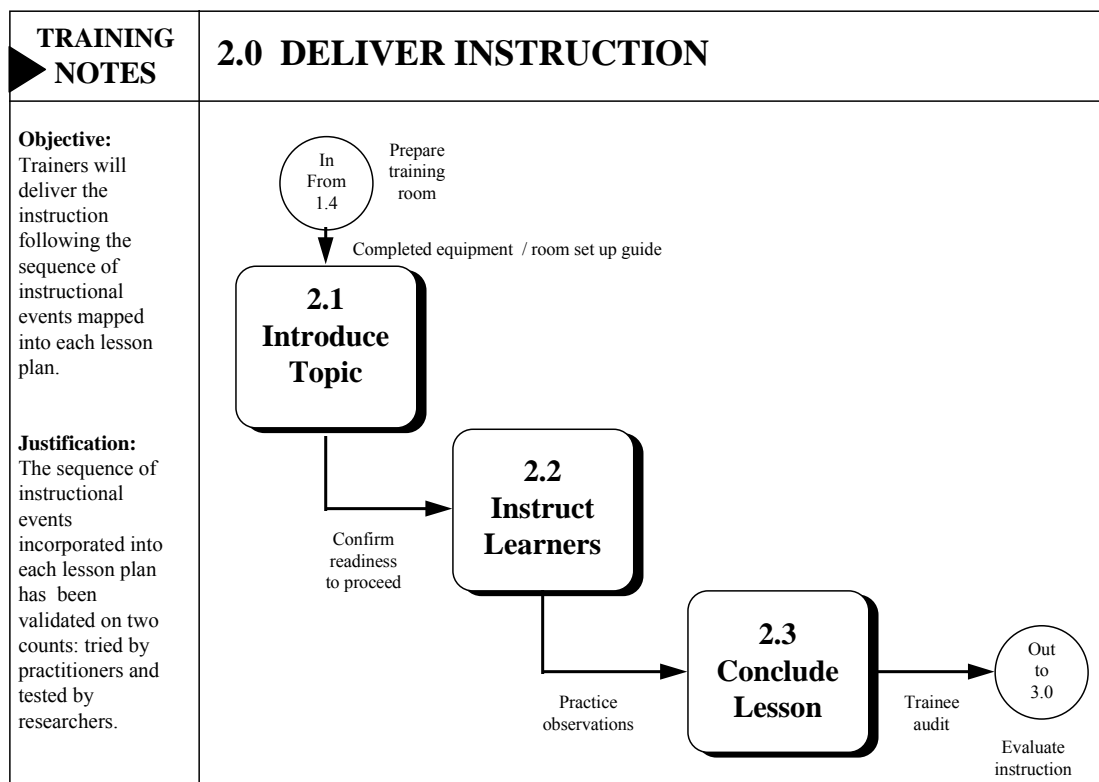


Figure.6-9, Deliver Instruction

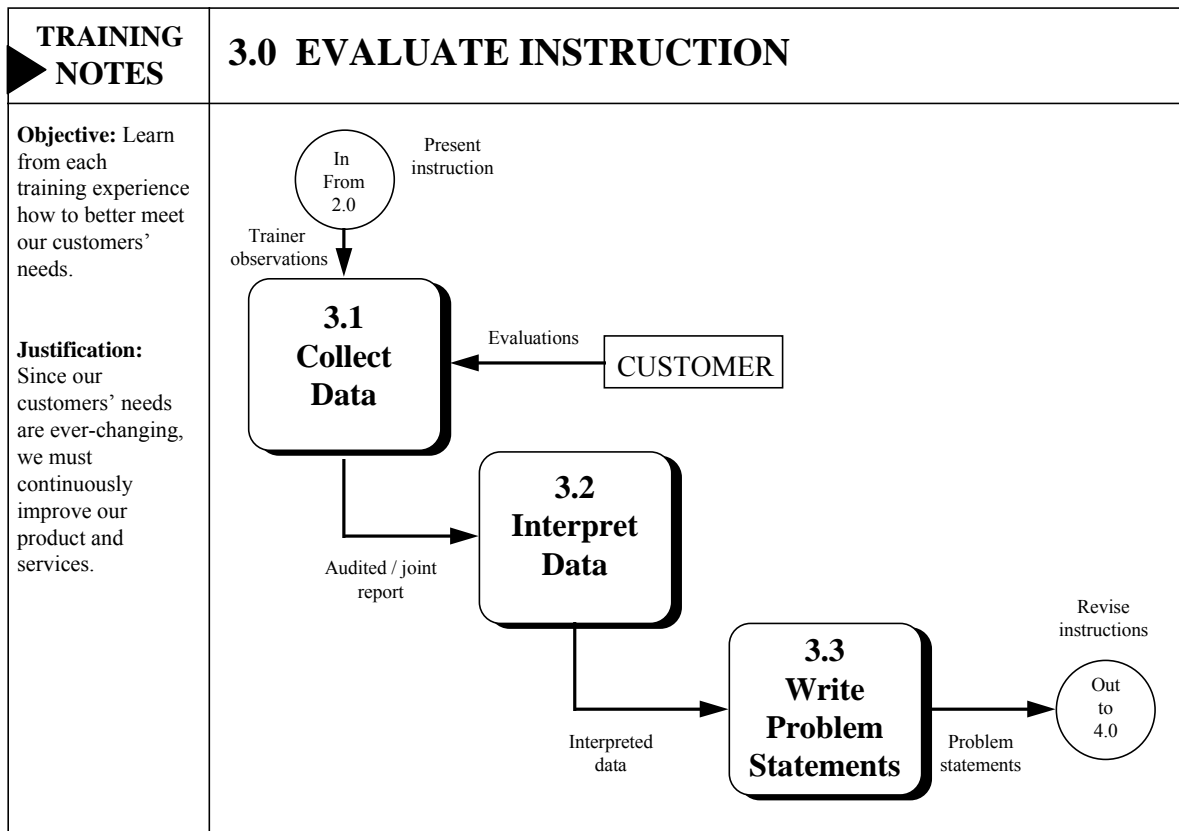


Figure 6-10, Evaluate Instruction

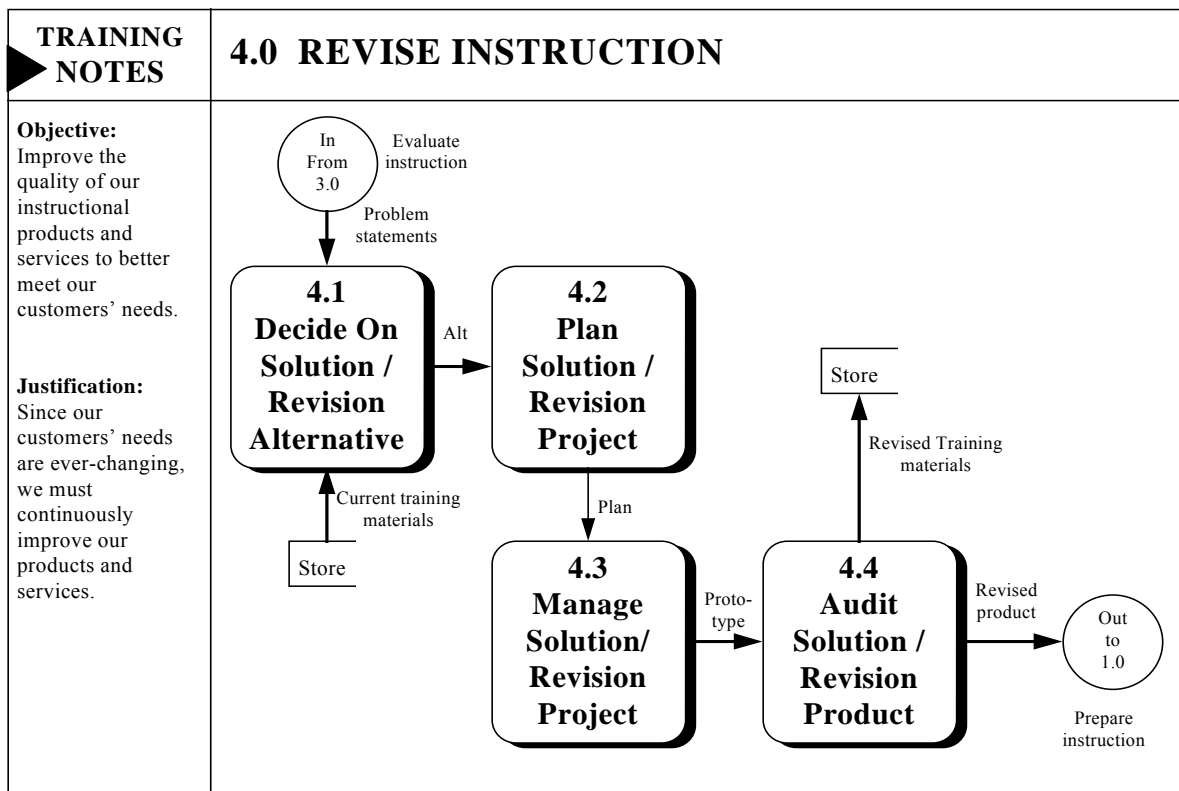


Figure.6-11, Revise Instruction

Task 6.4 – Perform Implementation Support Requirements of Task

The purpose of Implementation Support is to ensure the successful implementation of the system in branch offices and other work areas upon each major release of the system. Implementation Support provides coordination of all project-related activities taking place at the local office and provides staff to perform analysis and implementation support activities within each office. Branch Implementation Support is required for Phase 3A and B of the system only. The State expects there to be two to four Contractor support staff. The State also assumes the “Train the trainers” from the earlier training will serve as site support. The training (covered in Activity 6.3) should cover all aspects of site support so the State can assume the bulk of site support during implementation periods. The Contractor site support staff will serve as points of contact for State staff, as well as being available to be on site as necessary.

The Contractor shall provide implementation support for the BAM system for each phase. This assistance will supplement the contractor’s end user support provided by the Help Desk (reference *Activity 6, Task 6.5 – Provide Help Desk Services*) and Ongoing Production Support Team (reference *Activity 7, Task 7.1 – Maintain and Support Application*), providing the higher level of support required at implementation for such a high visibility project. It is the State’s expectation that a majority of the user requests for assistance in the 30 days after implementation can be handled by the support personnel (either the Contractor staff or State staff).

The Contractor shall develop a Detailed Implementation Plan, starting with Statewide User Acceptance Test, accounting for all project-related activities impacting the branch offices and internal unit staff during the implementation period. This plan should address:

1. Communications – regularly scheduled status calls
2. Implementation Support Planning, including schedule and resources for:
 - a. Orientation
 - b. Training
 - c. Data readiness activities
 - d. Workflow readiness activities
 - e. Post-implementation support activities
 - f. Help Desk support activities

The Contractor shall perform the required activities for all phases to ensure each branch office and/or other business units implement successfully. This shall include the following tasks:

1. Monitor progress against the detailed implementation plan for the work unit or branch office ensuring each task is completed correctly and on schedule.
2. Communicate with the central Implementation Coordinator (reference *Task 6.8 – Manage Implementation Support Activities/Staff* of this activity) to provide status and escalate issues. Participate in a daily call with the central implementation team to coordinate activities, discuss status, and resolve issues.
3. Coordinate training schedule with the training group.
4. Ensure data readiness:
 1. Coordinate with the data conversion team to address manual and automated data correction activities pre- and post-conversion.
5. Implement new workflow:
 1. Work with branch office/internal unit staff to plan the transition from the existing workflow to the new one.
 2. Ensure the local branch office/internal unit staff understands the new workflow
6. Provide help post-implementation to resolve workflow and application issues.

The Contractor shall perform a post-implementation review to assess the implementation activities, review lessons learned, and fine-tune subsequent implementations.

Please reference the Michigan.gov website for a complete and current listing of *Branch Offices* and a map of the Michigan counties. www.Michigan.gov/sos/0,1607,7-127-1583-34560--,00.html

Deliverables from Task 6.4

1. Detailed Implementation Plan – due two months prior to start of Implementation Support activities for each phase as implemented.

Contractor Response:

Task 6.4 – Perform Implementation Support

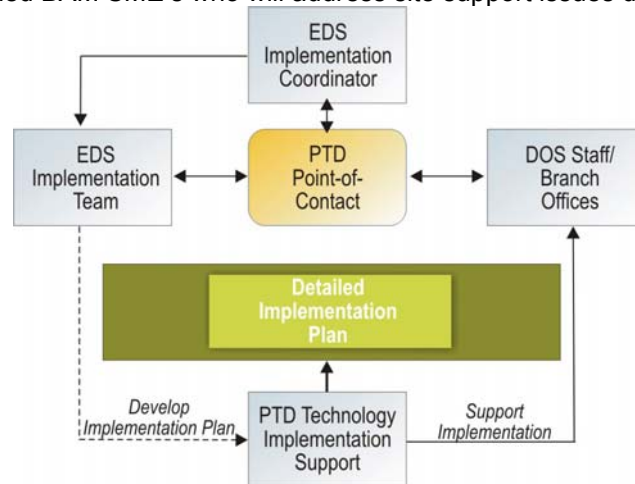
Detailed Implementation Plan

PTD will provide implementation support in cooperation with the EDS Implementation Team and under the direction of the Implementation/Production Support Coordinator following the *go live* date for each BAM System phase (Phases 3A, 3B, 3C and 3D). Accordingly, the EDS Implementation Team and PTD will develop and submit a Detailed Implementation Support Plan for DOS approval, outlining implementation support activities planned for each BAM System phase. The Detailed Implementation Support Plan submitted by the EDS Implementation Team and PTD will coincide with the Statewide User Acceptance Testing (UAT) and account for all project-related activities at both the Branch Offices and internal staff units during the period of implementation. The Detailed Implementation Support Plan will also address:

- Regularly-scheduled communication status calls
- Schedule and resource issues for:
 - Orientation
 - Training
 - Data and workflow readiness activities

Post-implementation and Client Service Center support activities

Additionally, as each BAM System phase goes *live*, the implementation support provided by PTD will supplement the user support that will be provided by the Client Support Center. See below for an overview of the implementation flow. PTD will also serve as the Point-of-Contact (POC) to serve as a conduit between the EDS Technical and Implementation Teams and the DOS trained BAM SME's who will address site support issues during implementation periods.



The EDS Implementation Team and PTD will support the successful implementation of each phase of the BAM System by performing the following additional tasks:

- Monitor Branch Office and internal unit implementation progress against the Detailed Implementation Support Plan to ensure each task is completed correctly and on schedule, under the jurisdiction of the Implementation Coordinator
- Participate during implementation in daily update calls with the Implementation Coordinator and Implementation Team to coordinate activities, discuss implementation status, and resolve implementation issues with the EDS Technical Development Team
- Coordinate the training schedule with the training group
- Coordinate data integrity and utilization issues with the Data Conversion Team
- Assist Branch Office and internal unit staff transition to the new business process workflows
- To meet the needs of the Branch Implementation Support for Phases 3A and 3B, PTD will have available two to four support staff during these two phases. This staff will be in addition to the 25 DOS Train-the-Trainers from the earlier business training who will be providing the actual site support.
- Provide post-implementation assistance to resolve business process workflow and application issues between the DOS staff and the EDS Technical Development Team

Finally, the EDS Implementation Team and PTD will perform a post-implementation review to assess implementation activities, review lessons learned, and fine-tune implementation activities for subsequent implementation phases.

Post-Implementation Review

As a component of BAM System post-implementation support, the EDS Implementation Team, PTD, and the Implementation Coordinator will perform a post-implementation review at the end of each BAM phase to assess the implementation activities. These reviews will be conducted by the project management team in an effort to leverage lessons learned and apply them to the subsequent BAM System phases. Design, development, and implementation history will be evaluated to determine whether changes need to be made to established implementation strategies. Adjustments to, or reinforcement of strategies, schedules, and techniques will be made to future BAM System phases based on the results of the post-implementation reviews.

Deliverables from Task 6.4

The EDS Implementation Team and PTD will develop and submit a Detailed Implementation Support Plan for DOS approval two months prior to the start of Implementation Support activities for each BAM System phase (Phases 3A, 3B, 3C and 3D).

Task 6.5 – Provide Help Desk Services

Requirements of Task

The purpose of this task is to provide assistance to the existing DIT Client Service Center (CSC) (centralized Help Desk) to be second level of support for service for local offices and internal units relative to the implementation of the BAM system. This service is also referred to by the State as “triage” to signify the need for quick assessment of criticality of the requests the CSC receive.

The Contractor is to handle issues related to the application, data, and implementation starting at each phased implementation and continuing until one month after successful statewide deployment of each phase. Issues not related to the application, data, and implementation of BAM will be handled by the State's Client Service Center and they will be first to respond, sending BAM application, data, or implementations issues to the Contractor staff for resolution. The Contractor should advise the State in their *Contractor Staffing Plan Example* how many staff necessary to perform these tasks. If the Contractor builds and implements BAM correctly, the number should be minimal. The Contractor should be prepared to augment State staff appropriately to retain current levels of support. NOTE: The State will work with the Contractor to determine “triage” criteria and acceptable levels of response and resolution times (based on weighted criteria that gets to the importance and number of occurrences of issues).

Implementation Support personnel (reference *Task 6.4 – Perform Implementation Support* above) are also intended to be an integral part of the post-implementation help, resolving routine issues without assistance from the Client Service Center intervention.

The Contractor shall perform the following activities:

1. Develop a Help Desk Guide with help desk processes and scripts to support the new application, data, and workflow.
2. Communicate the help desk processes to the local branch office and internal support staff.
3. Provide Help Desk support staff during implementation to perform the following tasks.
 - a) Implement a “triage” process to determine criticality of request with the State's assistance.
 - b) Perform initial investigation, impact assessment, and prioritization on all requests forwarded from the Client Service Center.
 - c) Forward requests that cannot be resolved immediately to the Ongoing Production Support Team; if possible, develop and communicate end user workarounds for such requests.
 - d) Capture and track help desk requests (i.e., “tickets”) in Remedy by (State provided tool).

A Client Service Center (Triage) Ticket Report shall be generated weekly related to BAM issues. Each report shall indicate who resolved the ticket, Contractor support or the State. This report will minimally include:

- Number of tickets opened in period
- Number of tickets closed in period
- Total number of tickets open
- Total number of tickets closed

Remedy will provide this level of specification for BAM items. The Contractor will have to request the reports from the CSC.

Deliverables from Task 6.5

1. Help Desk (Triage) Ticket Report – due to the Contractor Project Manager in order to be included in weekly status reports.
2. Help Desk Guide – due two months prior to commencement of each Phase.

Contractor Response:

Task 6.5 – Provide Help Desk Services

PTD is aware that as the time for BAM System implementation approaches, issues needing answers will arise and Help Desk Services will become increasingly necessary. Accordingly, PTD will work with DOS prior to the initiation of such services to determine the exact processes to be employed by the new Help Desk Services. Additionally, PTD is prepared to work with DOS to determine triage criteria, acceptable levels of response, and resolution times. Response and resolution times will be weighted based on the importance of an issue and the number of times the issue occurs. PTD further understands that the DIT Client Service Center (CSC) and the Department of State Information Center (DSIC) will serve as the focal points for Help Desk service delivery. PTD will serve as the point-of-contact for the DSIC and the CSC to obtain answers to business process and BAM system application, data, and implementation questions.

PTD will support the Help Desk activity by directly responding to and resolving issues related to the BAM System application, data, and implementation as well as Business Application issues associated with each phase release. PTD Help Desk support will commence on the *go live* date for each BAM implementation phase (i.e., Phase 3A, 3B, 3C and 3D) and continue until one month after successful statewide deployment of each BAM phase. It is understood that while the CSC will be the first to respond to Help Desk requests, DSIC will be the first-level responder for application support. Accordingly, PTD will receive and resolve all BAM System application, data, and implementation issues forwarded by DSIC and CSC during the one month period following phased implementation.

Routine BAM System application, data, and implementation issues will be addressed and resolved by PTD and the EDS' Implementation Support personnel as shown in Figure labeled *Implementation Support*.

Following implementation of each phase of the BAM System, PTD in conjunction with the EDS Implementation Team, will perform the following development, communication, and assistance activities that will significantly enhance the ability of the CSC and DSIC to operate a more responsive and knowledgeable Help Desk:

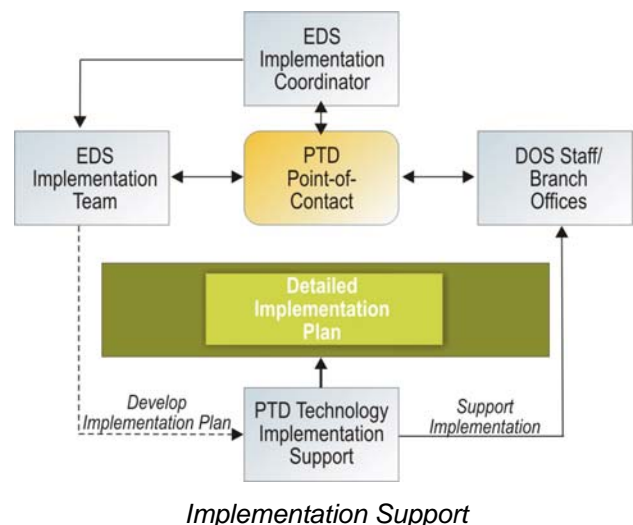
- Develop a Help Desk Guide with help desk processes and scripts to support the BAM System application, data, and workflow of the phase being released
- Communicate the help desk processes to the local branch offices and internal staff units
- Provide PTD support staff assistance to the CSC and DSIC on the following:
 - Implement a triage process to determine, with State assistance, criticality of the requests
 - Perform initial investigation, impact assessment, and prioritization on all requests forwarded from DSIC
 - Forward requests that cannot be resolved immediately to the EDS Production Support team. EDS, PTD, CSC, and DSIC will then attempt to develop and communicate a user workaround for such requests

Capture and track CSC and DSIC requests (i.e., tickets) in Remedy and Siebel, respectively, converting into a standard report format (e.g. Excel spreadsheet, Word document)

Finally, PTD will generate and deliver to DOS each week a consolidated CSC and DSIC Ticket Report. The Ticket Report, containing requested CSC information provided via Remedy, and requested DSIC information provided via Siebel, will indicate whether EDS, PTD, CSC, or DSIC resolved the help desk issue. Additionally, the data included in the Ticket Reports will, at a minimum, include the following:

- Number of tickets opened in the period
- Number of tickets closed in the period
- Total number of tickets open
 - Total number of tickets closed

All the data collected in these reports will be used to enhance the Implementation Support Plan.



Deliverables from Task 6.5

PTD will generate and deliver to DOS a weekly consolidated CSC and DSIC (Triage) Ticket Report, the results of which are to be included in the weekly status reports
--

PTD will develop and deliver Help Desk Guides two months prior to the implementation of each BAM System phase (i.e., Phase 3A, 3B, 3C and 3D)

Task 6.6 – Transition Help Desk to State

Requirements of Task

The Contractor will perform Client Service Center services during, and up to one month after each successful statewide deployment of all phases. One month after statewide deployment of each phase, the Contractor will transition the help desk function to the State's Help Desk (i.e., Client Service Center).

Additionally, upon transition of help desk responsibility to the Client Service Center, the Contractor shall support the Client Service Center throughout the life of the contract by providing updates to the Help Desk Guide to reflect new functionality as it is released.

The Contractor shall perform the following activities:

1. Develop training for Client Service Center staff based on the help desk processes and scripts developed for all phases (reference *Task 6.5 – Provide Help Desk Services* above).
2. Develop a Help Desk Transition Plan to transition the help desk function to the Client Service Center.
3. Train the Client Service Center staff.
4. Transition support to the Client Service Center at the completion of the one month Help Desk Support window for each phase.
5. Support the Client Service Center by providing updates to the Help Desk Guide reflecting new functionality as it is released.

Deliverables from Task 6.6

1. Help Desk Transition Plan – due two months before implementation of each phase.
2. Help Desk Guide (updates) – due one month prior to the time new phase is to be released to the production environment.

Contractor Response:

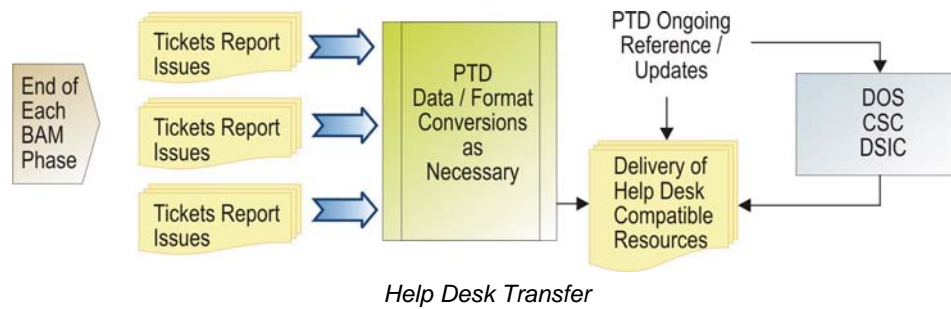
Task 6.6 – Transition Help Desk to State

PTD will perform Help Desk services in coordination with the Implementation/Production Support team during each phase of the BAM System implementation (i.e., Phase 3A, 3B, 3C and 3D), and also for up to one month following successful deployment. One month after each phased implementation, PTD will transition Help Desk functions back to the CSC and DSIC, using all the data, guides and scripts accumulated throughout each phase release. Additionally, PTD will continue to support the CSC/DSIC Help Desk throughout the life of the contract by providing timely updates to the Help Desk Guide as new BAM System functionality is released.

The following list outlines the PTD steps to be taken for a successful transition support of Help Desk activities and for establishing self-sufficient CSC and the DSIC:

- PTD will develop a Help Desk Transition Plan with the CSC and DSIC
- PTD will gather or develop all system documentation necessary for help desk support
- PTD will update the BAM System Help Desk Guide with information regarding the functionality of each newly implemented phase of the BAM System
- PTD will identify the specific skills and, if necessary, training needs for CSC and DSIC to provide Help Desk services for each newly implemented phase of the BAM System. In addition, PTD will provide training as needed to CSC and DSIC on the newly implemented release

To facilitate the transition of help desk activities to DOS, PTD will employ the Help Desk Transfer methodology depicted below.



Deliverables from Task 6.6

PTD will develop and deliver a Help Desk Transition Plan two months prior to the BAM System go-live date for each phase (Phase 3A, 3B, 3C and 3D)

PTD will develop and deliver Help Desk Guide updates one month prior to the time each new phase is to be released to the production environment.

Task 6.7 – Conduct Statewide User Acceptance Test

Requirements of Task

The Contractor shall conduct a Statewide User Acceptance Test of each BAM phase (3A-3D). The Statewide User Acceptance Test for each phase shall process all functionality within that particular phase in the UAT environment. The Statewide User Acceptance Test should commence no later two months prior to production go-live date, and shall run a minimum length of time that is agreed upon by the State and the Contractor.

This Statewide User Acceptance Test shall include all of the implementation support activities identified earlier in this (or other) activity – namely:

- Data conversion
- Training
- Site support
- Help Desk support

Due to the tremendous visibility the Statewide User Acceptance Test will receive from stakeholders, the State expects the Contractor to staff accordingly, as the State and the Contractor are expected to “do what it takes” to ensure the Statewide User Acceptance Test is a success.

At the completion of the Statewide User Acceptance Test, the Contractor shall provide a formal report on the Statewide User Acceptance Test to the State. This report shall include information on:

Readiness of the software for statewide use;
 Data conversion issues and current status;
 Training issues and current status;
 Site support activities;
 Help Desk support activities and;
 Issues, concerns, and lessons learned for statewide deployment.

Based on this report, the State will make a “go/no go” decision for implementing the BAM system.

Deliverables from Task 6.7

1. Statewide User Acceptance Test Review Report – due to the State by the end of testing period.

Contractor Response:

Task 6.7 – Conduct Statewide User Acceptance Test

EDS will perform a Statewide User Acceptance Test (UAT) for each BAM System phase (Phases 3A, 3B, 3C and 3D). Additionally, EDS will ensure that all system functionality for each BAM System phase is thoroughly tested. The Statewide UAT will be detailed in the User Acceptance Test Plan.

EDS will establish the User Acceptance Environment in such a manner that acceptance tests will be performed by external users, internal users, and Branch Office staff. Each of these users will have the knowledge and ability to perform

the tests they have been assigned. EDS will also ensure that UAT commences not later than two months prior to the BAM System *go-live* date and will continue for a length of time mutually agreed upon by both DOS and EDS.

EDS will utilize the Quality Assurance environment to maintain user access and data to the BAM System. Since the User Acceptance Environment will not have the same capacity as the production environment, EDS will schedule testing so that all users have sufficient time to thoroughly test the BAM System. Additionally, UAT will include implementation support activities such as data conversion, training, site support, and Client Support Center (CSC) support.

EDS will provide sufficient resources to ensure all questions and problems are addressed in a timely fashion. EDS will provide contacts for all statewide testers so that questions or problems may be addressed expeditiously. The Statewide User Acceptance Test will occur after the User Acceptance Test has been completed by the State. This sequence will help ensure that statewide users receive an application that has been thoroughly tested. It will also minimize the defects and problems statewide users might experience with the BAM System. EDS will *do what it takes* to deliver successful User Acceptance Training.

Finally, EDS will provide a User Acceptance Test Review Report detailing the results of the statewide user acceptance test. The report will include, at a minimum, the following:

- Readiness of the software for statewide use
- Data conversion issues and the current status
- Training issues and the current status
- Site support activities
- Client Support Center (CSC) support activities
- Issues, concerns, and lessons learned for statewide deployment

Due to the thorough nature of the UAT Review Report, EDS understands that DOS will render a *go/no go* decision to proceed with implementation of the BAM System based on the report content.

Deliverables from Task 6.7

Deliverable	Measure of Success
Statewide User Acceptance Test Review Report – due to the State by the end of testing period	EDS will provide a User Acceptance Test Review Report detailing the results of the statewide user acceptance test. The report will include, at a minimum, the following: <ul style="list-style-type: none"> • Readiness of the software for statewide use • Data conversion issues and the current status • Training issues and the current status • Site support activities • Client Support Center (CSC) support activities • Issues, concerns, and lessons learned for statewide deployment

Task 6.8 – Manage Implementation Support Activities / Staff

Requirements of Task

The Contractor shall provide a full-time person as an Implementation Coordinator. This person will be identified as “Key Personnel” (reference 2.506, Staff) for the duration of the project. The Contractor shall provide a full time person as a Training Coordinator. This person will be identified as “Key Personnel” (reference 2.506, Staff) for the duration of each phase.

The purpose of the Implementation Support Team is to provide oversight and coordination of all office-related implementation support activities as the system is deployed statewide. Deployment of the system statewide shall include any private/state agency partners as appropriate.

The Implementation Coordinator will be responsible for all implementation activities as the system is deployed statewide. The Implementation Coordinator shall provide weekly status reports to the Contractor Project Manager for inclusion in the weekly status reports. Specific responsibilities of the Implementation Coordinator are:

- Manage activities and monitor progress for each phase as it is released to ensure that each task is completed in a timely and accurate manner in all branch offices and internal support staff units.
- Ensure private/state agency partners receive appropriate communications, documentation, and training regarding standard reports and online query access.

- Ensure data readiness.
- Monitor training activities.
- Ensure office workflow readiness.
- Oversee site support both pre- and post-implementation.
- Provide status to the core project team.
- Oversee contractor Client Service Center (help desk) activities for each release.

The Contractor shall designate a Training Coordinator to oversee the Training Team. This person will be the primary point of contact for the State, for BAM training activities.

The Training Coordinator will be responsible for the training activities in *Task 6.1 – Prepare and Perform Technical Training* and *6.3 Prepare and Perform Business Training* – as stated in these tasks. This person is responsible for training resource assignments, as well as the monitoring and reporting of team progress. The Training Coordinator should provide weekly status reports to the Contractor Project Manager.

Within six months of contract start, the Contractor shall provide an Implementation Support Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role. Refer to the attachments for a *Contractor Staffing Plan Example* document.

Deliverables from Task 6.8

1. Implementation Support Team Staffing Plan - due six months after contract start, with updates as required thereafter.
2. Status Reports – due to the State at the close of business on first business day of each week for prior week's activities. Status reports shall include:
 - a) Major tasks accomplished
 - b) Progress to schedule, including hours spent on tasks in-progress and an updated estimate of hours remaining for the task,
 - c) Clear identification of areas at risk of not meeting schedule
 - d) Additional issues affecting productivity or efficiency
 - e) Any other issues the Implementation Manager feels should be communicated

Contractor Response:

Task 6.8 – Manage Implementation Support Activities / Staff

Implementation/Production Support Coordinator

EDS will provide a full-time Implementation/Production Support Coordinator for the duration of BAM Phase 3. The Implementation/Production Support Coordinator shall be responsible for all implementation activities as the BAM System is deployed statewide, including each of the following specific tasks:

- Providing weekly status reports to the EDS Project Manager for inclusion in the BAM Weekly Status Report
- Managing and monitoring the implementation/production support activity progress of each BAM Phase (e.g., Phase 3A, 3B, 3C and 3D) as it is released ensuring that each task is completed in a timely and accurate manner in all branch offices and internal support staff units
- Liaising with the Training/Documentation Coordinator to ensure that both private and state agency partners receive appropriate communications, documentation, and training regarding standard reports and online query access
- Liaising with the Training/Documentation Coordinator regarding training activities and office workflow readiness
- Liaising with the Training/Documentation Coordinator regarding PTD Client Service Center (CSC) and Department of State Information Center (DSIC) activities for each BAM Phase (Phases 3A, 3B, 3C and 3D)
- Coordinating with the Data Conversion Team to ensure data readiness
- Overseeing both pre-implementation and post-implementation site support
 - Leading the Implementation Support Team responsible for providing oversight and coordination of all branch office-related implementation support activities of the BAM System, including deployment to appropriate private/state agency partners

Implementation Support Team Staffing Plan

Within six months of the BAM Phase 3 contract start date, EDS will provide DOS with an Implementation Support Team Staffing Plan. The Implementation Support Team Staffing Plan will address the following:

- Identify the individuals assigned to the Implementation Support Team

- Report the percentage of time each Implementation Support Team member will be assigned to the team
- Itemize the total number of full-time equivalents (FTEs) by month and by role

Training/Documentation Coordinator

PTD will provide a full-time Training/Documentation Coordinator for the duration of BAM Phase 3. The Training/Documentation Coordinator shall be responsible for all implementation training activities as the BAM System is deployed statewide, including each of the following specific tasks:

- Reporting to the Development Manager
- Training resource assignments
- Providing weekly status reports (for monitoring and reporting) to the EDS Project Manager for inclusion in the BAM Weekly Status Report
- Managing training activities and monitoring the training progress of each BAM Phase (Phases 3A, 3B, 3C and 3D) as it is released, making certain that each training task is completed in a timely and accurate manner in all branch offices and internal support staff units
- Ensuring that both private and state agency partners receive appropriate communications, documentation, and training regarding standard reports and online query access
- Coordinating with the Data Conversion Team to ensure data readiness
- Providing post-implementation site support
- Overseeing PTD, Client Service Center (CSC), and Department of State Information Center (DSIC) activities for the one-month period following each BAM Phase (Phases 3A, 3B, 3C and 3D) implementation.

The table below shows the Implementation Support Team Staffing Plan by man-months. Please see Activity 1, Appendix C – Contractor Staffing Plan for additional staffing detail.

Activity Six: Implementation Support Team Staffing Plan (man-months)					
Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	
Implementation Support					
Training and Documentation Coordinator	23.50	14.50	8.50	10.25	56.75
Technical Trainer	18.75	4.00	0.00	4.00	26.75
Technical Writers	36.00	18.00	17.00	16.50	87.50
Business Trainer	11.00	9.00	5.50	5.75	31.25
Total man-months by Phase for Activity Six	89.25	45.50	31.00	36.50	202.25

Implementation Support Team Staffing Plan by Man-Months

**Appendix G****Activity 7 – Ongoing Production Support*****Task 7.1 – Maintain and Support Application***
Requirements of Task

The Contractor is required to support the system, once implemented in the production environment, for the duration of the contract. This support shall include the following categories:

1. Corrective Maintenance – “bug” fixes to correct data and/or functionality not working per requirements. This encompasses the following work:
 - a. Investigate, determine root cause, document and remedy online functions
 - b. Investigate, determine root cause, document and remedy batch jobs
 - c. Investigate, determine impact, document, develop plan of action and remedy data issues related to system hardware or software failures
 - d. Investigate, determine root cause, document and remedy security issues
 - e. Ensure documentation is correct and current

“Emergency fixes shall be defined as problems preventing driver or vehicle related product issuance, those having a significant impact on the end user’s ability to perform their job (internal or branch), or problems that create data integrity problems (i.e., those situations which would provide erroneous information to law enforcement), programs that terminate abnormally, and any problems that do not have a manual workaround. These “Emergency fixes” shall receive prompt attention from the Contractor within 30 minutes of notification. Regular, 2-hour minimum interval, status reports are required until issue is resolved.

It is the State’s intent to limit the number of “emergency” fixes; rather, the State intends to bundle corrective maintenance requests together and perform a “patch release” on a monthly basis. This enables the patch release to be tested as a whole, increasing the likelihood of a successful release with no unforeseen side effects (i.e., new bugs), and minimizing the disruption to the end users. The State will work with the Contractor to establish “release” schedules after each phase of BAM is implemented.

Non-emergency corrective maintenance requests should be completed in the next patch release.

2. Adaptive Maintenance – adaptive maintenance addresses upgrades to the BAM system due to technical changes for system components that keep the system maintainable, including but not limited to the following services:
 - a. Upgrades to the operating system or DBMS software
 - b. Software modifications necessary because of expiring contractor support
 - c. Hardware, database, or application conversions that do not modify user functionality
 - d. File moves (from one device to another) due to hardware swaps
 - e. One time loads or reformats of user data (due to upgrades)
 - f. Report distribution changes
 - g. Disaster recovery plan activities

By and large, these changes should be transparent to the end user. The changes shall be introduced into the development, testing, user acceptance and finally the production environments. The releases shall be tested to ensure there is no impact to the BAM system. It is the State’s intent to perform (i.e., release) adaptive maintenance changes on an as needed basis with a minimum two week notice; for major upgrades requiring a more significant amount of time to develop, test, and implement, the changes should be completed as part of a development release.

Report distribution changes can typically be completed independent of a production release; these should be completed on a more frequent basis (e.g., daily or weekly).

3. Perfective Maintenance – perfective maintenance addresses activities to improve the performance of the application, as well as investigate and fix potential problems that have NOT YET occurred. Perfective maintenance includes but is not limited to the following services:
 - a. Improve the performance, maintainability or other attributes of the BAM system
 - b. Preventive maintenance
 - c. Data table restructuring
 - d. Data purges to reduce/improve data storage
 - e. Run time improvements
 - f. Replace utilities to reduce run time
 - g. Potential problem correction
 - h. Data set expansions to avoid space problems

It is the State's intent to perform (i.e., release) perfective maintenance changes on an as needed basis with a minimum two week notice; a monthly patch release or, for major changes requiring a more significant time to develop, test, and implement, the changes should be completed as part of a development release.

Activities that can typically be completed independent of a production release (e.g., data set expansions, data purges) may be completed on a more frequent basis (e.g., daily or weekly).

4. Application Support – support for the system to keep it operating as expected, including but not limited to the following services:
 - a. Monitoring and reporting system performance
 - b. Investigation as to why data was not processed
 - c. Monitoring and reporting computer resource usage
 - d. Preparing and participating in application system problem review meetings
 - e. Creating special holiday and year-end schedules
 - f. Preliminary investigation of problems NOT identified by customer
 - g. Model office, test environment, development environment, or prototype support
 - h. Ad hoc schedule changes
 - i. Data resource management

Application support will not typically involve changes to modules, functions, database items, or documentation and, thus, does not need to be promoted from environment to environment.

"Investigation as to why data was not processed" shall receive prompt attention from the Contractor within 1 hour of notification. Regular, 4-hour minimum interval, status reports are required until issue is resolved.

All other application support services shall be performed on a daily (and/or as needed) basis.

The Contractor shall provide a monthly report on system performance and system resource usage, including trend analysis, as well as recommendations on potential changes to improve the efficiency and effectiveness of delivery of application support services.

5. User Support – direct support of the end user for technical questions and issues (second level), which cannot be handled by the Client Service Center. The Contractor shall provide User Support for the application, including but not limited to the following services:
 - a. Informal user training
 - b. System broadcasts
 - c. Answering customer questions regarding the application
 - d. Preliminary investigation into possible problems identified by customer
 - e. Investigating and ensuring user access to application system
 - f. Ad hoc reporting
 - g. Customer requested updates to data in tables or databases

It is the State's intent to identify a State of Michigan (SOM) employee to be a designated "BAM expert" (also known as the train the trainers) for offices / business units. BAM experts (or train-the-trainers) will serve as the first line of support for end users, which should minimize the user support required from the Client Service Center (reference Activity 6, Task 6.5 – Provide Help Desk Services) and Ongoing Production Support Team. Reference Activity 6 – Implementation Support, Task 6.4 – Perform Implementation Support for requirements regarding support immediately before and after the initial

implementation, as these contractor staff will assist the SOM BAM expert(s) in providing user support during this time.

The Contractor shall provide staff to address the more detailed and difficult user support issues and questions regarding the application that cannot be handled by a SOM BAM expert or a Contractor Support person. The Contractor will utilize Remedy for all production support requests by creating a "ticket" with in the system.

6. Minor Enhancements – it is the State's intent to handle BAM enhancements that will improve the efficiency and effectiveness of the BAM system in supporting the business objectives of the State. Enhancement requests will NOT be the responsibility of the Ongoing Production Support Team, and Contractor's price proposals should reflect such. [Reference *Task 8.1 – System / Service Enhancements of Activity 8 – Miscellaneous* for more information on the handling of enhancement requests and enhancement releases.]

Deliverables from Task 7.1

1. Emergency and bug fixes as required
2. Monthly patch releases, both adaptive and perfective (to all relevant environments)
3. Documented production support requests in Remedy
4. Completed production support requests
5. Documented resolution for each production support request
6. Monthly report on system performance
7. Monthly report on system resource usage

Contractor Response:

Ongoing production support is necessary to ensure the BAM System can respond to evolving business processes, advances in technology, changes in legislation, and key performance indicators. EDS understands the importance of ongoing production support, and EDS will work with the State to deliver the Return on Investment (ROI) objectives set by the State. Until the BAM System is implemented, there is no ROI; there is only an investment. To deliver to the ROI objectives, the EDS Production Support team will provide the following ongoing production support services:

- Corrective Maintenance
- Adaptive Maintenance
- Perfective Maintenance
- Application Support
- User Support
- Knowledge Transfer

This structured approach to EDS' proven ongoing production support process reduces risk and increases success. EDS employs common processes and tools for the organization, resource management, project management, and metrics collection, so that the State will receive a consistency with all of our production support efforts.

EDS will focus on maintaining and supporting the application, on managing support activities and staff, and on performing knowledge transfer through documentation, training, and hands-on experience.

Task 7.1 – Maintain and Support Application

Corrective Maintenance

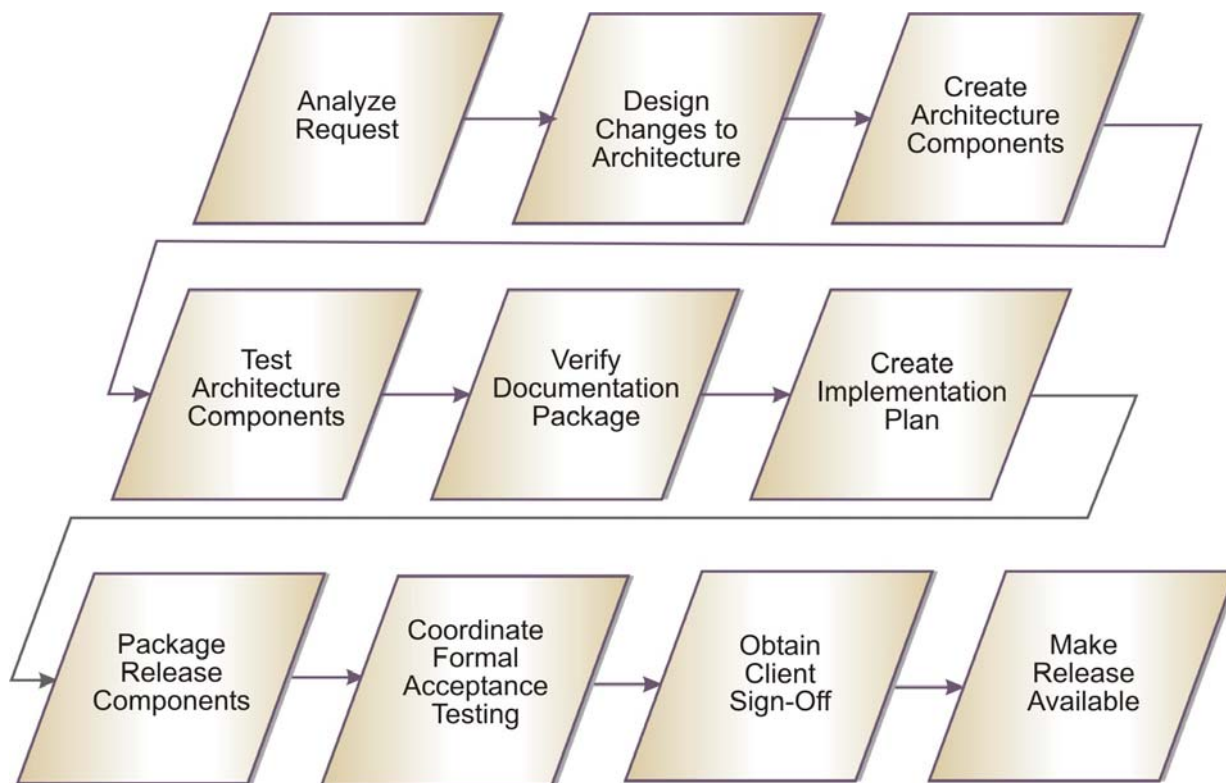
The EDS Production Support team will perform the following corrective maintenance tasks for the BAM System:

- Investigate, determine root cause, document, and remedy online functions
- Investigate, determine root cause, document, and remedy batch jobs
- Investigate, determine impact, document, develop plan of action, and remedy data issues related to system hardware or software failures
- Investigate, determine root cause, document, and remedy security issues
- Ensure documentation is correct and current

EDS will work with the State to jointly develop corrective maintenance procedures for the BAM System. The procedures include the establishment and documentation of problem level standards, problem escalation procedures, and call-back procedures to update clients regarding the status of the problem. Corrective maintenance entails the determination of the root cause of the operational problem (e.g., online function, batch job, system hardware, system failure, security issues), an interim and a final resolution of the problem (by developing and implementing a work-around as required), analyzing the impact of changes in the production schedule, and testing performance.

Typically, corrective maintenance performed to the BAM System will be bundled with other corrective maintenance items to compose a “patch release.” Patch releases will follow the BAM System release planning process to ensure all corrective maintenance items are tested in the test environment before they are implemented in the production environment. After each phase of the BAM System is installed, EDS and the State will establish patch release schedules.

The graphic pictured below provides an overview of EDS’ modification approach in an Object and Component Engineering (OCE) application, such as the BAM System.



Minor Modification Object and Component Engineering (OCE)

Procedure

- **Analyze Request** – Use available documentation and analyze approved request(s) to fully understand the problem or requested change(s). Document the results of the analysis, to include identifying all architecture components affected by the requested change(s) according to applicable client or application standards. Validate the individual request(s) estimates that were developed during the original impact analysis. During this task, EDS will establish the Logical, Process, and Development Views.
- **Design Changes to Architecture** – Design a solution for the changes to the system architecture, as specified in the analysis of the changes. Ensure that the various models of the system architecture are updated to reflect the changes to the system. During this task, EDS will evolve the Use Case View, Logical View, Component Model, Business Objects, and Presentation Layer.
- **Create Architecture Components** – Produce the changes to the architecture components that are necessary to complete the change request. If appropriate test specifications do not exist, create test specifications that address the architecture changes.
- **Test Architecture Components** – Conduct unit testing according to the test strategy, using the test specifications, and record the results. Track all problems discovered to resolution. Repeat previous tasks in this process, if necessary to resolve problems. Determine if additional testing is necessary based on the test strategy and conduct as appropriate, including tracking problems discovered to resolution. Secure completed components and update documentation in accordance with the configuration management plan.
- **Verify Documentation Package** – Examine the complete package of documentation and results to ensure that the work conforms to and is consistent with the associated standards and other documentation.
- **Create Implementation Plan** – Develop a plan that includes the activities necessary to implement the change or package of changes that is created.
- **Package Release Components** – Using the configuration management data, identify each individual configuration item that is a part of the release and its current status. Build the release from the appropriate components and store it in a controlled environment. Update the system documentation as appropriate.
- **Coordinate Formal Acceptance** – Coordinate formal acceptance testing using the approved formal acceptance testing specifications and the test strategy. Record and retain testing results. Track all problems discovered to resolution. If applicable,

collect, analyze and store pre-release defects that are discovered during formal acceptance testing. Re-test as appropriate. Update configuration management data.

- **Obtain Client Sign-Off** – Obtain client sign-off to indicate successful completion of the application or release as verified by acceptance testing results or other appropriate documentation. Obtain approval for implementation.
- **Make Release Available** – Using the configuration management data, ensure that the proper system configuration is built. Collect final size metrics. Move the system to the distribution environment, if necessary. Communicate to the client that the release is production-ready.

A corrective maintenance item that requires the prompt attention of the EDS Production Support team will be classified an “emergency fix.” The State has defined “emergency fixes” as problems preventing driver- or vehicle-related product issuance, problems having a significant impact on the user’s ability to perform his/her job (internal or branch), problems that create data integrity problems (i.e., those situations which would provide erroneous information to law enforcement), programs that terminate abnormally, and any problems that do not have a manual workaround.

EDS will work with the State to finalize procedures for emergency fixes to the BAM System. Included in these procedures will be the creation of a notification structure so the appropriate EDS Production Support staff and Michigan Department of Information Technology (DIT) staff can begin working on the problem as soon as possible. At a minimum, EDS will begin working on emergency fixes within 30 minutes of notification. In addition, EDS will provide status reports every two hours to the State until the issue is resolved.

Emergency fixes require immediate attention. However, to ensure that emergency fixes are implemented correctly, EDS will follow the same structured approach anytime EDS modifies the BAM System. It is the plan that EDS’ disciplined software development processes will minimize the number of issues that will require emergency fixes.

A final, and important, corrective maintenance task is to ensure that documentation is correct and current. EDS understands that up-to-date documentation will be vital for the EDS Production Support team when performing ongoing production support. In addition, up-to-date documentation will also serve as a training tool when performing the knowledge transfer of the BAM System to DIT staff.

Adaptive Maintenance

The EDS Production Support team will provide the following adaptive maintenance components that keep the system maintainable:

- Upgrades to the operating system or Database Management System (DBMS) software
- Software modifications necessary because of expiring contractor support
- Hardware, database, or application conversions that do not modify user functionality
- File moves (from one device to another) due to hardware swaps
- One time loads or reformats of user data (due to upgrades)
- Report distribution changes
- Disaster recovery plan activities

In cooperation with DIT, the EDS Production Support team will establish adaptive maintenance windows for the BAM System as system uptime and availability hours are defined. EDS also will work with DIT to acquire and maintain proper support contracts with software vendors so that technical support, patches, upgrades, and new releases are included and available to the State as needed. Software vendor support levels (for example, 24x7x365, on site, monitored, or Service Level Agreement) will be determined by the State in accordance with the needs and criticality of the BAM System.

EDS will provide the State with a minimum two weeks’ notice prior to the State’s application of hardware maintenance, operating system, system software, and database software patches. All adaptive maintenance items will be documented and maintained in Engineering Work Orders (EWO). The goal of the State and EDS is to make adaptive maintenance transparent to the users. Implementing adaptive maintenance patches often require special environments to isolate those capabilities from production, development, and testing activities. The EDS Production Support team will incorporate the planning of all environments to formally indicate when these areas will be available with the appropriate adaptive maintenance build. The preparation and maintenance of environments is a cyclical process that will be re-baselined after a major release (e.g., Phase 3A, Phase 3B, Phase 3C, and Phase 3D) and when adaptive maintenance implementations occur. The EDS Production Support team will supply input to properly consider the tasks necessary to implement adaptive maintenance patches according to the schedule. EDS’ experience in environment preparation and planning will give the BAM System a proven, structured, and repeatable mechanism to manage the application architecture as needed for adaptive maintenance patches.

For major system upgrades, EDS will follow the process used to implement a phase (e.g., Phase 3A, Phase 3B, Phase 3C, and Phase 3D) of the BAM System. This is due to the fact that application source code modifications often are required in such upgrades. The EDS Production Support team will perform and coordinate system administration duties with the State to manage and maintain the system software used to support and deliver the BAM System, including software required for the DIT standard toolset.

When hardware is swapped, files may move from one device to another. EDS will perform this task as part of adaptive maintenance. In addition, adaptive maintenance will include the one-time data load or the reformatting of user data after each major upgrade.

Adaptive maintenance will also include report distribution changes. Report distribution changes can be frequent and typically will be completed independent of a production release. The EDS Production Support team will work with State to develop an easy to follow procedure for managing report distribution changes.

A final service of adaptive maintenance is disaster recovery planning. The Disaster Recovery Plan must be kept up-to-date. EDS' expertise in disaster recovery planning is based on more than 40 years of experience in managing data centers for worldwide corporations and government entities. At EDS, one of our core competencies is our knowledge of redundant system technology, backup and restoration procedures, high-availability techniques, and disaster recovery site planning. EDS will assess the BAM System architecture and will make recommendations regarding hardware, software, and configuration to integrate disaster recovery needs into the overall Data Center Services plan. For more information regarding the Disaster Recovery Plan, please refer to Activity 2: Technical Planning and Support, Task 2.5 – Develop Disaster Recovery and Business Continuity Plans.

Perfective Maintenance

The EDS Production Support team will provide the following perfective maintenance services:

- Improve the performance, maintainability or other attributes of the BAM System
- Preventive maintenance
- Data table restructuring
- Data purges to reduce/improve data storage
- Run time improvements
- Replace utilities to reduce run time
- Potential problem correction
- Data set expansions to avoid space problems.

The EDS Production Support team will monitor BAM System operations to determine when perfective maintenance services are required. For more information regarding the monitoring of BAM System operations, please refer to Activity 7: Ongoing Production Support, Task 7.1 – Maintain and Support Application (Application Support: Monitor System Operations).

EDS will strongly support the continuing pursuit of perfective maintenance to maintain a smooth running system that meets all processing timelines and requirements. The EDS Production Support team will collaborate with the State to address performance issues and craft solutions jointly. The reputation of the entire project team depends on the actual user and customer experience with the system. Avoiding response time and system availability issues is a key facet of facilitating a good user perception of the BAM System.

EDS will provide the State with a minimum two weeks' notice prior to the State's application of perfective maintenance patches. The approach will be to have patches first applied to the development servers for testing and then to apply the same patch bundle to production servers after testing is completed.

Some perfective maintenance services (i.e., data purges) do not need to be scheduled into a perfective maintenance release. Rather, these services can be provided on a more frequent basis on a schedule agreed upon by EDS and the State.

Application Support

The EDS Production Support team will provide the following application support services that monitor the BAM System:

- Monitoring and reporting system performance
- Monitoring and reporting computer resource usage

A critical component of proper application support is the monitoring of system performance, key indicators, telecommunications events, and other crucial services. The EDS Production Support team will employ available, State-provided, advanced network and system monitoring tools to proactively identify and correct issues. EDS will monitor two categories of performance: System Monitoring and Application Monitoring.

1. System Monitoring includes monitoring the Central Processing Unit (CPU), memory, and disk utilization to a pre-determined threshold.
2. Application monitoring will monitor access volumes, pages delivered, and transaction volumes.

Access to State toolsets will facilitate EDS' effectiveness and responsiveness and make sure the BAM System receives the benefit of a well-managed, well-monitored environment.

Each month, the EDS Production Support team will report system resource usage to the State. The EDS Production Support team will analyze BAM System data volume estimates, user base (average concurrent, peak), response time requirements for batch and online processing, and the proposed technical architecture (operating system [OS], relational database management system [RDBMS], and hardware) to develop capacity plans and computing resource requirements. Whenever possible, applicable industry benchmarking statistics will be used to validate initial performance estimates for the system components.

EDS will involve the vendors (i.e., hardware, RDBMS, and software) and State infrastructure teams (such as Data Center Operations, Telecommunication and Network Management, and Field Services) to gather measurements and validate architecture plans. EDS will include production environments as well as development, testing, training, and other relevant

environments in the assessment to acquire a complete picture of disk space, central processing unit (CPU) load, memory utilization, and network bandwidth. EDS will define target peak hardware usage limits so the system can continue efficiently while accommodating growth and overload without resultant degradation. EDS will monitor the collection of system metrics, analysis of usage patterns, and generation of reports and graphs to facilitate projections and decision-making. EDS will adjust capacity plans as the targets are breached, and will initiate acquisition of additional disk space, memory, hardware upgrades, or other adaptive/perfective maintenance tasks.

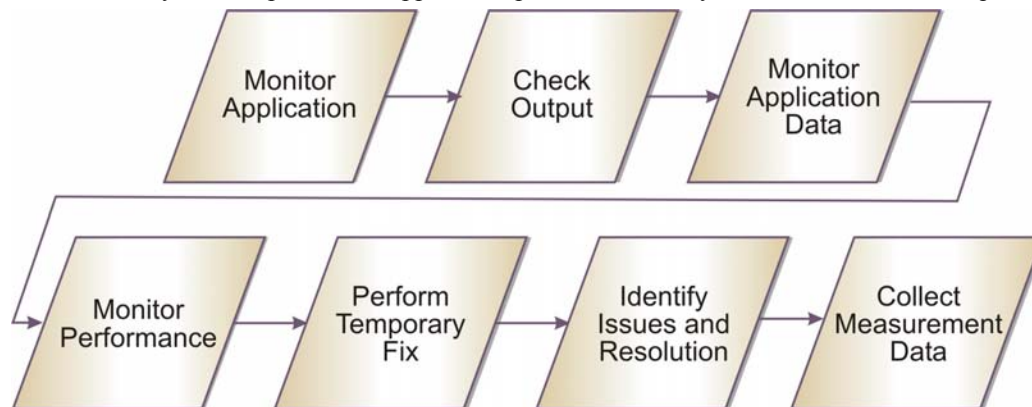
For more information regarding adaptive maintenance, please refer to Activity 7: Ongoing Production Support, Task 7.1 – Maintain and Support Application (Adaptive Maintenance). For more information regarding perfective maintenance, please refer to Activity 7: Ongoing Production Support, Task 7.1 – Maintain and Support Application (Perfective Maintenance).

Monitor System Operations

The purpose of monitoring system operations is to compare and evaluate actual system performance to system specifications in the areas of response times, output, application data, and other performance characteristics and to initiate resolution of any anomalies. The figure below provides the *Monitor System Operations* process and the various procedures that EDS team will follow within each step are detailed in the procedure section below.

Procedure

- **Monitor Application** – Verify that the production application performs correctly and other contractual requirements are met. If



Monitor System Operations

there are critical jobs, tasks, or transactions that must be completed within a particular "window," verify successful completion within the specified time. Record any anomalies observed.

- **Check Output** – Verify that all identified outputs from the application that need to be validated have been checked for accuracy according to documented specifications. Record any anomalies observed.
- **Monitor Application Data** – Verify that all of the data that belongs to the application is consistent with any checklists in the production support handbook. Record any anomalies observed.
- **Monitor Performance** – Evaluate the application for performance efficiency and potential performance problems using any checklists from the production support handbook. If there is a requirement for the application to respond within certain parameters and timeframes, evaluate whether the system response time is acceptable relative to the defined requirement. Record any anomalies observed.
- **Perform Temporary Fix** – If client service is interrupted, determine the cause of the reported problem and decide on the best temporary resolution. Produce, verify, and implement the fix; communicate results. If the cause of the problem requires permanent correction, submit an application change request.
- **Identify Issues and Resolution** – Review all monitoring results and determine if issues exist. Ensure that all affected groups are notified of any issues observed. If changes to the systems environment are scheduled, determine if application changes will be required. If application changes are indicated from issues or scheduled systems environment changes, create the necessary application change request(s).
- **Collect Measurement Data** – Ensure that all required measurement data is accurately recorded and collected in accordance with organizational and client standards.

Application support services consist of more than just monitoring the BAM System. The EDS Production Support team will also provide the following services on an as needed basis:

- Preparing and participating in application system problem review meetings
- Creating special holiday and year-end schedules
- Preliminary investigation of problems NOT identified by customer
- Model office, test environment, development environment, or prototype support

- Ad hoc schedule changes
- Data resource management

Finally, the EDS Production Support team and the State will develop a procedure to investigate why data was not processed. This problem will require prompt attention by the EDS Production Support team. Included in this procedure will be the creation of a notification structure so the appropriate EDS Production Support staff and DIT staff can begin working quickly on the problem. At a minimum, EDS will begin working on the problem within 60 minutes after notification. In addition, EDS will provide status reports every four hours to the State until the issue is resolved.

User Support

The EDS Production Support team will provide second level support for technical questions and issues that cannot be handled by the Client Service Center (CSC). The EDS Production Support team will limit the scope of the second level support to technical questions and issues related to the BAM System. After the successful implementation of each phase of the BAM System, EDS will provide services to transition the support of the Help Desk to the State. EDS anticipates the CSC will have the requisite knowledge and experience to resolve a majority of the problem tickets from the training and transition services provided by EDS to the State. For more information regarding the transition of Help Desk services to the State, please refer to Activity 6: Implementation Support, Task 6.6 – Transition Help Desk to State.

The EDS Production Support team will provide the following user support activities:

- Informal user training
- System broadcasts
- Answering customer questions regarding the application
- Preliminary investigation into possible problems identified by customer
- Investigating and ensuring user access to application system
- Ad hoc reporting
- Customer-requested updates to data in tables or databases

The State will provide access to the Remedy system for the EDS Production Support team. The Remedy system will be used by the State and the EDS Production Support team to track all production support requests for the BAM System.

Provide User Support Activities

EDS will providing user support activities in order to interact with the user, in a timely manner, in support activities that do not affect the application software baseline or production data. As described in the figure, *Provide User Support Activities*, these support activities include handling on-demand requests for problem investigation, providing answers to questions, and performing parameter and schedule changes.



Provide User Support Activities

Procedure

- **Initiate Request Processing** – Document user requests. Whenever possible, provide an immediate response or forward the request to an appropriate subject matter expert
- **Perform Necessary Research** – Interact with the user as necessary to better understand the request
- **Provide Requested Service** – Perform the requested service according to established procedures defined in application support documentation
- **Submit Change Request** – If a change is required to an application software baseline, submit an application change request
- **Monitor and Track** – Track open user requests to completion. Ensure that measurement data is collected for summary reporting

The State will identify a State of Michigan (SOM) employee to serve as the “BAM expert” (train-the-trainer) for branch offices and business units. The BAM expert will provide first level support for end-users. This should reduce the user support required from the EDS Production Support team and the Client Service Center (Please see Activity 6: Implementation Support, Task 6.5 – Provide Client Service Center Services).

When a BAM phase is implemented (e.g., Phase 3A, Phase 3B, Phase 3C, Phase 3D), EDS will assist the BAM expert with first level support for one month after successful statewide deployment. Please refer to Activity 6: Implementation Support, Task 6.4 – Perform Implementation Support for additional information.

In the event that the BAM expert and the EDS Production Support team cannot resolve a user support issue, other BAM staff members will be called upon to assist in jointly resolving the user support issue.

Minor Enhancements

EDS understands that the State plans to handle BAM System enhancements outside of the EDS Production Support Team. This will improve the efficiency and effectiveness of the system as well as support business objectives of the State. At the State's direction, and per requirements for minor enhancements, EDS has not included any such effort for the EDS Production Support Team in the price proposal.

For additional information regarding minor enhancements, please refer to Activity 8: Miscellaneous, Task 8.1 – Provide System / Service Enhancements.

Task 7.2 – Manage Ongoing Production Support Activities / Staff

Requirements of Task

The Contractor shall provide appropriate staff to the Ongoing Production Support team.

The Contractor shall work with the State to develop all processes and procedures necessary to record and track ongoing production support requests (i.e., production “tickets”). The State shall record/track production support requests (i.e., tickets) in Remedy. The Contractor shall also work with the State to develop appropriate processes and procedures to control the flow of ongoing production support work, including production support ticket assessment, configuration management, patch release testing, builds, and promotions. The State will review and approve any new processes and procedures. The Contractor will assign individuals to specific requests/tickets, develop an estimated timeframe for requests/tickets, and recommend which requests/tickets to be included in next release/patch.

Within four months of contract start, the Contractor shall provide an Ongoing Production Support Team Staffing Plan for performing all tasks within this activity. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalent (FTE) staff positions, by month, by role. Refer to attachment titled, *Contractor Staffing Plan Example*.

Deliverables from Task 7.2

1. Ongoing Production Support Team Staffing Plan – due four months after contract start, with updates as required thereafter.
2. Status Reports – due to the Contractor Project Manager at appropriate time for inclusion in weekly activity/status report. Production support team status reports shall include:
 - a) Major tasks accomplished
 - b) Work in progress, upcoming work (i.e., patch releases)
 - c) New support requests created since last status report (by category)
 - d) Support requests completed since last status report (by category)
 - e) Total number of outstanding support requests (by category)
 - f) Issues affecting productivity or efficiency
 - g) Any other issues the Ongoing Production Support Manager feels should be communicated

Contractor Response:

Task 7.2 – Manage Ongoing Production Support Activities / Staff

EDS will produce and maintain the Ongoing Production Support Team staffing plan as well as all other staffing plans. Specific to Activity 7: Ongoing Production Support, EDS will assign an Implementation and Production Support Coordinator reporting to the Project Control Office (PCO). The Implementation and Production Support Coordinator will lead the EDS Production Support team to provide oversight and coordination of all production support activities.

The Implementation and Production Support Coordinator will work with the State to develop all processes and procedures necessary to record and track ongoing production support requests (i.e., production “tickets”). The State shall record/track production support requests (i.e., tickets) in Remedy.

The Implementation and Production Support Coordinator will also work with the State to develop appropriate processes and procedures to control the flow of ongoing production support work, including production support ticket assessment, configuration management, patch release testing, builds, and promotions. The Implementation and Production Support Coordinator will assign individuals to specific requests or tickets, develop an estimated time frame for requests or tickets, and recommend which requests or tickets are to be included in the next release or patch.

A final responsibility of the Implementation and Production Support Coordinator will be to generate the Weekly Status Report containing all the major tasks accomplished, work in progress, upcoming work (i.e., patch releases), new support requests created since the last status report (by category), support requests completed since the last status report (by category), total number of outstanding support requests (by category), issues affecting productivity or efficiency, and other various issues that require communication. The Coordinator will also maintain updates to risks and other project documentation.

EDS will use the toolsets from the PCO to manage ongoing Production Support activities and staff. Please refer to Activity 1: Project Start-up, Planning, Execution, and Close Down, Project Control Office Tools for more information regarding each of the PCO toolset items listed below:

- Issue Tracker
- Project/Report Tracker
- Time Tracker
- Configuration Tracker and Build Tracker
- Infrastructure Request System
- Test Tracker
- Ticket Tracker
- Load Tracker
- Improvement Requests

The Production Support team will follow a production assessment ticket process that enables stakeholders to offer input on the prioritization and timing of all work on the BAM System, including ongoing Production Support. This process was developed by EDS and the State and is currently being used on several State of Michigan projects. For additional information regarding this process, please refer to Activity 4.4.1: Project Start-up, Planning, Execution, and Close Down, Production Ticket Assessment.

As required in Task 7.2, the staffing plan provides for the full ongoing production support team for the duration of the contract, without relying on assigned State staff. Table 4.4.7-1 shows the Ongoing Production Support Team Staffing Plan by man-months. Please see Activity 1 Appendix C – Contractor Staffing Plan for a complete list of resources assigned to this Activity. Please see Staffing Appendix B, Representative Resumes in Section 3, Qualified Personnel/Staffing for Activity 7 representative resumes.

Activity Seven: Ongoing Production Support Team Staffing Plan (man-months)

Activity/Roles	Phase 3A	Phase 3B	Phase 3C	Phase 3D	Totals
Ongoing Production Support	0.00	0.00	0.00	0.00	0.00
Implementation/Production Support Coordinator	4.50	7.50	4.00	5.25	21.25
Technical Support Engineer	0.00	0.00	0.00	0.00	0.00
Configuration Manager	2.00	7.50	4.00	5.75	19.25
Production Support DBA	3.50	14.50	8.00	10.75	36.75
Sr Analyst / Developer	3.50	14.50	8.00	10.75	36.75
Jr Analyst / Developer	7.00	29.00	16.00	21.50	73.50
Model Support SME	3.50	14.50	8.00	10.75	36.75
Business Trainer	0	0	0	0	0.00
Technical Writers	2	7.25	4	5.5	18.75

Total man-months by Phase for Activity Seven	26.00	94.75	52.00	70.25	243.00
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Ongoing Production Support Team Staffing Plan by Man-Months

Task 7.3 – Perform Ongoing Production Support Knowledge Transfer

Requirements of Task

It is the State's intent to perform ongoing production support on its own at the completion of this contract. To this end, the Contractor shall work with the State to perform a "knowledge transfer" on the ongoing production support tasks identified previously. This knowledge transfer shall include involving State DIT personnel in ongoing production support activities from the commencement of this support. This task can be achieved through documentation, training, and hands-on experience.

The State intends to identify 3-6 individuals to participate on a full-time basis in ongoing production support activities. These people will have the requisite skills to participate on the team as identified by the Contractor in the System Support Transition Plan (reference *Activity 8, Task 8.2 – Transition Support to State*). The Contractor is expected to communicate concerns regarding specific areas/individuals if the Contractor feels there is an elevated level of schedule risk; the State will pursue other methods of performing the knowledge transfer for the given area in this situation.

This staff is meant to provide a smooth transition of ongoing production support upon completion of the contract. The Contractor should not rely on these individuals to reduce contractor's staffing levels on the ongoing production support team during the project; in fact, no guarantee is made as to the State's ability to provide these staff. The Contractor is entirely responsible for meeting the ongoing production support requirements of this contract, regardless of whether DIT staff participates in these activities. The Contractor will provide production support for six months after the successful implementation of Phase 3D.

Deliverables from Task

1. Ongoing Production Support Knowledge Transfer – continually throughout and complete by end of contract.

Contractor Response:

Task 7.3 – Perform Ongoing Production Support Knowledge Transfer

EDS will develop and employ an approach to knowledge transfer that will integrate the EDS team and the EDS methodology with the State's business and technical teams as an important first step toward achieving success in the BAM System implementation. EDS will undertake the ongoing production support knowledge transfer that must begin with the project start date and continue for the duration of the project. Accordingly, EDS will involve three to six designated DIT staff members in Ongoing Production Support Knowledge Transfer activities from the beginning of the BAM Phase 3 project. Early and thorough ongoing production support knowledge transfer will accomplish the important goal of facilitating a smooth transition of ongoing production support activities to DIT upon contract completion.

EDS will manage and lead the ongoing production support activities for all of the BAM Project phases (i.e., Phase 3A, 3B, 3C and 3D). However, throughout the ongoing production support process, DIT staff members will provide input to EDS via the three to six designated DIT staff members, who will be the primary recipients of the knowledge transfer. Further, EDS fully understands that, despite the availability of the three to six designated DIT staff members, EDS will not reduce its ongoing production support staffing levels in corresponding measure. Instead, EDS will employ its ongoing production support methodology in a manner that most suitably exposes the three to six DIT staff members to the widest range of ongoing production support activities and that is commensurate with DIT staff member availability.

Six months after successful implementation of Phase 3D of the BAM System, the three to six designated DIT staff members selected to be the recipients of the ongoing production support knowledge transfer will have been appropriately equipped with the necessary skills required to perform post-implementation production support for the BAM System. Accordingly, should EDS identify knowledge transfer issues or concerns regarding the three to six designated DIT staff members that could adversely impact the project schedule, EDS will notify the State. The State will then attempt to resolve the issue and potentially identify alternative methods for completing the knowledge transfer.

The EDS methodology for Ongoing Production Support Knowledge Transfer will include the technical training addressed via Activity 6, shadowing, and mentoring. For additional information regarding EDS' methodology, please refer to Activity 8: Miscellaneous, *Task 8.2 Transition Support to State*. EDS will employ the knowledge transfer process to permit DIT personnel to quickly and accurately learn and master the production support environment.

A key part of the knowledge transfer process will be the creation and validation of an ongoing production support turnover plan. This plan will document the work necessary to turn the BAM system over to the DIT personnel who will be

responsible for ongoing system support. A well-planned knowledge transfer is a substantial section of the production support turnover plan.

The following section outlines the necessary steps to ensure a complete Ongoing Production Support Knowledge Transfer:

- Business and Technical Subject Matter Experts (SMEs) for the BAM System are identified early
- A high level plan will be developed including:
 - Gathering of system documentation. Where this documentation does not exist, the required documentation will need to be created
 - Identifying the specific skills and, if necessary, training needs for the DIT personnel to manage the BAM System
 - Training sessions for DIT personnel. Over a period of time, DIT personnel will spend time with both the EDS Production Support team and with users of the BAM System. By giving DIT personnel the opportunity to spend time in the role of the user, the DIT personnel will gain first hand experience with using the BAM System. In addition to the structured time with critical user contacts, various overview sessions related to the Michigan Department of State's (DOS) current and future business plan will be scheduled
 - As each DIT personnel will completed the training tasks identified in the previous bullet, the DIT personnel member will assume second-level responsibility to support the BAM System. During this second-level support phase, the DIT personnel member will receive the initial call, but will work hand-in-hand with an on-site EDS Production Support team member to resolve the issue

After a period of time agreed to by the State and EDS, DIT personnel will assume full support responsibility for managing the BAM System. Once this occurs, the ongoing production support knowledge transfer will be considered complete

By following the steps above during the ongoing production support knowledge transfer, DIT personnel will have the opportunity to learn the DOS business and the BAM System, so that they can confidently manage the BAM System. For additional information regarding the Knowledge Transfer process, please refer to the Knowledge Transfer Plan located within its own tab at the end of this proposal.

Activity 7 Deliverables

The deliverables defined for Activity 7 are listed below. All the deliverables will be completed along with all other deliverables described above.

Deliverable	Measure of Success
Task 7.1 – Maintain and Support Application	
• Emergency and bug fixes as required	EDS will implement emergency and bug fixes as required. EDS will work with the State to establish procedures for "emergency fixes" and bug fixes to the BAM System.
• Monthly patch releases, both adaptive and perfective (to all relevant environments)	EDS will provide the State with a minimum two weeks' notice prior to the State's applying both adaptive and perfective patch releases to all environments in the BAM System so the system runs efficiently and performs to optimal capabilities. The patch release schedule will be limited to a maximum of one patch release per month.
• Documented production support requests in Remedy	EDS will obtain the documented production support requests in Remedy for inclusion in the weekly production support team status report.
• Completed production support requests	EDS will obtain the completed production support requests in Remedy for inclusion in the weekly production support team status report.
• Documented resolution for each production support request	EDS will provide a documented resolution for each production support request to ensure accurate records and the ability to use "lessons learned."
• Monthly report on system performance	EDS will create a monthly report that displays system performance of the BAM System. This report will be used to analyze trends and provide and potentially identify performances issues that require analysis.
• Monthly report on system resource usage	EDS will create a monthly report that displays system and application resource usage of the BAM System. This report will be used to analyze trends.
Task 7.2 – Manage Ongoing Production Support Activities / Staff	
• Ongoing Production Support Team Support Staffing Plan – due four months after contract start, with updates as required thereafter	EDS will produce/maintain the Ongoing Production Support Team Support Staffing Plan. Please refer to Appendix 4-A – Contractor Staffing Plan for the initial draft of this staffing plan.
• Status Reports – due to the Contractor Project Manager at appropriate time for inclusion in	The Implementation and Production Support Coordinator will provide ongoing status updates to the PCO specific to ongoing production support tasks. The status updates

Deliverable	Measure of Success
<p>weekly activity/status report. Production support team status reports shall include:</p> <ul style="list-style-type: none"> – Major tasks accomplished – Work in progress, upcoming work (i.e., patch releases) – New support requests created since the last status report (by category) – Support requests completed since the last status report (by category) – Total number of outstanding support requests (by category) – Issues affecting productivity or efficiency – Any other issues the Ongoing Production Support Manager deems should be communicated 	<p>will include the following: major tasks accomplished, work in progress, upcoming work (i.e., patch releases), new support requests created since the last status report (by category), support requests completed since the last status report, total number of outstanding support requests, Issues affecting productivity or efficiency, and other issues the Implementation and Production Support Coordinator thinks should be communicated.</p>
Task 7.3 – Perform Ongoing Production Support Knowledge Transfer	
<ul style="list-style-type: none"> • Ongoing Production Support Knowledge Transfer – continually throughout and completed by end of contract 	<p>EDS will use the Knowledge Transfer process (see attachment to proposal) to develop a plan for Ongoing Production Support Knowledge Transfer.</p>



Appendix H

Activity 8 – Miscellaneous

Task 8.1 – Provide System / Service Enhancements

Requirements of Task

Enhancement requests – requests for new functionality and/or changes to the system, as well as new services and/or changes to existing services provided via this contract – will occur throughout this project. This section is intended to facilitate the handling of these requests so that only those with a solid business case can be efficiently incorporated into the project.

The State intends to establish funding for 40,000 hours over the life of the contract for system enhancements and services from the Contractor above and beyond those contractually required by this RFP. Actual funding for enhancements will occur on a yearly basis, and there is no guarantee as to the level of funding for enhancements, if any, available to the project.

Enhancement requests will go through a rigorous review process established by the State before being submitted to the Contractor for impact assessment and estimates. This process will serve to weed out requests for which there is no funding, as well as requests lacking an obvious business case. A limited amount of contractor time may be required in this review process, but only to provide a cursory review of the request.

The requests considered potentially viable will then be passed to the Contractor for impact assessment (i.e., impact on existing plans and estimates). Requests may be considered for inclusion in an existing release (e.g., Phase 3A), for a future planned release (e.g., Phase 3B), or bundled for an entirely new release (e.g., Phase 3A1). Requests for impact assessment and estimates may be made on an individual (request by request) basis or on a “group of requests” basis.

Enhancements must not impact the schedule, service level, or cost of the other activities and tasks requested in this RFP without the express acknowledgement and consent of the State.

Deliverables from Task 8.1

- 1) Impact Assessment – duration, effort, cost, risk (by request or bundle) – as needed
- 2) Estimates – duration, effort, and cost (initial and ongoing, by individual request or group (bundle) of requests) – as needed
- 3) Completed Enhancement – approved by State

Contractor Response:

In addition to the development, data conversion, implementation and production support activities associated with BAM Phase 3, EDS will support enhancement requests and will smoothly transition support to the State.

Task 8.1 – Provide System/Service Enhancements

It is understood that requests for new functionality and/or changes to the system, as well as new services and/or changes to existing services, will occur throughout the implementation of the BAM System.

The EDS staffing will provide the right people in the right roles on a timely basis and supporting those team members with mature Capability Maturity Model Integration (CMMi) Level 5 disciplines so they can produce the highest-quality products. Because the EDS office is based in Lansing, EDS can exercise immediate executive oversight of each project if urgent staffing matters arise. More than 450 local personnel can offer assistance and expertise as needed. The ITB allows 40,000 hours for enhancement requests or “as needed” Statement of Work (SOW) requests. EDS’ project team will perform assessments of enhancement requests and will call upon EDS’ local pool of qualified personnel to accommodate random SOW’s quickly and easily.

Enhancement Requests

For enhancement requests, EDS team will initiate a ticket, estimate needed capacity to perform the enhancement, assess the impact of the enhancement, and determine the capacity of the team to perform the enhancement.

If the enhancements can be accommodated without impacting current resources or schedule, the change request will be logged and the ticket will be processed according to the normal Project Control Office (PCO) entry point procedures. Please refer to Section 4.4.1, Activity 1: Project Start-up, Planning, Execution, and Close Down, Production Ticket

Assessment for additional information.

If the enhancement request is such that it cannot be fulfilled by the current resource pool or within the current schedule, the team will develop a SOW and a proposal outlining the type of resources and the time required to perform the work; the latter will be presented to the State for approval. If approved, the change request will be logged and incorporated into the development (release) schedule, using the formal change management processes. Enhancements that impact the schedule, service level, or cost of the other activities and tasks requested in this ITB must have the express acknowledgement and consent of the State.

Statement of Work Requests

For requests that are clearly out of project scope, the team will develop an SOW. The State will then be presented with the estimate for duration, effort, and cost, including impact on current schedule and service level, if any; the State will make a final determination of whether or not to proceed with the request. Any request that impacts the schedule or service level of the activities and tasks associated with this ITB will require the express acknowledgement and consent of the State and if approved will follow the formal change management process.

Task 8.2 – Transition Support to State

Requirements of Task

It is the State's intent to support the BAM system on its own at the completion of this contract. To this end, the Contractor shall work with the State to transition support for the BAM system to State of Michigan business (DOS) and technical (DIT) staff. This should include involving State personnel in a variety of areas – requirements definition, application development, data conversion, ongoing production support, etc. – during the life of this contract.

For informational purposes, the State intends to assign 4-6 DIT and 6-10 DOS staff to the project on a full-time basis for the duration of each phase of the project. These individuals are expected to become the subject matter experts for various areas of the system. For example, the DIT staff assigned to Phase 3A will become the ongoing system support staff for the functionality contained in Phase 3A. The same will occur for Phase 3B, 3C and 3D. The intent is for the State to have experience and knowledge in all aspects of BAM by the end of the contract. It will be imperative that the BAM repository of business requirements, including the maintenance and updating of requirements be transferred to the State team and staff will be provided from the State from both DOS and DIT to accomplish this task. The State expects the Contractor to pair the State people up with key individuals from the contractor team. The Contractor will manage these staff in terms of work assignment. However, the Contractor should not rely on these individuals to reduce contractor staffing levels; in fact, no guarantee is made as to the State's ability to provide these staff. The Contractor is entirely responsible for meeting all requirements of this RFP, regardless of whether State staff participates as working members of the contractor teams.

The Contractor shall provide a formal transfer of knowledge to DIT and DOS staff by the conclusion of the project. Knowledge transfer shall be performed through documentation, training, and hands-on experience. The plan to complete the transfer of knowledge shall be documented by the Contractor in a "System Support Transition Plan". The plan will be approved by the State. This plan shall include mandatory and suggested training - business, system, and toolset – by role (e.g., DBA, business analyst, system developer) to complete the formal transition of system support responsibility to the State. The plan must also identify the estimated staff, by role, required to adequately support the system long-term.

Deliverables from Task 8.2

1. System Support Transition Plan – due six months after contract start
2. Documentation/Knowledge Transfer – continually during contract and complete by end of contract

Contractor Response:

Task 8.2 – Transition Support to State

EDS will transition support of the BAM System to the State that must begin with the project start date and continuing for the duration of the project. Accordingly, EDS will involve four to six designated Michigan Department of Information Technology (DIT) staff members and six to ten designated Michigan Department of State (DOS) staff members in System Support Transition activities from the beginning of the BAM Phase 3 project. Early and thorough system support transition will accomplish the important goal of facilitating a smooth transition of system support activities to the State upon contract completion.

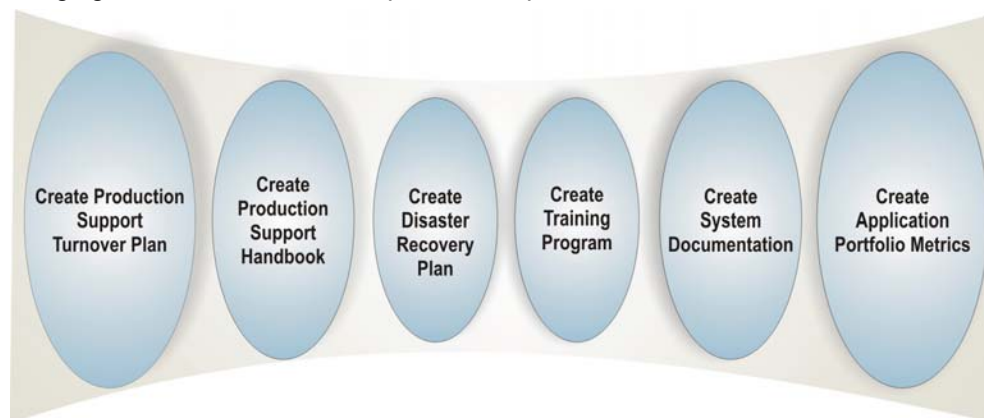
EDS will manage and lead the system support transition activities for all of the BAM Project phases (i.e., Phase 3A, 3B, 3C and 3D). However, DIT and DOS staff members will provide input to EDS throughout the system support transition process via the four to six designated DIT staff members and six to ten designated DOS staff members who will be the primary recipients of the system support transition. Further, EDS fully understands that, despite the availability of the four

to six designated DIT staff members and six to ten designated DOS staff members, EDS will not reduce its staffing levels in corresponding measure. Instead, EDS will employ its system support methodology in a manner that most suitably exposes the four to six DIT staff members and six to ten DOS staff members to the widest range of system support activities commensurate with DIT and DOS staff members' availability.

At the completion of the project, the four to six designated DIT staff members and six to ten designated DOS staff members selected to be the recipients of the system support transition will have been appropriately equipped with the necessary skills required to perform system support for the BAM System. Accordingly, should EDS identify any system support transition issues or concerns regarding the four to six designated DIT staff members or six to ten designated DOS staff members that could adversely impact the project schedule, EDS will notify the State. The State will then attempt to resolve the issue and potentially identify alternative methods for completing the transition.

EDS understands and fully supports the State's desire to support the BAM system independently after the completion of development. EDS will work with the State to develop specific criteria for the tasks that are appropriate for each phase of this transition to completion. EDS will base these criteria upon factors under the control and influence of the EDS team, and that the criteria will be reasonably attainable within 30 days of final acceptance of final implementation for each phase. EDS looks forward to working with the State toward this mutual goal.

The process for transitioning the support of the BAM System will be provided through the EDS CMMi Level 5 process set. The Transition of Support process will provide a structured approach for transitioning the support of the BAM System to the State. The following figure illustrates the description of the process:



Transition of Support Process

Transition of Support Process

The Transition of Support process is organized into six activities:

- Create production support turnover plan
- Create production support handbook
- Create Disaster Recovery Plan
- Create training program
- Create system documentation
- Create application portfolio metrics

Create Production Support Turnover Plan

The Production Support Turnover Plan documents the work necessary to turn the BAM System over to the State of Michigan staff who will be responsible for ongoing system support. In this plan, the role each organization plays in the support of the BAM System in production is clarified.

The following information will appear in the Production Support Turnover Plan:

- How knowledge will be transferred from the EDS to the State
- Steps for the formal turnover process
- When, how, and what type of training will be provided to the State
 - Resources needed during the transition

Create Production Support Handbook

The Production Support Handbook defines tasks to be performed and assigns responsibility for accomplishing each task unique to a specific production support environment.

The Production Support Handbook consists of three guides:

- **Technical Support Guide:** To ensure that technical support personnel have all the information they need to properly maintain and enhance the BAM System and to respond to user, operator, and administrator requests.

- **Operational/Administrative Guide:** An instruction book for operations and systems administrative personnel, designed to assist in running and troubleshooting the BAM System. This guide is a permanent part of system documentation that must be updated when affective system changes are made.
- **User Guide:** Provides the information needed by BAM System users to use the System effectively in their daily job functions.

Create Disaster Recovery Plan

The Disaster Recovery Plan documents the procedures and facilities used to first recover the services that support critical client functions, and then to return to normal operating procedures as soon as possible following a disaster.

Create Training Program

The Training Program puts into place some of the strategies for transitioning the BAM System to the State.

EDS understands that supporting BAM System skills development for DIT and DOS staff is important to the State. EDS is proposing a highly diverse curriculum of project team training to address not only developer training but many aspects of the project.

Project team training begins with a project orientation to describe the purpose of the project, required scope, goals and objectives, schedule, and respective roles and responsibilities. The Orientation is then followed by methodology training on the CMMi Level 5 process set for analyzing, designing, constructing, testing, and implementing the BAM System. From these sessions, DIT and DOS staff members will understand the project approach and how they fit within that approach.

The Methodology session is followed by a Functionality overview in which the System's key design features are outlined so that the DIT and DOS staff members understand what functionality is being created and how the various components integrate into a complete software solution. That is followed by training on how to conduct unit, integration, stress, and acceptance tests, so that the DIT and DOS staff members understand what aspects of functionality are validated in which phases of the project.

Ongoing throughout the duration of the project will be formal on-the-job (OJT) coaching and value-added sessions. OJT coaching will establish required knowledge, skill, and ability criteria for each DIT and DOS staff member working on the BAM System. Value-added sessions will bring in subject matter experts (SME) to explain best practices and approaches. Collectively, this comprehensive project team training solution will help prepare DIT and DOS staff to accept ownership of the BAM System at the conclusion of the contract.

Create System Documentation

System documentation represents the general information about the system and its current implementation. System documentation provides detailed information about the system components or refers to information provided by the logical system specifications, system design specifications, source module documentation, and technical architecture specifications. Moreover, EDS' system documentation includes information about previous system performance, problems and resolutions, and modifications.

Create Application Portfolio Metrics

Application Portfolio Management Metrics support the monitoring and control of the BAM System over its total life cycle. They also support the tracking and managing of resources and changes applied to the BAM System.

System Support Transition Plan

EDS will deliver a final System Support Transition Plan to the State six months after the contract start date. The System Support Transition Plan will include the mandatory and suggested training, by role, to complete the formal transition of system support responsibility to the State. The plan also will include estimated staff, by role, required to support the BAM System after contract completion. EDS has provided a draft System Support Transition Plan in Activity 8 Appendix A.

Activity 8 Deliverables

The deliverables defined for ITB Activity 8 are listed below. All these activities will be completed along with all other deliverables described above.



Suggested Learning Path

Deliverable	Measure of Success
Task 8.1 – Provide System/Service Enhancements	

Deliverable	Measure of Success
<ul style="list-style-type: none"> Impact Analysis - duration, effort, cost, risk (by request or bundle) – as needed 	For each submitted Enhancement Request or SOW, EDS will complete an Impact Analysis for review by the State. The Impact Analysis will be performed and returned to the State for review typically within 10 business days. Substantial enhancements may require a longer period of impact analysis. A log of enhancement requests and SOW will be maintained and shared with the State on an on-going basis.
<ul style="list-style-type: none"> Estimates – duration, effort, and cost (initial and ongoing), by individual request or group (bundle of requests) – as needed 	For enhancements that require a cost estimate, and other out-of-scope SOW requests, EDS will complete a formal estimate of initial and ongoing duration, effort, and cost – including an evaluation of whether the current schedule will be impacted. The requests may be bundled if deemed appropriate. The estimate will be presented to the State within 10 business days for the State's approval process to proceed.
<ul style="list-style-type: none"> Completed Enhancement – approved by State 	Approved Enhancement Requests will be incorporated in the work schedule through the formal change management process. Once included, the Enhancement Request will follow standard project processes for testing, documentation, and approval. Approved out-of-scope SOW will flow through the change management and ticket assessment processes if there is an impact on project work.
Task 8.2 – Transition Support to State	
<ul style="list-style-type: none"> System Support Transition Plan – due six months after contract start 	EDS will provide a System Support Transition Plan that includes the mandatory and suggested training, by role, to complete the formal transition of system support responsibility to the State. The plan must also identify the estimated staff, by role, required to adequately support the system long-term. A draft of this plan is below.
<ul style="list-style-type: none"> Documentation/Knowledge Transfer – continually during contract and completed by end of contract 	Throughout the contract, EDS will provide Documentation/Knowledge Transfer to DIT and DOS. The Documentation/Knowledge Transfer includes instruction, documentation from the Rational tools, and ongoing support by EDS personnel. Knowledge Transfer provides DIT and DOS with a working knowledge of the system and encourages efficient use of the system's functions.

APPENDIX I
PRICE AND PAYMENT SCHEDULE – BAM PHASE 3

	Phase A Payment Method	Phase A Monthly Payment Amount	Phase A Total Payments
Phase A Total Price:		\$15,992,000.00	
Monthly Payment (55% over 24 Months)	Monthly Payment \$	366,483.33	\$ 8,795,600.00
Business Requirements (15%)	Lump Payment		\$ 2,398,800.00
Statewide User Acceptance (10%)	Lump Payment		\$ 1,599,200.00
Implementation (10%)	Lump Payment		\$ 1,599,200.00
Transition to State (10%)	Lump Payment		\$ 1,599,200.00
			<u>\$15,992,000.00</u>

	Phase B Payment Method	Phase B Monthly Payment Amount	Phase B Total Payments
Phase B Total Price:		\$10,231,000.00	
Monthly Payment (55% over 12 Months)	Monthly Payment \$	468,920.83	\$ 5,627,050.00
Business Requirements (15%)	Lump Payment		\$ 1,534,650.00
Statewide User Acceptance (10%)	Lump Payment		\$ 1,023,100.00
Implementation (10%)	Lump Payment		\$ 1,023,100.00
Transition to State (10%)	Lump Payment		\$ 1,023,100.00
			<u>\$10,231,000.00</u>

	Phase C Payment Method	Phase C Monthly Payment Amount	Phase C Total Payments
Phase C Total Price:		\$6,359,000.00	
Monthly Payment 55% over 12 Months)	Monthly Payment \$	291,454.17	\$ 3,497,450.00
Business Requirements (15%)	Lump Payment		\$ 953,850.00
Statewide User Acceptance (10%)	Lump Payment		\$ 635,900.00
Implementation (10%)	Lump Payment		\$ 635,900.00
Transition to State (10%)	Lump Payment		\$ 635,900.00
			<u>\$ 6,359,000.00</u>

	Phase D Payment Method	Phase D Monthly Payment Amount	Phase D Total Payments
Phase D Total Price:		\$6,721,000.00	
Monthly Payment (55% over 12 Months)	Monthly Payment \$	308,045.83	\$ 3,696,550.00
Business Requirements (15%)	Lump Payment		\$ 1,008,150.00
Statewide User Acceptance (10%)	Lump Payment		\$ 672,100.00
Implementation (10%)	Lump Payment		\$ 672,100.00
Transition to State (10%)	Lump Payment		\$ 672,100.00
			<u>\$ 6,721,000.00</u>

APPENDIX I
PRICE AND PAYMENT SCHEDULE – BAM PHASE 3

System & Service Enhancements

Staffing Category	Est. Hours	Hourly Rate	Extended Price
DBA	4000	\$105.00	\$ 420,000.00
Documenter	2000	\$84.00	\$ 168,000.00
Facilitator	2000	\$105.00	\$ 210,000.00
Jr Analyst/Developer	20000	\$84.00	\$ 1,680,000.00
Project Manager	4000	\$157.00	\$ 628,000.00
Sr Analyst/Developer	4000	\$115.00	\$ 460,000.00
Tester	2000	\$93.00	\$ 186,000.00
Trainer	2000	\$105.00	\$ 210,000.00
Other	0		
Totals	40000	-	\$ 3,962,000.00

Post 3D Production Support

Staffing Category	Est. Hours	Hourly Rate	Extended Price
Implementation Coordinator	960	\$105.00	\$ 100,800.00
Configuration Manager	480	\$94.00	\$ 45,120.00
Production Support DBA	960	\$105.00	\$ 100,800.00
Sr. Analyst/Developer	960	\$115.00	\$ 110,400.00
Jr. Analyst/Developer	1920	\$84.00	\$ 161,280.00
Model Support SME	960	\$84.00	\$ 80,640.00
Technical Writer	480	\$73.00	\$ 35,040.00
Totals	6720	-	\$ 634,080.00

Hardware & Software

Total Hardware and Software cost	\$7,965,649.21
Development Environment through MMCC	(\$630,354.56)
Test Environment through MMCC	(\$445,000.00)
UAT Environment through MMCC	(\$579,170.00)
PRD (Sign pads) Environment through MMCC	(\$814,620.00)
Totals	\$5,496,504.65

Total Dev & Impl Phase 3A-3D	\$39,303,000.00
Total Enhancements	\$3,962,000.00
Total Post 3D Support	\$634,080.00

Revised Total Services **\$43,899,080.00**

Revised Hardware & Software **\$5,496,504.65**

Revised Contract Total **\$49,395,584.65**
Plus MMCC purchases **\$2,469,144.56**

GRAND TOTAL **\$51,864,729.21**



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The following alterations are made to the Invitation To Bid Requirements:

1. Bidders are required to provide, in addition to their original proposed solution, an alternate solution using enterprise or a hybrid enterprise server environment. The alternate solution should include a discussion of the pros and cons of the alternate solution as opposed to the original solution. The discussion should also include an explanation of the decision behind the vendor's recommended solution.
2. Bidders should include a clearly defined approach to ensuring confidentiality, application integrity and availability of the BAM application.
3. Bidders must clearly articulate how they will complete system documentation, including program documentation, interfaces, and any other standard documentation.

Detailed below are EDS' responses to each of the alterations to the ITB Requirements.

Alterations

Question # 1

Bidders are required to provide, in addition to their original proposed solution, an alternate solution using enterprise or a hybrid enterprise server environment. The alternate solution should include a discussion of the pros and cons of the alternate solution as opposed to the original solution. The discussion should also include an explanation of the decision behind the vendor's recommended solution.

Response

EDS understands the constraints associated with managing hardware and software services in a production, development, quality assurance, and user-acceptance testing environment for BAM. EDS is highly experienced in the design, implementation and management of similar-sized customer enterprise solutions in data centers globally. Within each data center environment, the requirements for system availability, flexibility, scalability, and efficiency were carefully considered against the client's application needs with the clear and achievable goal of implementing the optimal solution. EDS believes the technical solution proposed in the ITB response is the best fit for the State of Michigan and the BAM project. The following table is a summary of the fit analysis for proposed solution:

Benefit	Description
Dependable	Windows 64-bit Enterprise Server 2003 is the fastest, most reliable, most secure Windows server operating system ever offered by Microsoft. The original architecture supports this environment and delivers dependability by:
	<ul style="list-style-type: none">• Providing an IT infrastructure that delivers fundamental value: improved reliability, better availability, and increased scalability with self diagnostic and repair capability.
	<ul style="list-style-type: none">• Including an application platform with built-in traditional application server functionality on top of extensive operating system capabilities.

Benefit	Description
	<ul style="list-style-type: none"> Integrating an information worker infrastructure that helps keep business information secure and accessible. Data is secure by design and server specificity of purpose.
Productive	<p>Windows Server 2003 provides the tools that simplify deployment, management, and administration and maximize productivity.</p> <p>The original architecture does this by:</p> <ul style="list-style-type: none"> Providing flexible tools that help match design and deployment to your organizational and network and multi-phased BAM needs. Helping manage the BAM network proactively by enforcing policy, automating tasks, and simplifying updates. Helping you lower support overhead by letting users do more on their own. For example, the reporting service is available to end users to create their own custom reports.
Connected	<p>Windows Server 2003 64-bit provides an extensible application platform for quickly building solutions that keep employees, partners, systems, and customers connected.</p> <p>The original architecture does this by:</p> <ul style="list-style-type: none"> Providing an integrated Web server and streaming media server that helps you quickly, easily, and securely create dynamic intranet and Internet Web sites. Providing built-in services that help develop, deploy, and manage XML Web services. Providing the tools that enable you to connect XML Web services to internal applications, suppliers, and partners.
Best Economics	<p>When combined with products and services from the many Microsoft hardware, software, and DCO partners, Windows Server 2003 64-bit provides the choices that help you get the greatest return on your infrastructure investments.</p> <p>The original architecture does this by:</p> <ul style="list-style-type: none"> Providing ease-of-use and prescriptive guidance for complete solutions that enable BAM to quickly put technology to work. Helping you manage servers by taking advantage of the latest hardware, software, and methodologies to optimize your server deployments. Lowering your total cost of ownership (TCO) to realize a fast return on investment by utilizing common hardware components from DELL.

EDS understands that our proposed solution is not the only solution that will work. This response will explore a hybrid enterprise server environment which substitutes several HP Superdome servers for a number of the Dell PowerEdge 7250 servers in our original server solution.

BAM Requirements for the Architecture

The following Solution Compliance table is a side-by-side comparison of the original server solution with the alternate enterprise server solution. As the table identifies, the original server solution fully accommodates all nine BAM Phase 3 High-Level Technical Architecture Requirements as itemized within the ITB. However, the alternate enterprise server solution fully accommodates only seven of the nine BAM Phase 3 High-Level Technical Architecture Requirements, only partially satisfying the remaining two highlighted High-Level Technical Architecture Requirements. The remainder of this response provides an evaluation of the pros and cons of the alternate enterprise server solution and identifies why the two highlighted High-Level Technical Architecture Requirements are only partially satisfied by the alternate solution.

BAM Phase 3 High-Level Technical Architecture Requirements Solution Compliance	Original Server Solution	Alternate Enterprise Server Solution
<ul style="list-style-type: none"> ● = Proposed System Fully Meets Technical Requirements □ = Proposed System Partially Meets Technical Requirement 		
System shall be an n-tier architecture that supports flexibility by separating a software application into tiers or layers that are architecturally independent of other layers. The minimum set of tiers must include presentation, business logic, and persistence.	●	●
System shall support scalability, meaning additional application hardware can be used to address increases in system loads without modifying program code.	●	●
System must operate in a 7x24x365 on-line environment with the exception of infrequently planned maintenance windows. System shall be available 99.999% of the time.	●	□
System shall provide a batch window that does not interfere with normal business hours (6 AM – 9 PM ET M - F, 8 AM – 5 PM Sat).	●	●
System shall use a relational database for persistence.	●	●
System shall utilize message orientated middleware for integrating with legacy systems.	●	●
System shall provide load balancing of web and application servers in order to improve performance.	●	□
System shall support up to 1,500 users with a sustained load of 200 page requests per second.	●	●
System shall support the use of proxy or separate application and web servers for hosting web pages that are externally facing to the internet. This is intended to provide a secure layer separating intranet only/internal web pages and web pages that are exposed through the DMZ, using mechanisms such as URL redirection and proxies.	●	●

Alternate Enterprise Server Solution / Architecture Configuration

The alternative architecture will consolidate the physical number of servers needed to support the BAM solution. Specifically, where a compatible Windows 2003 Operating System environment exists, the servers identified in the original server solution have been incorporated into an HP Superdome in the alternate enterprise server solution. The table below identifies each server that will be employed in the alternate enterprise server solution for the Production, UAT, Development and Test environments. Within the Production environment, 17 Dell 7250 servers will be replaced by 3 HP Superdome servers. While the original server solution required 51 servers, the alternate enterprise server solution would require 37 servers.

Environment and Configuration	Comment	Quantity Needed
Production		

Environment and Configuration	Comment	Quantity Needed
HP Superdome	These two HP Superdome Servers will provide the Database, Web, and .NET functions running Windows 2003, thereby eliminating 10 Dell PowerEdge 7250 Servers from the original server solution Production environment (i.e., 2 Database servers, 6 Internet servers, and 2 .NET servers).	2
(2) Web Servers - Dell PowerEdge 7250 (with operating system)	These two servers will be used in the DMZ (Public Web Space) for exposed public web services. As a result, they will remain an independent box to be placed outside of the internal network and cannot be incorporated into a Superdome.	2
(2) Active Directory (AD) Servers - Dell PowerEdge 7250 (with operating system)	These two servers will be used in the DMZ (Public Web Space) or replaced once the State deploys its Identity Management solution. Since the two AD servers need to exist in the DMZ, they will remain independent boxes and cannot be incorporated into a Superdome.	2
(2) WebSphere MQ Server - Dell PowerEdge 7250 (with operating system)	Window 2003 EPIC does not support a 32-bit dependent OS application. Therefore, these servers cannot be incorporated into a Superdome.	2
(2) UNI Server - Dell PowerEdge 7250 (with operating system)	Window 2003 EPIC does not support a 32-bit dependent OS application. Therefore, these servers cannot be incorporated into a Superdome.	2
(2) Finance Server - Dell PowerEdge 7250 (with operating system)	Until the BAM Phase 3C Finance COTS package has been selected and purchased, it will remain unclear whether the two finance servers identified in the original server solution will be required. If the Finance COTS package is compatible with the 64-bit Superdome environment, then neither of the two Finance servers will be required.	2
(2) List Sales Server - Dell PowerEdge 7250 (with operating system)	Two of these servers will be used in the DMZ (Public Web Space) for exposed public web services. As a result, they will remain independent boxes to be placed outside of the internal network and cannot be incorporated into a Superdome.	2
User Acceptance Test (UAT) / Disaster Recovery	Following the implementation of each BAM Phase, the UAT/Disaster Recovery environment will provide the Disaster Recovery capability for ongoing BAM Production.	
HP Superdome	This HP Superdome Server will provide the Database, Web, Active Directory, and .NET functions running Windows 2003, thereby eliminating 7 Dell PowerEdge 7250 servers from the original server solution UAT/Disaster Recovery environment (i.e., 1 Database server, 3 Internet servers, 2 Active Directory servers, and 1 .NET server). The HP Superdome Server will also be used to support the Production Disaster Recovery environment.	1
WebSphere MQ Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
UNI Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
Testing Server - Dell PowerEdge 7250 (with operating system)	This server runs the test scripts and load test, acting as the client end-user device to the HP Superdome Server. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
Finance Server - Dell PowerEdge 7250 (with operating system)	Until BAM Phase 3C Finance COTS package has been selected and purchased, it will remain unclear whether the finance server identified in the original server solution will be required. If the Finance COTS package is compatible with the 64-bit Superdome environment, then this finance server will not be required.	1
List Sales Server - Dell PowerEdge 7250 (with operating system)	This server will be used in the DMZ (Public Web Space) for exposed public web services during Disaster Recovery. As a result, it will remain an independent box to be placed outside of the internal network and cannot be incorporated into a Superdome.	1
Development		

Environment and Configuration	Comment	Quantity Needed
Database Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that Development will bring to the four BAM Phases, commingling the Development and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
Web Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that Development will bring to the four BAM Phases, commingling the Development and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
Active Directory Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that Development will bring to the four BAM Phases, commingling the Development and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
WebSphere MQ Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
.Net Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that Development will bring to the four BAM Phases, commingling the Development and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
UNI Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
Finance Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that Development will bring to the four BAM Phases, commingling the Development and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
List Sales Server - Dell PowerEdge 7250 (with operating system)	This server is used to parallel the Production and UAT/Disaster Recovery configuration. Therefore, since the List Sales Server for Production and UAT/Disaster Recovery will be used in the DMZ (Public Web Space) for exposed public web services and sound technical practice calls for both development and testing on a platform identical to that to be used for production, prudence dictates that this server should not be incorporated into a Superdome.	1
QA Test		
Database Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that QA testing will bring to the four BAM Phases, commingling the Quality Assurance Test and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software configurations.	1
Web Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that QA testing will bring to the four BAM Phases, commingling the Quality Assurance Test and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software	1
Active Directory Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that QA testing will bring to the four BAM Phases, commingling the Quality Assurance Test and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software	1
WebSphere MQ Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1

Environment and Configuration	Comment	Quantity Needed
.Net Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that QA testing will bring to the four BAM Phases, commingling the Quality Assurance Test and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software	1
UNI Server - Dell PowerEdge 7250 (with operating system)	Windows 2003 EPIC does not support a 32-bit dependent OS application. Therefore, this server cannot be consolidated into the HP Superdome Server.	1
Testing Server - Dell PowerEdge 7250 (with operating system)	Due to the volatile and dynamic nature that QA testing will bring to the four BAM Phases, commingling the Quality Assurance Test and Production environments potentially puts the BAM project at great risk. Therefore, EDS will keep the Development and Production environment on separate hardware and software	1
Finance Server - Dell PowerEdge 7250 (with operating system)	Until BAM Phase 3C Finance COTS package has been selected and purchased, it will remain unclear whether the finance server identified in the original server solution will be required. If the Finance COTS package is compatible with the 64-bit Superdome environment, then this finance server will not be required.	1
List Sales Server - Dell PowerEdge 7250 (with operating system)	This server is used to parallel the Production and UAT/Disaster Recovery configuration. Therefore, since the List Sales Server for Production and UAT/Disaster Recovery will be used in the DMZ (Public Web Space) for exposed public web services and sound technical practice calls for both development and testing on a platform identical to that to be used for production, prudence dictates that this server should not be incorporated into a Superdome.	1
Total Servers in the Alternate Solution		37

The Advantages of Itanium 64-bit Architecture for BAM

In the alternate enterprise server solution Production environment, ten (10) of the Dell PowerEdge 7250 servers identified in the original server solution can be consolidated into two HP Superdome Server configurations. Specifically, IIS web servers, SQL, and .NET server functions can run under one Windows 2003 64-bit operating system for Itanium-based systems. However, the MQ Series Servers and the UNI Servers will still be running 32-bit dependent applications. As a result, the 32-bit Windows 2003 Server Software x64 version will be required for the MQ Series and UNI servers, precluding consolidation of these servers into an HP Superdome Server.

What is the difference between Window Server 2003 x64 Editions and Windows Server 2003 for 64-bit Itanium-based Systems?

The Windows Server 2003 family supports two different 64-bit architectures. The first is based on Explicitly Parallel Instruction Computing (EPIC) architecture and supports servers like HP Integrity using the processor family. The second is based on 64-bit extensions to instruction set, and supports servers like the HP ProLiant AMD Opteron and Intel Xeon with Intel Extended Memory 64 (EM64T) based processors. The table below identifies the two bit support available in Windows 2003.

Benchmark	32-bit	64-bit
Number of databases per server	50	500
Number of concurrent users per server	50	200

architectures.
(EPIC)
Intel Itanium 2
the x86
family with
Technology
modes of 64-

Scalability differences between 32-bit and 64-bit environments.

Product Name	Architecture	Processors
Windows Server 2003 for Itanium-based Systems	EPIC	Itanium 2
Windows Server 2003 x64 Editions	X86-64	AMD Opteron; AMD Athlon 64; Intel 64-Bit Xeon; Intel Pentium with EM64T

In both the original server solution and the alternate enterprise server solution, EDS selected the Windows Server 2003

for 64-Bit Itanium-based Systems to deliver the highest levels of scalability for BAM workloads, such as databases and business objects. This solution provides for large-scale, enterprise-class hardware running databases and BAM business applications. This class of hardware not only delivers the highest levels of performance and scalability, it supports the RAS features (Reliability, Availability, and Serviceability). For example, Windows on Itanium supports Intel's Machine Check Architecture (MCA) found in Itanium processors. MCA provides a mechanism for hardware error events to be reported to the operating system, which can then take corrective action. In addition, MCA is able to predict failures based on patterns of past events.

Query	Average Query Speed (seconds)	
	32-bit	64-bit
10 concurrent users, cached (large ¹ query)	59	< 1
10 concurrent users, noncached (large query)	111	34
50 concurrent users, cached (large query)	358	< 1
50 concurrent users, noncached (large query)	405	60

Differences in query times between 32-bit and 64-bit environments

In BAM, database performance is key to delivering a less *than 2 second response time* to the Service Agents accessing the System. Windows 2003 EPIC systems running SQL Server 2000, Enterprise Edition (64-bit) on an Itanium platform were the first to scale past 500k, 600k, and 700k transactions per minute (tpm-C). Accordingly, this combination will meet and significantly exceed the 2000 transactions per minute generated by the DOS Branch Offices. It will also meet and exceed the combined query response volumes anticipated for LEIN, List Sales, UNI and other interfaces included in each of the BAM phases.

Because BAM will be a new application, 32-bit legacy applications do not constrain BAM from utilizing the EPIC 64-bit architecture. As a result, BAM will receive the best performance and maintenance environment available for .NET at the lowest cost.

Alternate Enterprise Server Solution Architecture Topology

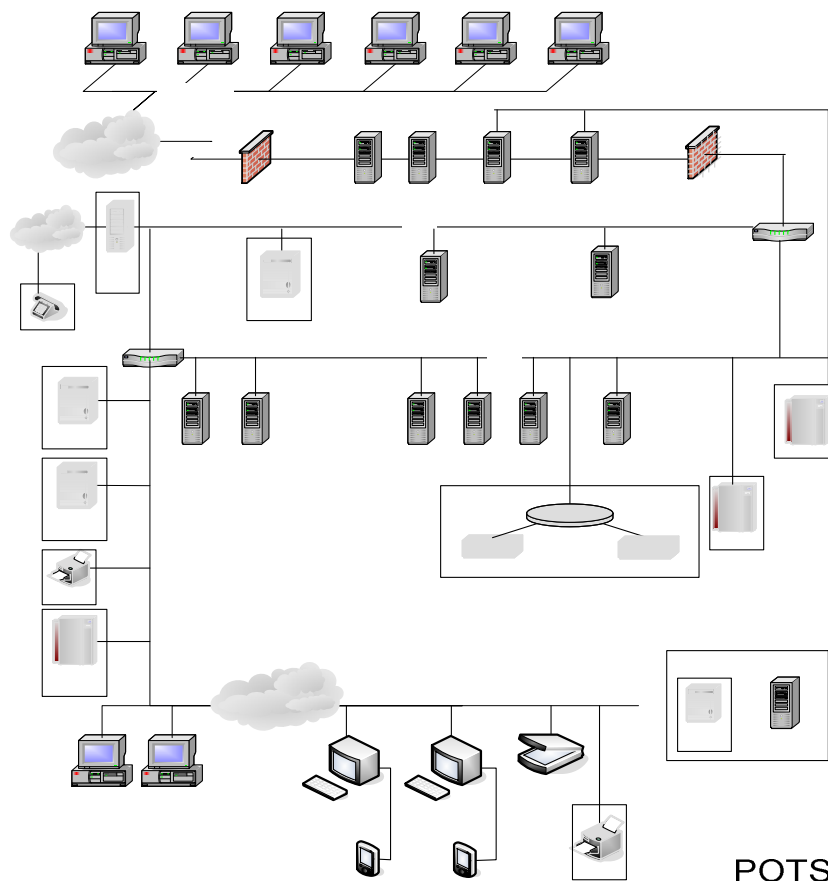
In the diagram on the following page, the alternate enterprise server solution Production environment is graphically depicted. By utilizing the Enterprise class HP Superdome Server, EDS has combined all the EPIC software services (IIS, SQL, .NET) into two multiprocessor Superdomes. This change will result in the following benefits:

- Reduced Physical Hardware – by combining the SQL, IIS and .NET servers, ten servers can be eliminated from the original server solution.

This will result in a reduction of hardware requiring ongoing support

and the number of network interfaces necessary to support the BAM domain.

- Reduction in Physical Configurations – by combining the .NET Services under one version of the Windows 2003 operating system, the amount of time required to implement changes (e.g., patches and upgrades to the OS) will be reduced.
- Lower Data Center Operation Cost (DCO) – EDS understands that the support charge model for DCO creates a charge for each server in the BAM environment. By the consolidation of servers, this charge can be reduced for ten servers included in our original technical solution.



Alternate Enterprise Server Solution Architecture Topology

Along with the benefits of server consolidation in the alternate enterprise server solution, the following consequences need to be carefully considered:

- Higher Initial Cost – Purchasing and utilizing HP Superdome consolidated servers will significantly increase the cost of hardware, training and initial configuration engineering work.
- Lack of Session State Persistence – In the alternate enterprise server solution architecture, two separate IIS server configurations will be created. In the case of a failure in one of the environments, the other HP Superdome consolidated server will be available. However, the session state will be lost! Therefore, recovery of the current transaction will be lost.
- Increased Security Risk – By consolidating the IIS, SQL, and .NET servers, a shared resource (Memory, Ports, CPU, Cache) model will be used. This will create shared ports, memory and services, thus increasing the vulnerability to database and/or transaction service attacks from unauthorized software services or viruses. In the original server solution architecture, these services had separate resources in each server, thereby reducing the overall level of vulnerability risk.
- Lower Availability – In the alternate enterprise server solution, a driver bus will be used to communicate between the systems resources. This will be a single point of failure to the combined business, data and controller objects. Consequently, a controller looking for a business object, or a business object looking for a data access object, will fail if a component in the current service host fails.
- Decreased Performance – In the alternate enterprise server solution architecture, each process (e.g. data access, business object, and controller) will compete for CPU time under the Windows 2003 operating system. As such, these processes will wait on each other for shared resources on the HP Superdome server since there is no way to assign these processes to specific CPU's. Consequently, overall system performance will be reduced.
- Sub-Optimal Load Balancing – IIS 6.0 allows Web servers to be multi-homed under a logical IP address, thereby optimizing load balancing. However, in the alternate enterprise server solution configuration, the work will be split between two IIS servers with a CISCO appliance. Visibility of servers through a server farm using multi-homed IP will be eliminated.

Original Server Solution - Technical Environment

The original server solution included the purchase and deployment of more servers than have been proposed for the alternate enterprise server solution. Each server in the original server solution had a specificity of purpose in the BAM

technical environment. Servers were assigned the following responsibilities:

- IIS Servers – Web and Client Application servers will run on a farm of IIS servers. The Controllers and View (C# and ASPx) Programs that service the BAM transactions will run on these servers.
- .NET Servers – Business Objects and Interfaces Objects will run on the .NET servers.
- SQL Servers – Data Access Objects will run on the SQL Server engines.

Each of these servers will run on Dell Itanium processors in an EPIC 64-bit mode. As a result, the original server solution will provide following benefits:

- Highest Availability – Separate Windows 2003 operating systems, memory and CPU will have no fewer than two of every BAM application component running. In the unfortunate case of a component failure, a backup component will immediately be available for continuity of operations. For example, if a controller object has progressed a transaction up to the point where the *Collect Fees* step is to be performed, and a database server fails, the secondary SQL server will immediately be available to complete the transaction. In the alternate enterprise server solution, if a similar component failure were to occur, the entire transaction would be lost.
- Highest Performance – Separate Windows 2003 operating systems, memory, and CPU will run BAM applications with its own resources. Waiting for memory, bus or CPU time is local to the processes running on the box. When contrasted with the alternate enterprise server solution, a significant reduction in this type of resource conflict and a corresponding reduction in performance degradation are realized.
- Decreased Vulnerability – By separating systems services (e.g., SQL, IIS, .NET) the ports and protocols can be restricted for each server. For example, IIS will only accept port 80 and 443 for external client request. SQL ports will only be available to the .NET and IIS servers and not to external clients. As a result, the ability to attack these servers in the original server solution is significantly reduced.
- Optimal Scalability – The incorporation of additional servers as future requirements dictate can be incrementally accomplished. If, for example, an additional server is needed for peak demand periods, it can be configured and added without impact to the server currently running in production. Additionally, planned refresh of end-of-life equipment can be incrementally installed, thereby reducing the risk of systems outages.
- Shared Session State – The IIS servers can be configured to share session state. Therefore, if an IIS server fails, the session can be recovered on one of the other Web Servers.

Along with the benefits of the original server solution, the following consequences need to be carefully considered:

- Configuration and Support – In the original architecture eight added servers are required. These servers will need to be configured and maintained throughout the life cycle of BAM. However, it should be noted that only a single configuration (EWO) will be created and applied to these individual servers.
- Increased Physical Space – In a rack-mounted configuration, each of these servers will be stacked. However, 51 individual servers will occupy more floor space than consolidating a number of those servers into an HP Superdome Server.
- Network Services – Each of the servers will consume network ports. The original server solution configuration will require 24 more Ethernet ports than the alternate enterprise server solution.

Conclusions and recommendations

EDS believes the balance of technical requirements and service characteristics for the BAM environment supports our originally proposed technical solution. With phased releases and concurrent phases of production support, separation of the service environment by platform will reduce BAM project risk. By separating the service components into individual partitions, the BAM application will be implemented and support will be maintained in the most effective manner. The original server solution configuration will also yield:

- Significantly Improved Performance - separate CPU and memory models reduce resource contention for competing processes.
- Enhanced Availability – Through specificity of purpose in each server, coupled with redundancy of hardware and software, the risk of an outage precipitated by the failure of system components is significantly reduced.
- Improved Scalability – The original server solution is incrementally scalable when compared to the alternate enterprise server solution configuration. By separating software processing based on hardware/software configuration, additional servers can be quickly and easily configured in the environment without exposing existing processors to the risk of change.

Utilizing our Agility Alliance partner, Microsoft, EDS will, at no additional cost to the State, remotely test the planned BAM architecture components in the Microsoft Lab at Redmond, Washington. At Redmond, Microsoft has several hardware and software environments available where EDS can test the BAM components. EDS believes that we have configured the *best fit* solution for the State of Michigan BAM Project. However, EDS recommends establishing benchmarks of performance in the Redmond Lab before hardware and software size specification is finalized. This will result in the best price-performance possible for the BAM system based upon the real BAM software application needs.

Question # 2

Bidders should include a clearly defined approach to ensuring confidentiality, application integrity and availability of the BAM application.

Response

Ensuring Confidentiality

The Microsoft SQL Server has the ability to natively encrypt data placed in the database. The only mechanism to access the data is to have a decryption key that is provided by Active Directory security. All BAM users will be assigned to a role, defined by EDS and the State during design. This role will be queried when BAM users log in to Active Directory. Each BAM user will be provided with a role based decryption key. This key allows the BAM user to access data needed to perform their role within the BAM system. This mechanism ensures that sensitive data, as defined by the State, is kept confidential and secure. This security is applied to all roles including System and Data Base Administrators. Data encryption is also maintained during database backups. This ensures that all copies of the database, even archived copies, will require the use of the role based decryption key to access the data.

Ensuring Application Integrity

Application Integrity ensures end-to-end integrity of business transactions and enables the effective use of technologies. Three separate but related areas contribute to EDS' successful delivery of application integrity within the BAM solution: application access controls (user roles, authorizations, and access points), process and application integrity (e.g. configuration settings, access rights or procedural controls) and data quality and integrity (data conversions, cleansing/scrubbing quality and controls) of the data.

Application Access Controls

EDS will provide application access control through the use of the Microsoft Active Directory (AD). AD will contain all valid user roles as well as usernames and passwords. Each user will be assigned a user role(s). The BAM application will control what content each user roles has access to. This content includes screens as well as data. Secure content will not be accessed unless a user has logged into the BAM system with a valid ID and password and the user role has access to the secure content. Secure content will be protected through the use of encryption in the SQL Server database and through the use of Secured Socket Layer (SSL) on the web servers.

All security events will be logged in a system security log, including password changes, password resets, privilege changes, successful and failed logins, session duration by user, and attempts to access functionality explicitly denied a particular user.

Process and Application Integrity

EDS will ensure application integrity with the assistance of our CMMi Level 5 processes. As part of the Level 5 process set, we have strict procedures and controls in place to make sure that what has been developed and tested is what is put into production. The quality checks within the development of the application occur throughout the development life cycle. Before a software baseline is set, each part of the software baseline will be tested and reviewed.

The types of artifacts that will be included in the software baseline and managed through configuration management will be defined in the Configuration Plan. Examples of the types of documents that are included in the software baseline would be: requirements documents, project plan, design documents, source code, database scripts, and packaged software. The software baseline is controlled by the Configuration Management team and with the governance of the Level 5 process set will not be compromised. Security controls are in place to make sure that developers, designers, testers, etc. cannot make changes to the software baseline unless they follow development procedures and software promotion procedures. The only way to move code into the testing and

production environments is to follow source code promotion procedures. These environments will have audit checks performed daily to ensure that the software baseline has not been compromised. Reports will be developed that detail what part of the software baseline is changed in each environment as well as what requirements or CSR the changes are for. These reports will be reviewed daily by the Configuration Management team and will be available to the entire project team to review at any time.

Artifacts that are part of the software baseline are known as configuration items (CI). Before a CI can become part of the software baseline it will be tested and reviewed. The reviews ensure that the CI performs as it was designed. The review process includes standards, quality, and performance of each CI. In addition, requirements' tracking is checked and test cases are reviewed to ensure that they have been created and executed. A checklist of what is to be reviewed for each type of CI will be created during the Startup and Planning phase.

Data Quality and Integrity

EDS will provide quality checks during the data conversion process that will ensure the accuracy of the data being cleansed and converted. These steps will be detailed further during the BAM Phase 3 project in the Conversion Plan. The table below describes some of the steps that will be performed as part of the conversion project to ensure data quality and integrity of both the cleansed and converted data.

Key to successful data quality and integrity	Responsibility	Description
Capture all relevant data from Source Systems/Databases for each data element defined within the sources	EDS/DOS/DIT	DOS/DIT provides all record counts and verification
Verification of Source Data	EDS/DOS/DIT	EDS works with DOS/DIT to establish record summaries of source data. For example, number of source records from city, town or county.
Security of source data (at the host)	DIT	Appropriate Access controls of unloaded source data that remains on the source system will be maintained.
Security of source data in transit	EDS/DIT	Any data transmitted from the source will be stored in a secure directory on an assigned server (one and only). This secured servers directory will be secured via Active Directory and the appropriate assigned roles and users will only be granted access to this data (Example: Data Conversion team members).
Verification of cleansed BAM data	EDS/DOS	<ul style="list-style-type: none"> • Comparison Reports <ul style="list-style-type: none"> ○ Raw Counts ○ Summary Counts ○ Exception Counts • Detailed verification <ul style="list-style-type: none"> ○ Random detail record checks (compare source to newly loaded BAM data) • Scripted Conversion Process

Key to successful data quality and integrity	Responsibility	Description
		<ul style="list-style-type: none"> ○ Multiple iterations of the conversion process (which includes the verification process) before going live ○ Eight months worth of data cleansing activity will reduce exceptions and improve the verification process

Ensuring Application Availability

The BAM architecture and system design includes a high availability solution. In the runtime environment at least two servers with the capability of instantiating every object will be provided. This provides high availability and high performance. The database will also have two servers. Both servers will be active at all times, except in the event that one should fail or when maintenance is being performed. By having multiple servers, maintenance may be performed in the production environment without interruption in service.

The following is a brief description of BAM application objects in runtime:

- BAM Business Objects will implement configurable .Net Code for evaluating and applying business rules. These Business Objects will run on multiple physical servers providing high availability should one server fail.
- Data Access Objects (DAO) will support storage and retrieval of data associated with business entities. This includes transaction support for Atomicity, Consistency, Isolation and Durability (ACID). These Data Access Objects will run on multiple physical servers providing high availability should one sever fail. For data that is static, the data will be stored in memory reducing response time.
- Session State allows the controller objects a way to progress from screen to screen and persist user activity without the use of client cookies. By keeping this information on the server anti-spyware and intrusive installation of browser plug-ins will be eliminated from the BAM user experience. The session data will be persisted across all web servers giving high availability should one web server fail.

The BAM System will have duplication in hardware and software. The design of the BAM Application software is not dependent on any one piece of hardware should it fail. The system is designed to handle failures gracefully without customer impact. The system is also designed to allow for system maintenance without impact to the customer.

The data within the BAM application will also be secure and confidential. With the combination of Microsoft SQL Server and Microsoft Active Directory, only those with roles requiring access to certain data will see that data. These roles will be determined by SOM and EDS.

Question # 3

Bidders must clearly articulate how they will complete system documentation, including program documentation, interfaces, and any other standard documentation.

Response

The EDS Systems Life Cycle (SLC) defines application development outputs or work products and the timing for creation or maintenance of these work products specific to each of the work types (Object Component Engineering (OCE), Dev+, and Production Support) that will be used to deliver the BAM System. These work products provide documentation for an aspect of the system, such as interface specifications, or include documentation such as comments or a modification log within code modules.

The SLC also defines review criteria specific to each work product. Review criteria provide a checklist of requirements that a work product must satisfy in order to be considered complete. The BAM project will require the review of every work product in a quality assurance activity called a Work Product Review. Project team members skilled in the topic of the specific work product being reviewed will use defined criteria to evaluate its quality. No work product will be approved for completion until it complies with the review criteria.

To deliver BAM, EDS will use a combination of tools, such as Rational Rose and RequisitePro, EDS' extensive library of system documentation templates, best practices available from the SLC, and BAM project team technical standards and procedures to provide documentation of the BAM System.

✓ Tools

The BAM technical team will utilize application development documentation tools (Rational Rose and RequisitePro) to store detailed application development documentation information specific to BAM. As needed, the Rational SoDA tools will be utilized to generate documents by extracting requested data from data repositories.

The BAM project team will create tools to facilitate project training and online help documentation. These tools will be created using BAM project application development standards and procedures.

✓ EDS SLC Templates

EDS has invested a considerable amount of effort into creating templates that provide for all aspects of application development and maintenance documentation. The templates are consistent in their format and provide a solid foundation for the creation of application development documentation. These templates have been used throughout the corporation for documenting a wide range of applications including internal and external applications. To support use of these templates, EDS has created a repository of best practices which provide examples of application development documentation.

The BAM project will utilize EDS' extensive library of application development documentation templates and best practices to document the BAM System.

✓ Technical Standards and Procedures

During Startup and Planning activities (Activity 1) for each phase, the BAM technical team will document standards and procedures to develop and maintain the BAM system. These standards include coding standards, code documentation standards, and configuration item naming standards

EDS understands application development documentation is critical to the creation and long term maintenance of an application. During Startup and Planning activities (Activity 1) for each phase, EDS will tailor SLC work types to define outputs required for each phase. The table below provides a comprehensive list of proposed BAM application development documentation that EDS and its partner PTD Technology will deliver throughout the BAM project.

Specific Document	Timing	Description	Source
Configuration Management (CM) Plan	Activity 1	A configuration management plan will be created that defines the processes and procedures required to manage BAM application configuration items. This plan will be used throughout the life of the project when promoting configuration items from development to production.	EDS SLC Template
Technical Architecture Specifications	Activity 2	<p>The BAM Technical Architecture Specifications will be created to define the software and hardware frameworks for development, QA, UAT Disaster Recovery, and Production environments.</p> <p>The document will be created in two phases, the first specific to the development environment and the second defining QA, UAT Disaster Recovery, and Production environments.</p>	EDS SLC Template
Procurement Plan	Activity 2	<p>The BAM Procurement Plan will be created to acquire the infrastructure necessary to accomplish the BAM objectives. The purpose of this plan is to provide the information and tools required to manage and oversee contractual requirements of the BAM procurement project including hardware, software, and equipment acquisitions.</p> <p>The document will be created in two phases, the first specific to the development environment and the second for the QA, UAT Disaster Recovery, and Production environments.</p>	EDS SLC Template
Installation Plan	Activity 2	This plan will detail the steps, resources and requirements to install hardware and software required to support the BAM application for each phase.	EDS SLC Template
Disaster Recovery Plan	Activity 2	<p>A plan will be created specific to BAM to support disaster recovery. The following is the proposed Draft Disaster Recovery Plan outline.</p> <ol style="list-style-type: none"> I. Purpose, Scope, and Objectives II. Contact Lists and Procedures <ol style="list-style-type: none"> A. Customer B. Recovery Team Members C. EDS Resources D. Vendors E. Others 	EDS SLC Template

Specific Document	Timing	Description	Source
		III. Detailed Recovery Plan A. Applications B. Operating Environment C. Telecommunications D. Output Processing E. Manual Processing F. Administrative Support IV. Disaster Scenarios A. Account Site B. Customer Site C. Service Provider Site V. Test Plan VI. Maintenance Plan	
Business Continuity Plan	Activity 2	<p>Business continuity is a set of practices that mitigates risk, ensures the availability of essential services for BAM and its clients, and provides for the safety and welfare of our employees during a disaster.</p> <p>A business continuity plan will be developed and tested to ensure the safety and welfare of the BAM team and the recovery of our services to our clients following a disaster.</p>	EDS SLC Template
System Standards and Procedures	Activity 3	<p>The BAM team will document standards and procedures to develop and maintain the BAM system. Examples include:</p> <ul style="list-style-type: none"> ✓ Coding standards ✓ Code documentation standards ✓ Configuration item naming standards ✓ Development approach 	Technical Standards and Procedures
Interface Specifications	Activity 3	<p>During Design, the BAM team will produce documentation which defines the applications and data sources in which the BAM system will interact. This includes identification of users of BAM data and sources of data required by BAM.</p> <p>As applicable, file specifications and layouts will be documented.</p>	EDS SLC Template
Requirements Document	Activity 3	During the Design phase, the BAM team will create Requirements Documentation that includes Gap Analysis and Traceability Matrix for each phase. EDS will manage UML outputs in Rational Rose and RequisitePro providing traceability to scenario diagrams that implement each specific requirement.	Rational
Requirements Overview Document	Activity 3	EDS will produce in standard UML notation a summarized level of UML packages and requirements with dependencies (visibility) between them.	Rational
Business Process Change	Activity 3	EDS will create Activity Diagrams to	Rational

Specific Document	Timing	Description	Source
Document		show the change in the Business Process for each phase. This information will be maintained in Rational Rose will be the foundation of requirements to process traceability.	
Logical Class Model	Activity 3	EDS will maintain a logical and physical model of BAM in Rational Rose. At the completion of sequence diagrams in the design phase of the current development cycle of BAM, EDS will review and refine the class model specification. For all software classes (and interfaces) that participate in the current BAM phase, a detailed design of methods will be accomplished	Rational
Business Designs	Activity 3	Business designs will be delivered as elaborated scenarios and User Interface Specifications created with the direct participation of DIT and DOS. DOS and DIT (Security) will review and approve these Scenarios and User Interface Specifications before progressing to Class and Sequence Models (Technical Design).	Rational (scenarios) EDS SLC Template (elaborations)
Technical Designs	Activity 3	Technical Design will be supported by the creation of Class Methods, Attributes, and Interactions. DIT will create and review these deliverables and, where appropriate, DOS will also review before construction.	Rational
Unit Test Plan	Activity 3	EDS will provide a Unit Test Plan that covers the scope and standards for all components. Each component will have Unit test cases developed to make sure the component meets the requirements for the component and Unit Test Plan. EDS will perform unit testing as part of the iterative development cycle. Individual components from the class model will build test data and scripts to validate BAM system responsibilities. EDS will develop automated Unit Tests where possible and run these tests on a scheduled basis to make sure defects are not introduced as components. The development of the Unit Test cases will use a test first design. EDS will develop the test cases for a component before a component is designed or coded. This provides for a simple design and reduces extra code and defects.	EDS SLC Template
Software Artifacts or Configuration Items (source module documentation)	Activity 3	All code created for the BAM application will be documented per the BAM System Standards and Procedures. Documentation will include a description of module, modification log and comments throughout the code.	Technical Standards and Procedures
Systems Operations Manual	Activity 3	EDS, in conjunction with PTD Technology, will produce and deliver a	Rational (Object model)

Specific Document	Timing	Description	Source
		<p>Systems Operations Manual. The manual will be created during Phase 3A and changed as needed during 3B, 3C, and 3D. EDS will develop the System Operations Manual in parallel with the BAM system development activities.</p> <p>The Operations Manual will include the following:</p> <ul style="list-style-type: none"> • Object model • System architecture • High-level interaction between modules and packages • Classes and components • Messages and message queues • BOS and mainframe updates • Backup procedures • Batch schedule and procedures • Annotated configuration files • Standard system tasks (starting up and shutting down software and servers) 	<p>detail)</p> <p>EDS SLC Template (all other)</p>
Application Programming Interface	Activity 3	EDS, in conjunction with PTD Technology, will produce and deliver an Application Programming Interface (API) Manual. The manual will be created during Phase 3A and changed as needed during 3B, 3C, and 3D. EDS will develop API documentation in parallel with the BAM system development activities.	Rational
Release Notes	Activity 3	<p>EDS, in conjunction with PTD Technology, will produce and deliver Release Notes at the start of Customer Acceptance Testing for each scheduled production phase.</p> <p>The release notes will document new functionality and changes or fixes incorporated with each phase. It will also include, as necessary, documentation of known problems.</p>	EDS SLC Template
Application Build Sequence	Activity 3	The BAM team will document the steps and actions required to build the BAM application.	EDS SLC Template
Conversion Plan	Activity 4	The Conversion Plan identifies all of the tasks associated with the data conversion from the Legacy Systems to the BAM Database. It provides in one location the Conversion project's goals and objectives and forms the foundation for a successful migration of data that is both effective and efficient. The Conversion Plan contains a schedule of tasks, with estimated start and finish dates. The staffing plan will not be included in the Conversion Plan, but will be part of the project staffing plan.	EDS SLC Template

Specific Document	Timing	Description	Source
		EDS will provide, as part of the Conversion Plan, the detailed steps that are required to decommission the Legacy System. Since BAM is being implemented in phases, the decommissioning may occur partially in each phase or completely after Phase 3D is completed.	
Inventory of Legacy Data	Activity 4	Working collaboratively with the State of Michigan, identification of the Legacy Data currently existing will be completed in an accelerated timeline. The EDS resources assigned to BAM already have knowledge and experience with the Legacy Data from the thorough documentation provided by the State and extensive facilitated sessions from BAM Phase 2. This will allow completion of this task in the aggressive three-month time frame for Phase 3A. EDS also has an established trusted partnership with DOS and DIT.	EDS SLC Template
Conversion Requirements	Activity 4	EDS will provide a Conversion Requirements Document using the RequisitePro tool to document all of the data conversion requirements, criteria, and rules. Requirements include purge, match, and sort rules; and historical data selection parameters.	Rational
Detailed Data Mapping	Activity 4	<p>EDS will provide a Detailed Data Mapping Document, which builds on the Data Mapping Model from the Logical Data View document.</p> <p>The Data Mapping Document will include:</p> <ul style="list-style-type: none"> • Source data elements from the Legacy Systems and corresponding target data elements to the BAM System. • Data Gap Analysis identifying missing or corrupt data items in the Legacy Systems, fields in the Legacy Systems that are required to run the current business but do not have corresponding fields in the BAM System, and fields that are mandatory for the processes in the BAM System but do not exist in the Legacy Systems. • Identification of remedies for missing or corrupt data. • Backward / forward data mapping. • Database (file) location and the screen/report location for each target field. • Category of match for each data 	EDS SLC Template

Specific Document	Timing	Description	Source
		<p>field:</p> <ul style="list-style-type: none"> • convert as is • not converted • transformation rule • new field required by BAM <p>Default values for data fields that are not in the Legacy System but will require population during conversion.</p>	
Quality Assurance Test Plan	Activity 5	<p>The EDS team will provide a Quality Assurance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • Tasks and Responsibilities • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • Quality Assurance Test Case Development Strategy • Defect Tracking and Resolution • Review Requirements • Validate Each Requirement • Quality Assurance Test Data Development • Testing Job Streams • Resources • Resources Required for Testing • Human Resources • Hardware/Software Resources Schedule 	EDS SLC Template
Performance Test Plan	Activity 5	<p>The EDS team will provide a Performance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • Tasks and Responsibilities • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • Quality Assurance Test Case Development Strategy • Review Requirements • Validate Each Requirement 	EDS SLC Template

Specific Document	Timing	Description	Source
		<ul style="list-style-type: none"> • Quality Assurance Test Data Development • Testing Job Streams • Resources • Resources Required for Testing • Human Resources • Hardware/Software Resources Schedule 	
User Acceptance Test (UAT) Plan	Activity 5	<p>The EDS team will provide a User Acceptance Test plan that includes the following information:</p> <ul style="list-style-type: none"> • General Approach • Testing Tools • Types of Tests to be Executed • Testing Methodology • Reviewers/Approvers • Testing Procedures • Project Libraries to be Used • User Acceptance Test Case Development Strategy • Defect Tracking and Resolution • Review Requirements • Validate Each Requirement • User Acceptance Test Data Development • Testing Job Streams • Resources • Resources Required for Testing • Human Resources • Hardware/Software Resources Schedule 	EDS SLC Template
Promotion and Software Implementation Plan	Activity 5	<p>The EDS Team will provide a Promotion and Software Implementation Plan before the promotion and implementation of the BAM System into the Quality Assurance environment. The State of Michigan will perform the steps in the plan and EDS will make modifications to the plan where necessary to improve quality and accuracy.</p>	EDS SLC Template
Requisite Skills	Activity 6	<p>PTD Technology will produce and deliver a Requisite Skills document for DOS and DIT review one month after the BAM Phase 3 contract start date. PTD Technology will work closely with the EDS technical development team to determine the level of skills needed to participate in the planning and development process and the skills needed to be on the support team. PTD Technology will also identify and</p>	Delivered through a BAM created tool

Specific Document	Timing	Description	Source
		assess requisite skill sets for other areas of DIT participation.	
Technical Training Plan	Activity 6	PTD Technology will produce and deliver a Technical Training Plan two months after the BAM Phase 3 contract start date. The Technical Training Plan focuses upon those areas of individualized training that DIT staff must attain to participate in the planning, development, and proper maintenance of the BAM System.	EDS SLC Template
Instructor Training Manual	Activity 6	PTD Technology will develop an Instructor Training Manual that will be used by DOS staff trained through the Train-the-Trainer venue.	EDS SLC Template
Student Training Manual	Activity 6	PTD Technology will develop a Student Training Manual that will be used by DOS staff to gain the skills necessary to perform their job functions in the BAM System.	EDS SLC Template
Online User Aids	Activity 6	PTD Technology will provide Online User Aids which will include links to explanations and help for the following: <ul style="list-style-type: none"> 6. Features most commonly used in BAM 7. Features hardest to understand 8. Problems found to be the most significant to the user 9. Problems that result in the most common calls to the Client Service Center 10. Features that would potentially result in less required training, thus supplementing the training already received. 	Delivered through a BAM created tool
Electronic Performance Support System (EPSS)	Activity 6	PTD Technology will develop an EPSS that will consist of online help that is business feature driven. Difficult processes containing information or steps, which the user is likely to forget, can be worked up into mini-training sessions to deliver quick and precise help.	Delivered through a BAM created tool
BAM System Help Desk Guide	Activity 6	EDS in conjunction with PTD Technology will develop a Help Desk Guide that contains processes and scripts to support the BAM System application, data, and workflow of the phase being released.	EDS SLC Template
Production Support Handbook	Activity 8	The EDS team will develop a Production Support Handbook that contains the following guides: <ul style="list-style-type: none"> • Technical Support Guide: Provides technical support personnel with the information they need to maintain and enhance the BAM System and to respond to user, operator, and administrator 	EDS SLC Template

Specific Document	Timing	Description	Source
		requests. <ul style="list-style-type: none"> • Operational/Administrative Guide: An instruction book for operations and systems administrative personnel, designed to assist in running and troubleshooting the BAM System. • User Guide: Provides the information needed by BAM System users to use the system effectively in their daily job functions. 	
System Support Transition Plan	Activity 8	EDS in conjunction with PTD Technology will develop a System Support Transition Plan to the State six months after the contract start date. The System Support Transition Plan will include the mandatory and suggested training, by role, to complete the formal transition of system support responsibility to the State.	EDS SLC Template

Best and Final Offer, ITB# 071I5200236
Deficiency Report
Electronic Data Systems

The following deficiencies were identified within the EDS proposal:

1. The project team is considered weak on technical expertise. The candidates submitted for the following specific positions were considered weak based on both their resume and the Oral Presentation: Technical Support Engineer and Conversion Coordinator.
2. It is unclear how EDS will complete and manage changes to the mainframe and legacy interfaces and how that will be incorporated into the EDS testing plan.
3. The EDS proposal does not contain a clear and detailed explanation of what EDS will provide in Phases C and D and how they will accomplish the business objectives.
4. There is no specific solution or tool provided for data conversion. It is unclear that EDS understands the issues encountered in a large scale conversion.

EDS' responses to the identified deficiencies are as follows:

Deficiencies

Question # 1

The project team is considered weak on technical expertise. The candidates submitted for the following specific positions were considered weak based on both their resume and the Oral Presentation: Technical Support Engineer and Conversion Coordinator.

Response

It is unfortunate that the technical expertise of the EDS team was not perceived to be strong by the JEC. We were very careful to select key personnel who met the minimum requirements set forth in the ITB, and are confident that our team meets or exceeds all of these requirements. Moreover, we built this team with the intent to not just win the award but to successfully deliver BAM Phase 3. EDS' credibility, and thus our future business with the State, depends upon maintaining our track record of successful project delivery, and we are confident that this team has the business, process, and technical skills necessary to deliver BAM. We welcome this opportunity to clarify their skills and offer additional resources to further strengthen the team.

To further strengthen our technical team, EDS proposes to add Bret Senters to our team. Bret has more than 16 years IT experience, including more than 3 years configuring 64-bit Intel servers and Microsoft enterprise products. Bret meets and exceeds the qualifications specified for Technical Support Engineer. We are willing to designate Bret as a key person for this position, or to add him as a non-key role member of the technical team. This does not affect EDS' price proposal.

Bret has worked for the past 4 years in DIT Data Center Operations. In his current role, Bret works full-time for DCO as a Configuration Manager. Bret has been instrumental in the design and governance of DCO configuration management processes. Bret will bring this valuable knowledge to the BAM team and will ensure that our infrastructure processes are integrated with those of DCO. His contract with DCO expires September 30, 2005, so he is available to join the BAM team immediately after that. His resume is attached, and we will make him available for an interview with the JEC at your convenience.

The ITB and the interviews during orals focused on the skills and experiences of each individual relative to a specific proposed position. While individual skills are important, this evaluation does not take into account the degree of crossover skills and cross-training among the various team members. This is a major strength of the EDS technical team, and will be a key success factor for the project.

The following table identifies the most critical technical skills that will be required to successfully deliver BAM Phase 3. This list of skills is culled from the ITB requirements, the technical architecture specifications, and from the specifics of the EDS solution.

Technical Skills	Importance to BAM
Application Security	<ul style="list-style-type: none">Secure DataDeliver efficient application security design.Developers ability to understand the programming model using Active directory and LDAP
Database Security	<ul style="list-style-type: none">Secure DataMeet BAM requirements for data security
SQL Server	<ul style="list-style-type: none">Efficient SQL queries.Efficient Physical LayoutImplement logical design into a physical design

Technical Skills	Importance to BAM
	<ul style="list-style-type: none"> Backup and Restore
UML	<ul style="list-style-type: none"> Create an efficient application design. BAM design is based on UML techniques.
.Net Environment	<ul style="list-style-type: none"> Understanding the appropriate .NET programming models to support the N-tier architecture.
.NET Framework	<ul style="list-style-type: none"> Developer's knowledge of the system services improves the BAM System availability, reliability and performance.
Object Component Engineering (OCE)	<ul style="list-style-type: none"> Understanding the relationships between tasks and methodology for a successful project delivery.
Data Transformation Services (DTS)	<ul style="list-style-type: none"> Understanding the system efficiencies available in DTS to allow the source database to translate data into the BAM database.
Testing	<ul style="list-style-type: none"> Build a high quality application using testing tools and techniques.
Windows 2003 Server Enterprise Edition 64-bit	<ul style="list-style-type: none"> Ability to setup, configure and integrate the dependent 32-bit tools with the 64-bit environment.
Network Operations (HP Openview)	<ul style="list-style-type: none"> Ability to identify and integrate the appropriate large and fine grain metrics for application monitoring... Effectively monitor the BAM System for availability and growth.
Network Operations (CA Unicenter)	<ul style="list-style-type: none"> Ability to schedule batch jobs and integrate windows management interface with the Unicenter.
Windows Management Interface	<ul style="list-style-type: none"> Allows us to configure and interface BAM application components with monitored events (e.g. error logging, trace logging).
MQSeries	<ul style="list-style-type: none"> Skills to setup an MQ Series for a high availability solution.
EMC Storage	<ul style="list-style-type: none"> Knowledge of EMC SAN Perc card configuration in a Windows 2003 Enterprise Environment to ensure data parity and integrity.
Infrastructure Security	<ul style="list-style-type: none"> Understand how host based intrusion detection software and server hardware technologies reduce the vulnerability from malicious attacks.

It is critical that the BAM Phase 3 team be comprised of technical leaders who have in-depth skills and experience in their areas of specialty, plus well-rounded skills and experience in other technical areas. The following table shows the technical strength and versatility of the EDS team:

Technical Skills	Noel Clark	Steve Sinicki	Mike Rogers	Jim Wieber	Bill Howland	Dean Wheeler	Bret Senters
Application Security	SME Architected, Designed, Performed, Implemented, Managed	Advanced User Architected, Designed, Performed, Implemented	SME Architected, Designed, Performed, Implemented, Managed	Advanced User Architected, Designed, Performed, Implemented	Regular User Architected, Designed, Performed, Implemented, Managed		
Database Security	SME Architected, Designed, Performed, Implemented,	SME Architected, Designed, Performed, Implemented,	SME Architected, Designed, Performed, Implemented,	SME Designed, Performed, Implemented	Managed		

Technical Skills	Noel Clark	Steve Sinicki	Mike Rogers	Jim Wieber	Bill Howland	Dean Wheeler	Bret Senters
	Managed	Managed	Managed				
SQL Server	Advanced User Performed	Advanced User Designed, Performed, Implemented	SME Architected, Designed, Performed, Implemented, Managed	Advanced User Designed, Performed, Implemented	Advanced User Designed, Performed, Implemented, Managed		Advanced User Designed, Performed Installed
UML	SME Performed	SME Performed	Regular User Performed	Regular User Performed	Trained		
.Net Environment	SME Architected, Designed, Performed, Implemented, Managed	Advanced User Architected, Designed	Regular User Architected, Designed, Performed, Implemented	Regular User Performed	Trained Managed		Managed
.NET Framework	SME Architected, Designed, Performed, Implemented, Managed	Advanced User Architected, Designed	Regular User Architected, Designed, Performed, Implemented		Managed		Managed
Object Component Engineering (OCE)	SME Performed	Regular User Performed	SME Performed	Advanced User Performed	Regular User Performed Managed		SME Performed
Data Transformation Services (DTS)	Advanced User Designed, Performed, Implemented	Regular User Performed, Implemented	Advanced User Designed, Performed, Implemented	Advanced User Designed, Performed, Implemented	Managed		
Testing	Advanced User Performed	Advanced User Performed	SME Performed	SME Performed, Managed	SME Performed, Managed		SME Performed
Microsoft Windows	Advanced User Configured	Regular User	Regular User Installed		Managed	SME Configured, Administered, Installed, Managed	Advanced User Configured, Administered, Installed, Managed
Network Operations (HP Openview)	Regular User Configured				Managed	Regular User Configured, Installed	Managed
Network Operations (CA Unicenter)	Regular User Configured		Trained		Managed		
Windows Management Interface	Regular User Configured	Regular User				Regular User Configured, Installed	
MQSeries	SME Architected, Designed, Performed, Implemented	Advanced User Architected, Designed, Performed, Implemented, Installed	Trained				Managed

Technical Skills	Noel Clark	Steve Sinicki	Mike Rogers	Jim Wieber	Bill Howland	Dean Wheeler	Bret Senters
EMC Storage	Advanced User Architected, Designed, Performed, Implemented, Configured		Regular User				Regular User Configured, Managed
Infrastructure Security	Advanced Architected, Designed, Implemented, Configured	Regular User	Regular User		Managed	Advanced User Configured, Installed, Administered	Managed

As you can see, the EDS team brings tremendous technical versatility to the BAM project:

- Noel Clark has expertise in every technical skill required, and demonstrated his expertise during BAM Phase 2. He is one of EDS' top solution architects and will oversee and guide all technical aspects of the project.
- Steve Sinicki and Mike Rogers are strong in their specialty areas, but also provide critical backup to Noel in the core skills related to database, security, and application architecture, and object-oriented application development. Noel has built a close working relationship with Steve and Mike on many previous projects, so they will form a strong nucleus for the BAM technical leadership team.
- Jim Wieber also brings tremendous technical versatility to the team, as well as a thorough understanding of BAM from his work on Phase 2. He has experience in most of the key technical areas relating to database, security, and object-oriented application development.
- Bill Howland is primarily responsible for process and project management, and has a track record of success leading development projects. In addition, he brings valuable experience in most of the key technical areas relating to database, security, and object-oriented application development, as well as experience managing infrastructure aspects of major development projects.
- Dean Wheeler and Bret Senters have critical hands-on experience deploying the 64-bit Intel server technologies and Microsoft enterprise tools that are so critical to the BAM project, as well as a variety of infrastructure-related skills. In addition, Bret adds experience with SQL Server, Object Component Engineering, and testing.

The State is not just hiring individuals for key positions. You are selecting a team of people who will work together to develop and deliver the BAM system. The EDS team brings the technical depth and breadth of experience to get the job done. It is also important to note that the entire EDS BAM team is dedicated 100% to the BAM Phase 3 project. There are no conflicting priorities, no other projects, no distractions from our singular focus: deliver BAM Phase 3.

Question # 2

It is unclear how EDS will complete and manage changes to the mainframe and legacy interfaces and how that will be incorporated into the EDS testing plan.

Response

Legacy enhancements encompass two separate areas: mainframe and BOS. The Legacy interfaces include the development of an interface from BAM to legacy applications and the development of the interface from the legacy applications to BAM. EDS will provide all resources for the development of the legacy interfaces from BAM to legacy applications and for the separation of BOS into logical DLL's. EDS will provide 2 resources to supplement the State of Michigan staff to complete the legacy enhancements and the interfaces from the legacy application to BAM.

Below is a table that describes the responsibilities of each organization for the differing portions of the legacy enhancements and legacy interface development, including the updates to BOS.

<i>General Legacy Mainframe Updates</i>				
EDS			EDS (1) / SOM Team	
<i>BAM Application</i>	<i>Interface to legacy (i.e. MQ Series or external interface)</i>		<i>Interface to BAM (i.e. MQ Series or external interface)</i>	<i>Mainframe Updates</i>

<i>BOS Updates</i>				
EDS			EDS (1) /SOM Team	
<i>BAM Application</i>	<i>Separate BOS into logical DLL's to handle the device specific communications from BAM</i>		<i>BOS Application updates (Provide any enhancements to BOS for BAM specific requirements)</i>	

EDS will manage the tasks and the scheduling of all staff required for changes to the mainframe and legacy interfaces. EDS has provided in our staffing plan two resources to work on the mainframe and legacy interface enhancements. These two staff members will work with the resources provided by the State of Michigan to complete the enhancements/changes to the legacy interfaces and the mainframe. Information was not provided in the ITB for estimating the total legacy enhancements effort or the number of State staff to be assigned. EDS assumed that supplementing the State's staff with two individuals will enable the combined State/EDS team to complete the work.

Although the State and EDS team will work together to make the changes to the legacy interfaces and mainframe, EDS has the responsibility to manage the project schedule and changes. The Project Control Office and the Legacy Enhancements Coordinator will work together to make sure that the legacy interfaces and mainframe changes are completed.

The Legacy enhancements project will use EDS's Dev+ (SLC3) process set to complete the work. It is expected that all work (either by EDS or State staff) done on the legacy enhancement project will follow EDS's CMMi Level 5 processes for a Dev+ project type.

Because the Legacy enhancements project is following the EDS Dev+ process set, these changes will follow the same test plans as all other BAM projects. The test cases and data will be developed during the refine/analyze, design, and produce phases. The Quality Assurance testing will occur during the Quality Assurance phase. The User Acceptance testing will occur during the User Acceptance phase. The staff utilized on the testing team will be the same staff that was used to design and develop the legacy enhancements and mainframe changes. The test plan will also include regression testing on portions of the existing mainframe system that may be affected by the changes to the mainframe code.

EDS is aware that many of the legacy enhancements are not yet identified in detail to perform the changes. We will work as a partner with the State to complete the analysis of the legacy enhancements and interfaces. The EDS SLC3 process set ensures that all enhancements and interfaces will be tested and EDS will manage these changes through the Project Control Office.

Question # 3

The EDS proposal does not contain a clear and detailed explanation of what EDS will provide in Phases C and D and how they will accomplish the business objectives.

Response

The State's answer to Question #23 in the Q&A response stated "There are no additional design documents for Phase 3C and 3D. The contractor is expected to perform further requirements gathering as defined in the RFP". EDS understands the requirements for Phases 3C and 3D are limited at this time, but EDS does understand the ultimate goal of each phase. EDS' approach to Phase 3C and 3D will begin with the development of the specific functional and business requirements just as the BAM team did for Phases 3A and 3B. EDS will follow our defined SLC methodologies for Phase 3C and 3D to analyze, design, construct, test, and implement the required functionality.

For Phase 3C, EDS will provide the following targeted functionality based on the ultimate outcome of the requirements gathering sessions. During Phase 3C, the major processes that will be migrated from the Legacy Systems to BAM consist of Financial, Inventory, and Investigative Support information and processing. As listed in the Implementation Strategy document within the ITB, EDS understands that a total of 9 sub-components are included in Phase 3C. Below we have listed each sub-component with the associated high level tasks the BAM team will deliver to accomplish the business objectives of Phase 3C.

1. Manage Finance

- Review and define if a Commercial Off The Shelf (COTS) financial package(s) is preferred (e.g., Accounts Receivable Billing/Refund package, Revenue Distribution package)
- Design and install a financial package
- Implement fee calculation, accounts receivable, refunds, payment distribution, payment processing, reconciliation and adjustments processing

2. Manage Inventory

- Implement inventory assignment, tracking, relieving and reconciliation processes
- Interface with the existing Inventory Package

3. Customer Contact Center Integration

- Closely coordinate BAM implementation of Customer Communication with the capabilities residing within the Customer Contact Center

4. Manage Fraud & Audit

- Implement case-file management
- Automate the handling and routing of documents
- Automate analysis and reporting that will trigger investigations

5. Manage Documents & Communications

- Expand document scanning capabilities for designated In House personnel
- Further define capabilities for the scanning of "appropriate documents"

6. Data Matching / Data Scrubbing / Data Conversion

- Create Legacy Data Inventory for Financial Transactions, Electronic Funds database (EFTDB), and Branch database (BRANDB)
- Define Conversion Requirements
- Create detailed data mapping spreadsheet
- Create, code, and test Data extraction, transformation, and loading (ETL) programs
- Create and execute Phase 3C Data Conversion Plan

7. Legacy Interfaces

- Establish Message Protocols
- Create Message Queues
- MAIN interface Component Object Model service
- Connect to Customer Contact Center (Siebel)

8. Hardware & Software Design/Development

- Prepare Facilities (Power, Floor Space, Electrical, Network)
- Create Engineering Work Orders (EWO) for Finance Systems Service
- Configure Servers to EWO
- Establish Backup Recovery Schedules
- Production Handoff

9. Organizational Change Management

- Leverage Change Management Network and Cascading Sponsorship
- Create and Execute BAM Application and Process training for Phase 3C
- Generate internal and external BAM communications

For Phase 3D, EDS will provide the following targeted functionality based on the ultimate outcome of the requirements gathering sessions. For Phase 3D, the remaining business and functional processes will be migrated to BAM. These processes include Driver Activity, Sales, and Business and Professional Licensing. As listed in the Implementation Strategy document within the ITB, EDS understands that a total of 6 sub-components are included in Phase 3D. Below we have listed each sub-component with the associated high level tasks the BAM team will deliver to accomplish the business objectives of Phase 3D.

1. Manage Driver Activity

- Implement Driver Activity processes (e.g., Court-ordered processes, Mandatory Actions, Warning Letters, Financial Responsibility, Implied Consent, Driver Assessment & Appeals Division activity, 95/98 Violations, Reinstatement of driving privileges, Circuit Court and DOS Restricted Licenses, Registration Denials, Re-examinations)
- Implement DI4P and DI4V processes

2. Business & Professional Licensing

- Implement Business Licensing processes (e.g., Mechanics, Dealers, Salvage Agents, Driver Education schools)

- Implement Professional Licensing processes (e.g., Notary)
3. Manage Documents & Communications
 - Further define capabilities for the scanning of “appropriate documents”
 4. Data Conversion
 - Create Legacy Data Inventory for Driver database (MDOSDB) – activity portion and Repeat Offender database (ROFNDB)
 - Define Conversion Requirements
 - Create detailed data mapping spreadsheet
 - Create, code, and test Data extraction, transformation, and loading (ETL) programs
 - Create and execute Phase 3D Data Conversion Plan
 - Create and execute Detailed Legacy Decommission Plan
 5. Hardware & Software Design/Development
 - Prepare Facilities (Power, Floor Space, Electrical, Network) for List Sales System Service Servers
 - Create Engineering Work Orders (EWO) for List Sales System Service
 - Configure Servers to EWO
 - Establish Backup Recovery Schedules
 - Production Handoff
 6. Organizational Change Management
 - Leverage Change Management Network and Cascading Sponsorship
 - Provide DIT technical training
 - Create and Execute BAM Application and Process training for Phase 3D
 - Generate internal and external BAM communications

With these requirements confirmed, EDS will evaluate COTS packages. This evaluation will be presented to the State in a fit analysis report detailing the requirements to package function as a quantitative measure. EDS will also evaluate qualitative features like company reputation and ability to deliver. Finally a cost analysis of development and operations will be performed. This analysis will compare COTS against a custom developed solution for BAM. EDS will then present a recommendation to the State for the functional coverage of application needs in Phase 3C and 3D.

Question # 4

There is no specific solution or tool provided for data conversion. It is unclear that EDS understands the issues encountered in a large scale conversion.

Response

Although EDS did not identify a third party automated data conversion tool such as Trillium or Xenos (both used in the State today), EDS understands the data conversion issues typically encountered in a large scale conversion. In addition, EDS understands that the successful implementation of the BAM System will depend upon successful data conversion and migration. Data conversion and data cleansing are two separate but tightly coupled tasks. EDS identified our data conversion and data cleansing **processes** in our proposal, not a specific solution. The information below expands on our solution for both detailing our approach, our experience, the tools we will use, and our overall understanding of the BAM data conversion effort.

Before a data conversion can occur, thorough data analysis must precede it. According to the response to bidders' question 108, round 1, the State has not done preliminary analysis of the data in the Legacy Systems. During the individual BAM Phases, EDS will analyze the appropriate data contained in the Legacy Systems. The Invitation to Bid included data volume estimates for conversion and data volume estimates for cleansing. The analysis will confirm or identify the actual volumes. Additionally, the response to bidders' question 110, round 1 indicated the complexity of the additional work required for some data is not known at this time. EDS' process for data conversion includes a thorough analysis of the existing legacy databases which include the DMS II mainframe databases and interdepartmental Access and Informix databases. The analysis will be performed and the complexity identified during refine and analyze sections of each BAM phase.

Until EDS does this analysis, the specific data cleansing and data conversion solutions cannot be fully designed and architected, but the process described in the Proposal identifies all of the steps that will be followed.

During the refine and analyze sections of each BAM phase, EDS will perform data inventory and data mapping activities. In addition, EDS will gather the requirements and rules definition for data cleansing and conversion. The results of these activities will lead to the creation of our detailed data conversion solution.

Automated data cleansing tools usually provide name and address matching and duplication elimination. Because the State uses the third-party address standardization tool, "Group 1" software, for address standardization and normalization, EDS is confident that addresses for individual customers are relatively clean. EDS will continue to utilize the "Group 1" tool for address standardization and matching. The names for customers will need to be decomposed from one field into the individual name part – first name, middle name, and last name. EDS understands that currently the name suffix is contained in a separate field in the driver (MDOSDB) database. EDS recognizes that there may be multiple issues with the data entry of the name field. However, because driver licenses and PIDs require customers to visually verify the name and address information printed on the document, the errors should fit into the 10% range already estimated in the ITB. EDS has skilled developers that can write stored procedures to provide the name and address matching required in the BAM data cleansing process.

EDS is aware that there will be other data quality and integrity issues with other data elements in the legacy databases. These will be specific to the State of Michigan and will require custom code to fix. Third-party automated tools do not exist to correct this data, but EDS will utilize the integrated Microsoft SQL Server tools to develop in-house automated tools for data cleansing, data transformation, and loading. These tools include: Transact SQL and Data Transformation Services (DTS).

For subsequent phases, EDS recognizes that there are additional data issues within the vehicle databases (Phase 3B). EDS is confident that the cleansing and conversion software can be built in-house utilizing the Microsoft SQL Server tools. Thus, for EDS' processes and solution, additional tools are not intended for data conversion and cleansing.

EDS is very experienced with the integrated Microsoft SQL Server tools used to enable data cleansing, transformation, and loading. Our Data Architect, Mike Rogers, has utilized these tools on a large data conversion project for Delphi Automotive. This project involves the transformation of 27 automotive plants from a mainframe hierarchical database to Oracle on a UNIX platform using the Microsoft SQL Server as an intermediate database and using the integrated tools for data cleansing and transformation. This large conversion encompassed 15 to 20 gigabytes of data in 600 tables with over 40 million records.

Steve Sinicki, our Conversion Coordinator, led a conversion for the Pennsylvania Medicaid system from an internally developed legacy based solution to the EDS developed Medicaid system. This conversion encompassed many functional subsystems associated with Medicaid, including Recipient (Customers), Providers, Claims (Fee for Service (300 million records) and Encounter Claims (270+ million records)), Prior Authorization, Financials and all supporting Code tables (diagnostics, procedures, etc.). Automated tools were not used in this conversion because of the need to link the history of claims that were related over the course of 7 years which required complex logic (Original Claims with Adjustments and Adjustments to Adjustments).

EDS does not believe that adding licensing, training, and support costs of additional data cleansing tools will add value to our data conversion effort. However, if it is later determined that additional data conversion or cleansing tools are required, EDS will bear the expense of purchasing these tools.

EDS understands the complexity of data transformation on large scale databases and has successfully completed many conversions for our customers. We also understand the importance of the data conversion process as it relates to the overall success of BAM and are fully capable of performing this vital task.

Resume

Attached is the resume for Bret Senters.



Appendix K, Negotiation Document

Negotiation: Resolution/Discussion from 8/29/05 and September 1 meetings in Green
Contractual Modifications/Discussion Items

The following information is included in the BAM contract as modifications or clarifications are made to BAM ITB No. 071I5200236.

- All responses to Questions & Answers dated June 15, 2005 and June 28, 2005 are added as contractual language and supersede any previously noted sections in the ITB. (Attachments to the Contract section.)
- Responses from EDS from the State on clarifications on their proposal supersede any statements made in the ITB response from EDS. Document dated July 26, 2005.
- Best and Final Offer documentation, dated, August 4, 2005, supersedes language in their ITB response.
- Documentation from Final Discussions will be added as an addendum.
- Final hardware/software will be included to addendum.

The following changes and/or clarifications to the contract are proposed:

Reference Document: **BAFO dated August 4, 2005 (from EDS)**

1. Trouble shooting guidelines (most common problems—EPSS) should be included in the training manuals.

Discussion/Decision: EDS agrees. No follow action required.

2. EDS will need to install new PCO tools.

Discussion/Decision: Lots of discussion on this item as many decisions have to be made regarding the tools and what is required for the project. In fact, PCO tools will be an action item for the BAM team as soon as the contract is finalized. Bottom line for today's meeting, EDS will maintain the application for the PCO tools, the State has to maintain the environments. At this time, it doesn't appear that DOS would need to procure a server for the tools.

3. Related to the creation of the Requirements Overview Document, add EDS will work with the State staff to produce and integrate business requirements. (Page 23 of BAFO – within table).

Discussion/Decision: EDS agrees with the stipulation that State staff is available and knowledgeable. The State clarified that it may take some additional time from EDS to bring State staff up to speed with all the Rational tools, since some of the activities during transition did not allow IT staff to utilize all parts of the Rational tool.

4. On all document and training manuals, DOS AND DIT will need to review and approve.

Discussion/Decision: EDS agrees.

5. Related to the creation of Technical Designs, EDS will create with the assistance of DIT. DIT and DOS will review and approve.

Discussion/Decision: EDS will create the technical designs with the assistance of DIT, review and approvals by DOS and DIT.

6. Related to requisite skills, the following process is suggested, EDS schedule training and coordinate with DIT and schedule by November 13.

Discussion/Decision: DIT did not want the training to go through the PTD contract that exists, but to go through the BAM contract. Training will be provided through BAM and a rough date of 11/13/05 is okay with EDS.

7. Technical Support Engineer – Preference to change to Bret Senters to key role but State needs to understand his availability and impact to MDIT. (NOTE: State is checking with MDIT for clarifications on his current contract.)

Discussion/Decision: EDS and the State will agree on the Technical Support Engineer.

8. Conversion Coordinator – State will follow EDS recommendation and EDS will replace if State does not feel he meets expectations for the role.

Discussion/Decision: State indicated they would go with the EDS recommendation but would not want to battle if there were a problem. EDS indicated that they felt State would be happy with the decision but agrees with State's statement.

9. Regarding changes to legacy system and interfaces: EDS will be responsible for the mainframe and BOS system changes, will provide additional resources if required, will coordinate and make legacy changes for all phases of BAM.

BAM Legacy Enhancements Estimate Summary

High Level Assumptions

1. All estimates are MDIT experienced based.
2. Estimates are based on all development work. Please reference the estimating algorithms to understand how the work was distributed.
3. Core Development is represented as R&A, Design, and Produce. All other hours were derived from core development.
4. Core Development is broken down by these percentages; R&A = 30%, Design = 25%, Produce = 45%.
5. EDS will handle all legacy enhancement project management.
6. No hours have been allocated for external agencies or other vendors. An example is QVF, where known changes will occur, but these hours are not estimated. Other examples include known agencies that may require changes such as DLEG. These are the responsibility of MDOS/MDIT to provide oversight and funding of external entities.
7. MDIT was allocated 20% of overall QA and UAT testing hours, with EDS responsible for the bulk of these SLC phases.

Estimates

BAM Phase 3A				
EDS	8374 hours	52.3 FTEs		+ 18 FTE
MDIT	5348 hours	33.4 FTEs		

BAM Phase 3B				
EDS	4848 hours	30.3 FTEs		- 8 FTE
MDIT	3455 hours	21.5 FTEs		

BAM Phase 3C				
EDS	0 hours	0 FTEs		0
MDIT	1075 hours	6.7 FTEs		

BAM Phase 3D				
EDS	0 hours	0 FTEs		0
MDIT	229 hours	1.4 FTEs		

10. Clarifications regarding phases 3C and 3 D:

- The State may choose not to keep the current Inventory system – the decision will be based on best solution. Costs for changes to this area will be only charged above and beyond the changes that would need to be made to current system. In other words, State will work with EDS to determine course of action, analyzing current system and looking at new. Whatever is the difference between existing and new, would be through change control process.
- The State may choose to not use a COTS package for Finance. Final determination will be made with State and vendor.
- The Contact Center interface may need to be developed in A. This will depend on that project's milestones.

Discussion/Decision: EDS understands and agrees.

11. Related to Data Conversion:

- Decision criteria will be required on whether to purchase a tool or not.

Discussion/Decision: Mike Coyne provided a handout on some items that could be utilized for the decision criteria. EDS and State agrees that the decision criteria development will become a task on the project plan for the BAM team.

12. Related to Definition of approach to ensure confidentiality, application integrity, and availability of BAM application:

- Further definition must be made in concert with Office of Enterprise Security

Discussion/Decision: EDS and the State will mutually agree on BAM security guidelines. These guidelines will follow industry best practices for ensuring confidentiality, application integrity and availability of the BAM application. EDS and the State will perform audits in order to verify the BAM security standards are being followed.

The best practices will include:

- Microsoft's Guidelines for developing secure applications
- NIST 800-64 SDLC guideline
- Michigan State Standards
- *EDS best practices*

Activity 1 - Project Management: Clarifications/Discussion Items:

13. Activity 1: Appendix B—Draft Risk Mitigation Plan

State will be modifying this appendix during Phase 3 as some items are incorrect.

14. Activity 1—Appendix C

The requirements related to State staff need to be removed. The determination of state staff has to be made by the State. IF there are issues with State staff's availability and/or level of expertise during BAM, the contractor will need to raise the issue for resolution.

Discussion/Decision: The open issue related primarily to 5 DCO staff and the State needs to understand skill set/experience to ensure DIT can provide, not the number of staff. The State and EDS will work into the project plan the level of expertise for DIT DCO staff.

15. Page 1.C-9: Need Legacy Enhancement Coordination hours in Phase 3C and Phase 3D – the summary page shows zero hours.

Discussion/Decision: John indicated that the coordination hours switched over to the Development Manager in Phase C & D and that's why the hours are "0".

Activity 2: Technical Planning and Support: Clarifications/Discussion Items:

16. Need to discuss differences/changes to TAS – some requirements (i.e. Response time) need to be put into contract language.

Discussion/Decision: (Items from Page 4.4.2-3 through 4.4.2-6 in EDS proposal.)

- Rules Engine: Noel major concern regarding a rules engine, such as BizTalk, is that it may compromise the 2-second response time. Noel's two suggestions include, a) process control data – so that we include control parameters wherever we can, and b) code logic, use engine, but it may also compromise performance and high availability requirements in BAM. State will NOT require rules engine at this time.
- System workflow of web pages and program functions configurable and modifiable: State agrees that if this item is necessary it would have to be added later.
- Load balancing of web and application servers: Device is included in hardware/software pricing.
- Core class model or data object model must be normalized: Delete from contract requirements.
- 2 second response time: EDS will meet the 2 second response time with the following caveats:
 - i. If outside impacts to network – the 2-second response time is not applicable.
 - ii. Will meet response time if using proposed configuration of servers or alternative configuration that is agreed upon by EDS at later date.
- Alert mechanism for hacking attempts: Included in the hosting center services.

17. *Related to 4.4.2:-*Add environments

- Emergency fixes
 - i. Development
 - ii. Testing

Discussion/Decision: Item was discussed earlier, and these environments can be established as logical environments in the proposed hardware and software configuration. No additional hardware will be required and these environments will not need to be established until the end of A or beginning of B.

18. The contractor needs to ensure knowledge transfer to State technical staff given BAM is a new environment. The State will work with the contractor to establish the best procedures for ensuring knowledge transfer.

Discussion/Decision: EDS agrees.

19. The State server hosting processes must be followed for BAM.

Discussion/Decision: The item that concerns both the State and EDS team is the average duration to place servers (22 weeks). At 22 weeks the BAM schedule will be behind. Tess indicated she could have servers set up in January. John will get Tess a date.

ACTION ITEM(S):

Assigned To:	Item:	Due:
John/EDS	Get Tess a final date for servers to be set up and useable.	8/30/05
Tess/DIT	Discuss with DCO and others BAM dates.	9/5/05

John provided a date in November – State is ordering equipment now prior to contract sign date in order to expedite purchases. Issue becomes project plan issue versus contractual.

Activity 3 (Application Development): Clarifications/Discussion Item

20. *Page 4.4.3-: “During Reverse Engineer of Legacy....”*what would happen if this didn’t work? EDS needs to have Plan B in contract.

Discussion/Decision: Noel indicated if the tool being utilized did not work, he would first try another tool. If that did not work, he would assume manual analysis. The tools can be tested at the Austin Center for EDS first. An item of concern for both EDS and State as it may impact the critical path for BAM’s timeline if the tool doesn’t work.

ACTION ITEM(S):

Assigned To:	Item:	Due:
Noel & John/EDS	Provide Mike Coyne with risk of the tool – size and probability. Mike to assess any changes once received.	8/30/05
Mike	Advise State on any issues associated with this item.	9/1/05

EDS has a plan to mitigate this risk. This item becomes a project plan issue versus contractual.

21. Chart of scenarios: State DOES NOT want to change control to be by numbers – change control should be invoked AFTER refine and analysis of business requirements for ALL phases. (NOTE: Bidders were advised that more work would be involved and to price accordingly – this is not what change process was for – change process was for CHANGES – not refine and analysis.

The targeted scope of BAM Phase 3 is:

Phase Scenarios/Sequences

3A	98
3B	102
3C	61
3D	131

- An additional pool of 23 scenarios is established in the event that requirements emerge that are critical to BAM’s success, for a total of 415 scenarios.
- If any phase of BAM uses less scenarios, the excess will be added to the pool.
- If a phase requires more scenarios than listed above, EDS and the State will conduct a review of the impact to the project plan. If it is mutually agreed that the scenarios can be reasonably added without jeopardizing critical project milestone, EDS will add resources as required at no additional charge to the State. This action will be approved by Duane Berger, Ken Theis, and Gary LaRoy (or their designees).

22. *Page 4.4.3-27: contractor and State will determine final timeframes for all products/services/deliverables.* For knowledge plan, need to agree on when due and how often updated.

Discussion/Decision: EDS agrees.

Activity 4 (Data Conversion): Clarifications/Discussion Items:

23. *Task: 4.1 Deliverable in the RFP states: “Conversion Plan—due six months after contract start; updated for each phase and as conversion plans change. The Conversion Plan shall contain estimated dates and shall be updated and shall be updated with actual dates for migration of data to production. The plan shall include a contractor-staffing plan.” There is no mention of this in EDS response, but mentioned in the project plan.*

Discussion/Decision: EDS indicated this deliverable is included.

24. *Task: 4.2 Inventory of Legacy Data: Deliverable in the RFP states: “Inventory of Legacy Data—due three months after contract start for Phase 3A; due at the completion of Technical design for all subsequent phases.” EDS response did not include this and don’t see in their plan.*

Discussion/Decision: EDS indicated this deliverable is included.

25. Related to Appendix 4.A-2: Under 5.0, it states, “.EDS data cleansing strategy and analysis will determine which data elements will require correction.” The State will determine conversion requirements with input from EDS. State will determine converted data with input from EDS.

Discussion/Decision: EDS agrees.

26. EDS needs to provide the cleansing and conversion programs as part of the deliverables for Activity 4.5. (Due at beginning of Quality Assurance Testing for all phases.)

Discussion/Decision: EDS agrees.

Activity 5 (Testing and Software Implementation): Clarifications/Discussion Items

None.

Activity 6 (Implementation Support): Clarifications/Discussion Items:

27. *Page 4.4.6-1* Provide technical and server support training. Needs to be part of the training portion

Discussion/Decision: EDS agrees this is part of training plan.

28. May need to additional people at the end
 a. 12 by the end of Phase B
 b. Phase C and D

Discussion/Decision: EDS understands but would like the number of staff at each phase provided.

MDIT Training Needs for BAM

Phase	3A	3B	3C	3D
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Agency Services

.Net	6	6	5	5
SQL	2	1	0	0
MQ Series	1	0	0	0
Rational	0	1	0	0
QA Center	2	3	0	0

Technical Services

SQL Server 2005	2	0	0	0
W2K3 on Itanium	2	0	0	0

Activity 7 (Ongoing Production Support): Clarifications/Discussion Items:

29. *Table Task 7.1: 2nd* bullet change to “with State’s assistance provide patches depending on the nature of the issue.

Discussion/Decision: EDS agrees.

Activity 8 (Miscellaneous): Clarifications/Discussion Items:

None



Appendix L, Clarifications

BAM Phase 3 ITB
Questions to Vendors
July 26, 2005

VENDOR: EDS

No.	Reference in ITB	Question
1.	Appendix 1.E-3	<p>Are the tracker tools discussed on this page recommendations only, or part of the solution being offered? Please clarify.</p> <p><i>EDS is making a strong recommendation to utilize the tracker tool set that EDS and the State co-developed. It is part of the solution offered by EDS. This set of tools represents the most cost effective method to manage the BAM project data as they already exist and are utilized on DHS MiCSES project and will be utilized on the DHS BRIDGES project.</i></p>
2.	4.4.5-6	<p>Is the Compuware QACenter suite of test tools part of the proposal/pricing or a recommendation?</p> <p><i>Yes, EDS provided pricing in the Pricing Table 1B for the QACenter Performance Edition through the Application Vantage rows to account for these costs.</i></p>
3.	General	<p>Please provide a listing of the hardware/software per the attached form.</p> <p><i>EDS provided this listing in our original submission. It is located in our Price Proposal under the tab Hardware-Software Inventory Form Addendum #1. The form contains pricing information which is why we included it in our Price Proposal. We are including as part of this response the same listing.</i></p>
4.	4.4.7-12	<p><u>Please explain the following statement: "If the state intends to assume support responsibilities for each phase during the contract, EDS can make substantial reductions in the staffing levels for this Activity".</u></p> <p><i>As required by the ITB, our staffing plan includes enough staff to provide for all production support functions for the duration of the contract. The payment schedule in the ITB specifies that DIT will assume production support functions after implementation of each phase. This approach is also consistent with the knowledge transfer objectives expressed in the ITB. If the State chooses to assume responsibility for production support following implementation of each phase, with EDS providing supplemental staff only, the staffing levels for Activity 7 could be reduced significantly.</i></p>
5.	Pg. 4.4.6, 4.4.3-1, 4.7-13	<p>Is there an assumption that the same people within DIT and DOS are repeated in each phase for knowledge transfer?</p> <p><i>EDS assumes that the Data Centre Operations team will remain available to support the BAM infrastructure across all phases of BAM. EDS has planned for technical training and turnover to production with</i></p>

No.	Reference in ITB	Question
		<i>added DIT staff at the end each phase implementations. The DOS business resources represent business expertise in the subjects included in each BAM phase. Accordingly, as topics change by phase expects state business SMEs to change to represent the business subjects. To accommodate this change in SME's EDS has provided business training throughout all phases of BAM. .NET developers increase at turnover to production support in each BAM Phase.</i>
6.	Pg. 4.4.3 Activity 3, Task 3.6	<p>Is staff available for the interface development beyond phase B? If not, why?</p> <p><i>Staff will be available for interface development beyond phase 3 B. Our proposed staffing is based on the use cases provided in the ITB. There is no proposed staffing for B, C and D interfaces in our proposal because there were no use cases provided. As the requirements for additional interface development are identified, we will utilize our change control process to determine the scope and price for any additional interface development. It was assumed that these will be handled as system and service enhancements since there was no ITB requirement defined for phases B, C and D.</i></p>
7.	Pg. 4.4.2-3+	<p>What specific solutions does EDS propose where the technical requirement has an indicator in the "TAS meets, With Modification" column.</p> <p><i>Please refer to our proposal on pages 4.4.2-6 through 4.4.2-7.</i></p> <ol style="list-style-type: none"> <i>1. System shall manage business rules via a robust rules engine –</i> <i>2. System workflow of web pages and program functions must be configurable and modifiable without changing program code. (Additional or modified programmatic validations to support system flow are acceptable)</i> <p><i>For the two technical requirements listed above, EDS will identify the functional requirements and business rules, subsequently building specifications for a rules engine during Phase 3 functional requirements gathering. In a .Net environment, a typical rules engine would be Microsoft Biztalk.</i></p> <ol style="list-style-type: none"> <i>3. System shall provide load balancing of web and application servers in order to improve performance. – EDS included 2 BIG-IP 5100 IP App Switch V4.5 in the pricing.</i> <i>4. The core class model or data object model must be normalized, making proper use of foreign keys, constraints, and domain based data types. – EDS will develop a class model and evaluate based on its inheritance schemes.</i> <i>5. System search for records must return results within two seconds 95% of the time. For common user actions, this limit must be honored 100% of the time. This response time must be measured from a branch office through a WAN connection. – EDS will work with DCO to make sure the network is capable of handling the load of BAM. The ITB indicated that the network was out of scope.</i>

No.	Reference in ITB	Question
		6. System must contain an alert mechanism for hacking attempts or denial of service attack through brute force manipulation of usernames and/or passwords. - EDS included 2 BIG-IP 5100 IP App Switch V4.5 in the pricing. This will eliminate the denial of service attacks.
8.	Pg. 4.4.1-10	<p>Please clarify use of Ticket Tracker with Remedy.</p> <p><i>Ticket Tracker will produce a collection of reports based on information received from Remedy. The reports provide the ability to manage production maintenance ticket flow and assist with release composition</i></p>
9.	Pg. 4.4.2-7	<p>Is Host based intrusion detection included in the proposal? The assumption that the firewall included in the document would meet the requirement is incorrect. Please explain.</p> <p><i>Yes. The EDS solution for intrusion detection uses a combination of HBID and NBID to provide a high degree of protection against intrusions based on network traffic, user ID/password, and virus attacks. The EDS solution for BAM utilizes NBID via the F5-Loadbalancer BigIP to detect and eliminate denial of service attacks on an IP basis. HBID is provided via the State defined antivirus software and Active Directory security services. The State defined antivirus software updates virus signature files on all BAM servers on a daily basis to eliminate the threat inter and intra network virus attacks. The Active Directory security services will be configured to disable and ID based intrusion on a predefined number of failed password attempts. Intrusions attempts will be logged and reported to security.</i></p>
10.	Pg. 4.4.1-1	<p>How is it intended that the PCO remain objective? Is it required that it remain at the Lansing Solution Center?</p> <p><i>The PCO will remain objective based on using empirical data to manage the project. The data provided through the PCO toolset which will provide the state an unbiased health check during the duration of the project. It is not a requirement that the PCO remain at the Lansing Solution Center. The resource roles described in the PCO are better suited to be integrated with the State leadership team co-located with the state resources. This co-located team will be supported by a CMMi process support team located at the Lansing Solution Center</i></p>
11.	Scope	<p>How will EDS manage the increase in scope for phases 3-B, 3-C and 3-D just as the increase in scope during the refinement for phase 2?</p> <p><i>EDS will manage any increase in scope for phases 3-B, 3-C and 3-D using the same process that we used during the refinement for phase 2. Changes in scope that impact development will be treated as enhancements and will be subject to the State's change control review and approval process.</i></p>

No.	Reference in ITB	Question
12.	Pg. 1.C-2	<p>Is the time commitment for the State staff expected to be full time? If this number of staff is not available full time, what is the impact on EDS's proposal?</p> <p><i>The time commitment for State staff is expected to be full time or full-time equivalents. For those activities that require State staff such as data cleansing, training, etc. it may impact the implementation schedule if the resources are not available. With regard to knowledge transfer, if State staff is not available, it will not affect the EDS deliverables, but will impact the turnover of the system to the State.</i></p>
13.	Pg. 1.C-2	<p>Explain the need in each phase for the required State staff and explain how EDS will partner.</p> <p><i>EDS understands based on the information contained in the 'State Project Team Description.doc' that additional state resources are needed as defined by the state as 'Phase Teams'. The description included was; 'For each of the BAM phases (A – D) a team of both DIT and DOS staff will be compiled to work on that particular phase. Staff from branch offices and internal units in DOS will be included. For DIT, staffing will be based on expertise and skill sets.' Based on our assessment of the State requirement to direct and control project activities for the BAM project, EDS estimated additional state staff resources.</i></p> <p><i>EDS has a good understanding of the state roles for BAM Phase 3A based on the confidence of the requirements in the ITB. For Phases B-D, EDS recommends that this exercise occur during the Start up and Planning Activity of the subsequent phases to determine the staffing levels, but the role descriptions are similar. It is likely that the same staffing levels will be recommended for Phases B-D.</i></p> <p><i>Below are the extended descriptions of the role and how EDS will partner with the state.</i></p> <p><u>Activity #1</u></p> <p><i>Web Tools Support - Assuming the named PCO Tool Suite is approved for use on this project, a person should be identified from the state to help maintain the tools that are the property of the State. Another option exists to use the Tracker tools as an enterprise toolset which may eliminate the need for this resource. If the State desires to create a separate set of PCO Tools, EDS recommends partnering the State tools support person with the EDS tools support person to maintain and monitor these tools.</i></p> <p><u>Activity #2</u></p> <p><i>DIT DCO Engineers - The DIT DCO Engineers will work directly with the EDS 3rd level engineers to perform the installation, integration of course and fine grain monitoring tools, configuration, production acceptance readiness (PAR), and production control handoff (PCH) of all hardware/software for BAM as described in the engineering work orders created by the EDS team. EDS will partner with State resources</i></p>

No.	Reference in ITB	Question
		<p><i>through ongoing mentoring of the State resources via the Activity #2 staff.</i></p> <p><i>DIT Network/Development Environment Support – Ongoing Network/Development Environment Support will be provided by DIT during the development. As Phase 3A progresses and the development, QA, UAT, and Production Support environments are establish, DIT resources will be needed to maintain these environments. EDS will partner with State resources through ongoing mentoring of the State resources via the Activity #2 staff.</i></p> <p><u>Activity #3</u></p> <p><i>DIT System DBA - The DIT legacy database SME will work closely with the EDS Development team to create BAM deliverables, mainly assisting with Legacy technical knowledge transfer and consulting. As an example, this role will be involved in BAM work product reviews for quality assurance. EDS will partner with State resource through ongoing mentoring of the State resource via the EDS Development DBA and visa versa. This particular state resource is very important to the entire BAM project because of the existing Legacy knowledge they will provide.</i></p> <p><i>DIT Technical SMEs - The DIT application development SMEs will work closely with the EDS Development team to create BAM deliverables, mainly assisting with technical Legacy knowledge transfer and consulting. As an example, this role will be involved in BAM work product reviews for quality assurance. EDS recommends that a portion of the existing DIT resources familiar with the technical aspects of DOS be closely involved with the BAM development efforts for quality assurance purposes. EDS will partner with this group of resources by making them part of the development team.</i></p> <p><i>DOS Business SMEs - The DOS application development SMEs will work closely with the EDS Development team to create BAM deliverables, mainly assisting with business Legacy knowledge transfer and consulting. As an example, this role will be involved in BAM work product reviews for quality assurance. EDS recommends that a portion of the existing DOS resources familiar with the business aspects of DOS be closely involved with the BAM development efforts for quality assurance purposes. EDS will partner with this group of resources by making them part of the development team.</i></p> <p><u>Activity #4</u></p> <p><i>DIT System DBA - .The DIT legacy database SME will work closely with the EDS Conversion team to create BAM deliverables, mainly assisting with Legacy technical knowledge transfer and consulting. As an example, this role will be involved in BAM work product reviews for quality assurance. EDS will partner with State resource through ongoing mentoring of the State resource via the EDS Conversion DBA and visa versa. This particular state resource is very important to the entire BAM project because of the existing Legacy knowledge they will</i></p>

No.	Reference in ITB	Question
		<p><i>provide.</i></p> <p><i>DOS Data Cleansing - The DOS data cleansing resources will fix the erroneous data that could not be done using the automated conversion tools. EDS will partner with these State resources through ongoing mentoring and assistance of the State resources via the EDS Conversion Staff.</i></p> <p><u>Activity #5</u></p> <p><i>DIT UAT/FAT Testers - DIT will provide as many DIT QA/FAT Testers as feasible or necessary to perform good business and technical testing. In conjunction with the EDS staff, these resources will clarify that the functionality provided meets the defined requirements of BAM. EDS will partner with the State by describing all the roles and responsibilities of the DIT resources through the UAT Test Plan and ensure that the EDS and State UAT teams work as one cohesive team.</i></p> <p><i>DOS UAT/FAT Testers - DIT will provide as many DIT QA/FAT Testers as feasible or necessary to perform good business and technical testing. In conjunction with the EDS staff, these resources will clarify that the functionality provided meets the defined requirements of BAM. EDS will partner with the State by describing all the roles and responsibilities of the DOS resources through the UAT Test Plan and ensure that the EDS and State UAT teams work as one cohesive team. ** EDS estimated at least 1 representative from each Branch office and at least 10 in-house representative SMEs fully involved with UAT.</i></p> <p><u>Activity #6</u></p> <p><i>DOS 'Trainers'- DOS will provide 25 people that will be trained by EDS to subsequently train the rest of the DOS resources. EDS will partner with the 25 trainers through the BAM Training program.</i></p> <p><u>Activity #7</u></p> <p><i>DIT 'Ongoing Support' - DIT will provide resources to serve as the first level of support with EDS serving as second level support. This was described as 3-6 MDIT resources to support the system, but the state was not specific as to whether these MDIT resources will be available. EDS will partner with the State resources through ongoing mentoring of the State resource via the Production Support staff and throughout the entire BAM project.</i></p> <p><i>DOS 'Ongoing Support' - DOS will provide resources to serve as the first level of support with EDS serving as second level support. As with any large application transformation, the business resources also become experts in the new application and can help support the system through their business knowledge. EDS will partner with the State resources through ongoing mentoring of the State resource via the Production Support staff and throughout the entire BAM project.</i></p>
14.	Pg. 1.C-9	Why are there no resources allocated to BOS Legacy enhancements?

No.	Reference in ITB	Question
		Resources are mentioned in 4.4.3-7 but not allocated. <i>The allocation for the BOS Legacy enhancement is contained within the line item called Augment Enhancement Junior Analyst Developer in Appendix C 9.</i>
15.	Pg. 1.C-4 & 5	How was the estimate of resources for data conversion determined? <i>Estimates were created based on the number of databases to be converted and an estimate of the amount of external databases that may also be converted. Based on EDS historical data specific to data conversion, EDS believes this is estimated accurately.</i>
16.	Pg. 4.4.3-7	How did EDS determine the resources for Legacy enhancements? <i>The ITB (page 30) and the Q & A (questions 48 & 123) characterize this as a shared activity, with the State providing technical expertise and the vendor supplementing the State's staff. Since the ITB gave no basis for estimating either the total Legacy enhancements effort or the number of State staff to be assigned to this, we assumed that supplementing the State's staff with two qualified individuals will enable the combined State/EDS team to complete this work. The EDS Legacy Enhancements Coordinator will closely monitor this task.</i>
17.	Pg. 1.E-3	What will be required from the State to utilize the PCO tool set? <i>EDS will work with the State to establish the PCO tool set during startup and planning. The state resources will be provided access rights to run the tracker tools. The tools were developed by the State and EDS for a project that the State paid for, so there is no cost for the tools.</i>
18.	Pg. 4.4-2	Please explain GSMS and how it will be utilized for BAM. <i>GSMS is an EDS internal label, it is synonymous with our CMMi Level 5 process set. We apologize for any confusion this may have caused.</i>
19.	Pg. 4.4.2-7	Question 5 – Assuming normal network operations, the vendor needs to meet system availability and response time requirements without caveats. <i>The ITB stated that the network is out of scope. It is likely that the system availability and response time requirements will require the State to make enhancements to the current network. Given normal operations of this enhanced network, the system will meet availability and response time requirements without caveat.</i>
20.	Pg. 4.4.2-9	What is EDS's recommendation for the optional training environment? <i>EDS is recommending that the optional training environment is the UAT environment. Because UAT is almost a duplicate of production, training will also be provided through this environment since it mimics production. Training is not a resource-intensive operation, thus the load on the UAT environment will be minimal. IIS 6 provides isolation partitions. Training will be isolated in the UAT environment with it's own data and applications.</i>

No.	Reference in ITB	Question
21.	Pg. 4.4.3-4	<p>Does the EDS price include the COTS for financials?</p> <p><i>Yes, the Hardware-Software Inventory Form includes an estimate for a COTS financial system. Our research of financial systems gave us the basis for this estimate.</i></p>
22.	Pg. 4.4.3-19	<p>Will EDS do a Gap Analysis to fill in the missing requirements?</p> <p><i>Yes, EDS will do a Gap Analysis</i></p>
23.	Pg. 4.4.3-19	<p>Is the assumption correct that EDS will create a logical class model for all phases at the beginning of the project?</p> <p><i>Yes, EDS will start with the base logical class model for Phase 3A and build from this baseline throughout all the phases. Draft logical class models will be created for all phases at the beginning of the project. Until we go through formal requirements for 3B, 3C, and 3D, we will not be able to finalize these logical class models.</i></p>
24.	Pg. 4.4.4-10	<p>Can EDS explain why no tool was recommended to be used for data cleansing and conversion?</p> <p><i>EDS believes that data cleansing and conversion can be handled efficiently through SQL scripts and .Net programs. Because the State already uses Group One, the address data is in good shape. Decomposing the 'Names' into its component parts can be efficiently completed via SQL scripts and .Net programs.</i></p>
25.	Pg. 4.4.4-12	<p>How did EDS determine the resources for data conversion and cleansing?</p> <p><i>Conversion estimates were created based on the number of databases to be converted and an estimate of the amount of additional external databases that may also be converted. Data cleansing resource estimates were based on the volume of records and EDS estimates of workload per resource, based upon EDS' prior experience with similar conversions.</i></p>
26.	Pg. 4.4.5-2	<p>What methodology will EDS use for regression testing (BAM and mainframe)?</p> <p><i>EDS will use the CMMi Level 5 process methodology set. The testing activities start with developing a system test plan in the Refine and Analyze phase. Immediately follow this, unit and system test cases are developed and this is culminated with automated test scripts that are executed for regression and integration testing for BAM and mainframe.</i></p>
27.	Pg. 4.4.5-5	<p>Please elaborate and clarify paragraph 2.</p> <p><i>IIS 6 provides isolation partitions. Testing will be isolated in the QA environment with it's own data and applications as needed.</i></p>

No.	Reference in ITB	Question
28.	Pg. 4.4.6-17	<p>Please elaborate and clarify the following sentence "Since the User Acceptance Environment will not have the same capacity as the production environment, we will schedule testing so that all users have sufficient time to thoroughly test the BAM System".</p> <p><i>During the User Acceptance Testing Phase, the User Acceptance Testing environment will be implemented as if it were a production system although on a smaller scale. This will give the users testing the system the ability to test in exactly the context that the production system will provide. Batch Jobs also will be scheduled the same as they would in production, to give the users a real experience when using the system. The User Acceptance environment will be flexible enough to handle all User Acceptance test cases. The User Acceptance environment will have the ability to restore data to its original form, that is, at the beginning of the testing phase. Since it would not be economically feasible to build a User Acceptance environment identical to production, EDS has planned a user acceptance test window that will allow the users to adequately test.</i></p>
29.	Pg. 4.4.7-7	<p>What State tool set is being required by EDS for application monitoring?</p> <p><i>EDS will use the existing DCO tools (UniCentre and HPOpenView) to monitor hardware events such as server availability, CPU, disk, and memory utilization. EDS will design the BAM application trace logging and exception handling to write to the system log files, and will also utilize the Windows Management Interface (WMI) to write SNMP messages to the existing DCO tools to provide a common monitoring environment.</i></p>
30.	Pg. 4.4.7-9	<p>Clarification - the State will provide data from, not access to, the Remedy System for the EDS Production support team. Does this impact the EDS proposal?</p> <p><i>This will not impact the EDS Proposal. We intend to use the Ticket Tracker tool, and will enter Remedy data into that tool as required.</i></p>
31.	Pg. 4.4.2-25	<p>Clarification – COBIT is the State standard and in its entirety will take precedence. Please state EDS understanding and acceptance of this.</p> <p><i>EDS understands and accepts that COBIT is the State standard. Pursuant to the ITB Task 2.7 on page 27, EDS will perform and complete the COBIT Audit form.</i></p>

No.	Reference in ITB	Question
32.	Pg. A-21-25	<p>Based on his resume, Mr. Howland does not appear to meet the requirements of "Five years experience managing projects using the development and methodologies proposed by the contractor", "Seven years experience in application development management", and "Five years experience in leadership roles overall" for the Development Manager, specifically the management/leadership roles. Please explain which projects referenced on the resume provided meet these specific requirements, and the specific roles he played on those projects that EDS believes fulfills these requirements.</p> <p><i>Please refer to the following projects included within Mr. Howland's resume which fulfill the requirement of "Five years experience managing projects using the development and methodologies proposed by the contractor". Total relevant experience documented below is 5.8 years.</i></p> <p><i>Global Quality Tracking System (22 months)</i></p> <p><i>Mr. Howland managed two full life cycle development releases of a web-enabled, global automobile part quality tracking application for General Motors using EDS' PM2 methodology. He led a team of 20 resources performing application development using EDS' SLC to create an application that replaced five disconnected legacy systems with a centralized solution.</i></p> <p><i>Global Purchasing System (26 months)</i></p> <p><i>Mr. Howland managed production support and full life cycle enhancement releases of a global client/server purchasing application for General Motors using EDS' PM2 methodology. He led a team of 15 globally-dispersed resources performing application development and maintenance activities with C++ (client) and C and DB2 (server) using EDS' SLC.</i></p> <p><i>Subscriber Information Exchange System (9 months)</i></p> <p><i>Mr. Howland managed production support and full life cycle enhancement releases of a client/server cellular phone call routing application for Sprint using EDS' PM2 methodology. He led a team of 10 resources performing application development and maintenance activities with the C programming language using EDS' SLC.</i></p> <p><i>OnStar (6 months)</i></p> <p><i>Mr. Howland established and managed production support and full life cycle enhancement releases of a client/server vehicle support advisor application using EDS' PM2 methodology. He led a team of</i></p> <p><i>25 resources performing application development and maintenance activities using EDS' SLC.</i></p> <p><i>Global BuyPower (5 months)</i></p> <p><i>Mr. Howland managed a major enhancement to existing US based web-enabled automobile purchasing application using EDS' PM2</i></p>

No.	Reference in ITB	Question
		<p><i>methodology. He led a team of 50 resources performing application development using EDS' SLC to provided business functionality in support of a global user base.</i></p> <p><i>Please refer to the following projects included within Mr. Howland's resume which fulfill the requirement of "Seven years experience in application development management". Total relevant experience documented below is 9.3 years.</i></p> <p><i>Global Quality Tracking System (22 months)</i></p> <p><i>Mr. Howland managed full life cycle development of a web-enabled, global automobile part quality tracking application for General Motors using EDS' PM2 methodology. He led a team of 20 resources performing application development using EDS' SLC to create an application that replaced five disconnected legacy systems with a centralized solution.</i></p> <p><i>Global Purchasing System (26 months)</i></p> <p><i>Mr. Howland managed production support and full life cycle enhancement releases of a global client/server purchasing application for General Motors using EDS' PM2 methodology. He led a team of 15 globally-dispersed resources performing application development and maintenance activities with C++ (client) and C and DB2 (server) using EDS' SLC.</i></p> <p><i>Subscriber Information Exchange System (9 months)</i></p> <p><i>Mr. Howland managed production support and full life cycle enhancement releases of a client/server cellular phone call routing application for Sprint using EDS' PM2 methodology. He led a team of 10 resources performing application development and maintenance activities with the C programming language using EDS' SLC.</i></p> <p><i>OnStar (6 months)</i></p> <p><i>Mr. Howland established and managed production support and full life cycle enhancement releases of a client/server vehicle support advisor application using EDS' PM2 methodology. He led a team of 25 resources performing application development and maintenance activities using EDS' SLC.</i></p> <p><i>Global BuyPower (5 months)</i></p> <p><i>Mr. Howland managed a major enhancement to existing US based web-enabled automobile purchasing application using EDS' PM2</i></p>

No.	Reference in ITB	Question
		<p><i>methodology. He led a team of 50 resources performing application development using EDS' SLC to provided business functionality in support of a global user base.</i></p> <p>Applications Delivery Project Control Office – Quality Database (20 months)</p> <p><i>From within EDS' Applications Delivery Project Control Office, Mr. Howland managed three full life cycle development releases of a client/server quantitative management tool in support of Lansing's CMMi Level 5 process set deployment using EDS' PM2 methodology. He led a team of 5 resources performing application development with Visual Basic and SQL Server using EDS' SLC to create an application that manages quantitative data in support of projects operating at CMMi Level 5. Releases were complete on time and within budget, receiving positive feedback from users and EDS CMMi Level 5 assessors.</i></p> <p>MyCOE (24 months)</p> <p><i>Mr.Howland provided management oversight for development of a web-enabled software procurement and provisioning application for client EDS. Application development was performed using EDS' SLC within the .NET architecture.</i></p> <p><i>Please refer to the following projects included within Mr. Howland's resume which fulfill the requirement of "Five years experience in leadership roles overall". Total relevant experience documented below is 6.7 years.</i></p> <p>Global Quality Tracking System (22 months)</p> <p><i>Mr. Howland managed full life cycle development of a web-enabled, global automobile part quality tracking application for General Motors using EDS' PM2 methodology. He led a team of 20 resources performing application development using EDS' SLC to create an application that replaced five disconnected legacy systems with a centralized solution.</i></p> <p>Global Purchasing System (26 months)</p> <p><i>Mr. Howland managed production support and full life cycle enhancement releases of a global client/server purchasing application for General Motors using EDS' PM2 methodology. He led a team of 15 globally-dispersed resources performing application development and maintenance activities with C++ (client) and C and DB2 (server) using EDS' SLC.</i></p> <p>Subscriber Information Exchange System (9 months)</p> <p><i>Mr. Howland managed production support and full life cycle</i></p>

No.	Reference in ITB	Question
		<p><i>enhancement releases of a client/server cellular phone call routing application for Sprint using EDS' PM2 methodology. He led a team of 10 resources performing application development and maintenance activities with the C programming language using EDS' SLC.</i></p> <p><i>OnStar (6 months)</i></p> <p><i>Mr. Howland established and managed production support and full life cycle enhancement releases of a client/server vehicle support advisor application using EDS' PM2 methodology. He led a team of 25 resources performing application development and maintenance activities using EDS' SLC.</i></p> <p><i>Global BuyPower (5 months)</i></p> <p><i>Mr. Howland managed a major enhancement to existing US based web-enabled automobile purchasing application using EDS' PM2 methodology. He led a team of 50 resources performing application development using EDS' SLC to provided business functionality in support of a global user base.</i></p> <p><i>National Steel Corporation (8 months)</i></p> <p><i>Mr. Howland managed the deployment of information technology and application development services for the National Steel Corporation using EDS' PM2 methodology. He led a team of more than 100 resources performing deployment of problem, change and asset management solutions at four steel plants and corporate headquarters. This project also deployed EDS' SLC for application development and support services.</i></p> <p><i>Application Delivery Project Control Office – Deployment of PM2 and SLC to Transportation industry Projects (4 months – 03/05 to present)</i></p> <p><i>Mr. Howland is currently leading a team of 15 Project Management subject matter experts to deploy PM2 methodology and SLC to EDS projects within the transportation industry. He is managing the deployment project using EDS' PM2 methodology which is currently on schedule and within budget. Feedback from EDS transportation industry leadership has been positive to date.</i></p>
33.	Pg. A-33-35	<p>Based on his resume, Mr. Howland does not appear to meet the requirement of "Two years experience in managing testing teams for enterprise application projects" for the Testing Coordinator. Please explain which projects referenced on the resume provided meet this specific requirement, and the specific roles he played on those projects that EDS believes fulfills this requirement.</p> <p><i>We believe this question pertains to Jim Wieber who is our proposed Testing Coordinator.</i></p> <p><i>Please refer to the following projects included within Mr. Wieber's resume which fulfill the requirement of "Two years experience in managing testing teams for enterprise application projects". Total relevant experience documented below is 4.8 years.</i></p>

No.	Reference in ITB	Question
		<p>Global Quality Tracking System (38 months)</p> <p><i>Mr. Wieber was the testing coordinator for integration, user acceptance and performance testing for the Global Quality Tracking System (GQTS) enterprise application. GQTS is a web-enabled, global automobile part quality tracking enterprise application for General Motors. Mr. Wieber led a team of 10 – 15 testers that utilized the Mercury tool set (LoadRunner) and developed thousands of test cases during 4 major releases.</i></p> <p>Michigan Education Assessment Program (MEAP) (12 months)</p> <p><i>Mr. Wieber was the testing coordinator for Quality Assurance and User Acceptance testing for the MEAP project. Mr. Wieber led a team of 5 individuals for the full testing cycle including the development, tracking, and successful completion of all test plans and cases.</i></p> <p>Statewide Warranty Administration Database (8 Months)</p> <p><i>Mr. Wieber was the testing coordinator for integration, user acceptance and performance testing for the Department of Transportation's Statewide Warranty Administration Database application. Mr Wieber developed and maintain the all test plans and test cases utilizing JUnit and the Struts framework for this state wide web enabled system. He coordinated all testing activities for a team of 7 resources</i></p>
34.	Pg. A-37-40	<p>Based on his resume, Mr. Cally does not appear to meet the requirement of "Three years experience in enterprise application implementations" and "Three years experience in managing implementation teams for enterprise application projects for the Implementation and Production Support Coordinator. Please explain which projects referenced on the resume provided meet these specific requirements, and the specific roles he played on those projects that EDS believes fulfills these requirements.</p> <p>Please refer to the following projects included within Mr. Cally's resume which fulfill the requirement of "Three years experience in enterprise application implementations". Total relevant experience documented below is 4.4 years.</p> <p>Unisys Worldwide Financial System (24 months)</p> <p><i>Mr. Cally was responsible for all implementation and support efforts for the enterprise wide financial systems used by the company's 42 subsidiaries outside the U.S. The systems included in the implementation and support efforts covered: Accounts Receivable, Accounts Payable, General Ledger, Personnel System, Customer and Vendor System, and the Budget System. As manager, Mr. Cally's responsibilities included project management functions, all implementation related activities covering data conversion, software implementation, release planning, user training and testing. Specific custom interfaces were developed and implemented to accommodate an environment consisting of new financial application(s) accessing old reference systems.</i></p>

No.	Reference in ITB	Question
		<p>City of Detroit Police, Fire and EMS (6 months) <i>Mr. Cally directed the efforts of all aspects with the City of Detroit to re-engineer their system which included design, development and implementation activities of hardware, system and application software, testing, training and post-implementation support.</i></p> <p>Michigan Department of Human Services (12 months) <i>Mr. Cally was involved with the design, development, and implementation of the Adult Services Comprehensive Assessment Program. This was a custom development and implementation for over 500 services workers that support the adult community within Michigan.</i></p> <p>Implementation Production Coordination, Michigan State Police (10 months) <i>Mr. Cally's responsibility included the implementation production coordination of the MICR, NATMS and SNET systems for criminal reporting fingerprinting and criminal record updates.</i></p> <p>Please refer to the following projects included within Mr. Cally's resume which fulfill the requirement of "Three years experience in managing implementation teams for enterprise application projects for the Implementation and Production Support Coordinator". Total relevant experience documented below is 7 years.</p> <p>Unisys Worldwide Financial System (24 months) <i>Mr. Cally was responsible for all implementation and support efforts for the enterprise wide financial systems used by the company's 42 subsidiaries outside the U.S. The systems included in the implementation and support efforts covered: Accounts Receivable, Accounts Payable, General Ledger, Personnel System, Customer and Vendor System, and the Budget System. As manager, Mr. Cally's responsibilities included project management functions, all implementation related activities covering data conversion, software implementation, release planning, user training and testing. Specific custom interfaces were developed and implemented to accommodate an environment consisting of new financial application(s) accessing old reference systems.</i></p> <p>City of Detroit Police, Fire and EMS (12 months) <i>Mr. Cally directed the efforts of all aspects with the City of Detroit to re-engineer their system which included design, development and implementation activities of hardware, system and application software, testing, training and post-implementation support.</i></p> <p>Michigan Department of Human Services (24 months) <i>Mr. Cally was involved with the design, development, and implementation of the Adult Services Comprehensive Assessment Program. This was a custom development and implementation for over 500 services workers that support the adult community within Michigan.</i></p>

No.	Reference in ITB	Question
		<i>Implementation Production Coordination, Michigan State Police (24 months)</i> <i>Mr. Cally's responsibility included the implementation production coordination of the MICR, NATMS and SNET systems for criminal reporting fingerprinting and criminal record updates.</i>
35.	General	Please provide the percentage of time that each person presented as a key staff member will be dedicated to the BAM project. <i>All key staff members are allocated 100% of the time according to the staffing plan provided.</i>



BAM PRICING SHEETS

TABLE 1
HARDWARE & SOFTWARE
PRICE INFORMATION

1. 5-year Hardware Price (total all 5 columns Table 1A)	\$5,218,154.87
2. 5-year Software Price (total all 5 columns Table 1B)	\$2,747,494.34

HARDWARE/SOFTWARE PRICE PROPOSED FOR PROJECT \$7,965,649.21

Notes:

1. Hardware and software prices quoted in this price proposal are for comparison purposes as the State may purchase the equipment through other procurement mechanisms (contracts).

TABLE 1A**HARDWARE PRICE INFORMATION**

(Year 1 = Contract Months 1-12; Year 2 = Contract Months 13-24; etc.)

Env	Hardware	Purchase	Ongoing Maintenance/Service (if any)				
		Price	Year 1	Year 2	Year 3	Year 4	Year 5
DEV	Database Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Web Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Active Directory Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	WebSphere MQ Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	.Net Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	UNI Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Finance Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	List Sales Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	4 Dell PowerEdge Rack Systems (part #460-0566)	\$4,967.56	N/A	N/A	N/A	N/A	N/A
	5 Dell PowerEdge Rack Systems (part #460-0566)	\$6,209.45	N/A	N/A	N/A	N/A	N/A
	Scanner (Fujitsu fi-42202C2)	\$1,358.27		\$578.98	\$578.98	\$578.98	N/A
	Signature Capture (IDGem LCD 4x3)	\$582.65	Inc in Price	N/A	N/A	N/A	N/A
DEV	TOTAL	\$336,897.29	-	\$578.98	\$578.98	\$578.98	N/A
TST	Database Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Web Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price

	Active Directory Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	WebSphere MQ Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	.Net Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	UNI Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Testing Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Finance Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	List Sales Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Scanner (Fujitsu fi-4220C2)	\$1,358.27		\$578.98	\$578.98	\$578.98	N/A
	Signature Capture (IDGem LCD 4x3)	\$582.65	Inc in Price	N/A	N/A	N/A	N/A
TST	TOTAL	\$366,192.70		\$578.98	\$578.98	\$578.98	N/A
UAT	Database Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	3 Web Servers – Dell PowerEdge 7250	\$121,417.26	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 Active Directory Servers – Dell PowerEdge 7250	\$80,944.84	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	WebSphere MQ Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	.Net Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	UNI Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Testing Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Finance Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price

	List Sales Server – Dell PowerEdge 7250	\$40,472.42	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	4 Dell PowerEdge Rack Systems (part #460-0566)	\$4,967.56	N/A	N/A	N/A	N/A	N/A
	3 Dell PowerEdge Rack Systems (part #460-0566)	\$3,725.67	N/A	N/A	N/A	N/A	N/A
	Scanner (Fujitsu fi-42202C2)	\$1,358.27		\$578.98	\$578.98	\$578.98	N/A
	Signature Capture (IDGem LCD 4x3)	\$582.65	Inc in Price	N/A	N/A	N/A	N/A
UAT	TOTAL	\$496,303.19		\$578.98	\$578.98	\$578.98	N/A
PRD	2 Database Servers – Dell PowerEdge 7250	\$80,944.84	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	8 Web Servers – Dell PowerEdge 7250	\$323,779.36	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	4 Active Directory Servers – Dell PowerEdge 7250	\$161,889.68	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 WebSphere MQ Server – Dell PowerEdge 7250	\$80,944.44	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 .Net Servers – Dell PowerEdge 7250	\$80,944.44	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 UNI Servers – Dell PowerEdge 7250	\$80,944.44	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 Finance Servers – Dell PowerEdge 7250	\$80,944.44	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	2 List Sales Servers – Dell PowerEdge 7250	\$80,944.44	Inc in Price	Inc in Price	Inc in Price	Inc in Price	Inc in Price
	Cisco Global Site Selector (GSS 4480)	24,599.91	N/A	N/A	N/A	N/A	N/A
	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet	33,212.02	N/A	N/A	N/A	N/A	N/A
	4 Dell PowerEdge Rack Systems (part #460-0566)	\$4,967.56	N/A	N/A	N/A	N/A	N/A
	6 Dell PowerEdge	\$7,451.34	N/A	N/A	N/A	N/A	N/A

	Rack Systems (part #460-0566)						
	21 Scanners (Fujitsu fi-42202C2)	\$28,523.67	\$12,158.58	\$12,158.58	\$12,158.58	N/A	N/A
	1500 Signature Capture (IDGem LCD 4x3)	\$814,620.00	Inc in Price	N/A	N/A	N/A	N/A
	676 Scanners (Fujitsu fi-42202C2)	\$918,191.88		\$391,390.89	\$391,390.89	\$391,390.89	N/A
PRD	TOTAL	\$2,802,904.46	\$12,158.58	\$403,549.47	\$403,549.47	391,390.89	N/A
	TOTAL H/W (all Env)	\$4,002,297.64	\$12,158.58	\$405,286.41	\$405,286.41	\$393,127.83	N/A

Hardware Pricing Notes:

1. Quantities quoted were based upon the quantities specified in the BAM Technical Architecture Specifications document.
2. Dell PowerEdge 7250 includes the operating system and a four year extended warranty after the initial one year warranty period.
3. Fujitisu scanner – Three years of maintenance can be obtained at the price listed above. Maintenance beyond three years is not offered directly from the vendor. EDS will work with the State of Michigan for extended maintenance options.
4. Signature Capture does not include extended maintenance. EDS will work with the State of Michigan to determine the maintenance options that best fit the State's needs.
5. Managed Power is the responsibility of the State for all environments.
6. All Network and Tape storage for the system is provided in the State's environment
7. Cisco Load Balancer includes IOS software for configuration with the State Network.
8. The Development (DEV) Hardware is required Year 1 (2005)
9. The Test (TST) and User Acceptance Test (UAT) Hardware is required Year 2 (2006)
10. Production (PRD) Hardware is required Year 3 (2007) with the following exceptions:
 - 2 Finance Servers – Dell PowerEdge 7250 required Year 4 (2009)
 - 2 List Sales Servers – Dell PowerEdge 7250 required Year 4 (2009)

TABLE 1B**SOFTWARE PRICE INFORMATION**

(Year 1 = Contract Months 1-12; Year 2 = Contract Months 13-24; etc.)

		Purchase	Ongoing Maintenance/Service (if any)				
Env	Software	Price	Year 1	Year 2	Year 3	Year 4	Year 5
DEV	WebSphere MQ License (one per server)	\$3,799.38	Inc in Price	N/A	N/A	N/A	N/A
	MS Internet Information Services Server Version 6 (one license per server)	\$1,620.00	Inc in Price	N/A	N/A	N/A	N/A
	MS Activity Directory	Inc in above line item					
	Active PDF Toolkit	\$281.19	N/A	N/A	N/A	N/A	N/A
	WinZip 9.0	\$32.49	N/A	N/A	N/A	N/A	N/A
	Unified Network Interface Server Software	Pricing not available					
	Certificate Authority	\$1,054.25	Inc in Price	N/A	N/A	N/A	N/A
	Microsoft Visual Studio .Net	Inc in Standard ADU Rate					
	Serena Version Manager	\$2,415.83	Inc in Price	N/A	N/A	N/A	N/A
	IBM Rational Rose Enterprise (See Note below)						
	SynCFusion Essential Suite	\$1,825.60	N/A	N/A	N/A	N/A	N/A
	QACenter Performance Edition (250 Virtual Users)	\$60,853.33	Inc in Price	30,731.78	30,731.78	30,731.78	30,731.78
	QACenter Enterprise Edition+ (6 Concurrent Users)	\$49,552.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	QADirector32 Risk Based Test Planning (2 Concurrent Users)	\$3,129.60	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Application Vantage (1 Concurrent User)	\$26,080.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Application Vantage (1 Unattended)	\$17,386.67	Inc in Price	Part of price listed	Part of price listed	Part of price listed	Part of price listed

	Capture Manager)			above	above	above	above
	Application Vantage (1 WAN Deployment Expert)	\$13,040.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Application Vantage (1 Extended Merge Module)	\$13,040.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Application Vantage (1 Expert Analysis Module)	\$13,040.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Application Vantage (1 Decode for SQL server)	\$13,040.00	Inc in Price	Part of price listed above	Part of price listed above	Part of price listed above	Part of price listed above
	Comm1 Off the Shelf to meet Phase 3C Reqs	\$2,000,000	N/A	N/A	N/A	N/A	N/A
	SQL Server 2000 Enterprise Edition	\$73,267.04					
DEV	TOTAL	\$2,293,457.38	N/A	30,731.78	30,731.78	30,731.78	30,731.78
TST	WebSphere MQ License (one per server)	\$3,799.38	Inc in Price	N/A	N/A	N/A	N/A
	MS Internet Information Services Server Version 6 (one license per server)	\$1,620.00	Inc in Price	N/A	N/A	N/A	N/A
	MS Activity Directory	Inc in above line item					
	Active PDF Toolkit	\$281.19	N/A	N/A	N/A	N/A	N/A
	WinZip 9.0	\$32.49	N/A	N/A	N/A	N/A	N/A
	Unified Network Interface Server Software	Pricing not available					
	SQL Server 2000 Enterprise Edition	\$73,267.04					
TST	TOTAL	\$79,000.10	N/A	N/A	N/A	N/A	N/A
UAT	WebSphere MQ License (one per server)	\$3,799.38	Inc in Price	N/A	N/A	N/A	N/A
	3 MS Internet Information Services Server Version 6 (one license per server)	\$4,860.00	Inc in Price	N/A	N/A	N/A	N/A
	MS Activity Directory	Inc in above line item					

	3 Active PDF Toolkit	\$843.57	N/A	N/A	N/A	N/A	N/A
	3 WinZip 9.0	\$97.47	N/A	N/A	N/A	N/A	N/A
	Unified Network Interface Server Software	Pricing not available					
	SQL Server 2000 Enterprise Edition	\$73,267.04					
UAT	TOTAL	\$82,867.46	N/A	N/A	N/A	N/A	N/A
PRD	2 WebSphere MQ License (one per server)	\$7,598.76	Inc in Price	N/A	N/A	N/A	N/A
	8 MS Internet Information Services Server Version 6 (one license per server)	\$12,600.00	Inc in Price	N/A	N/A	N/A	N/A
	MS Activity Directory	Inc in above line item					
	8 Active PDF Toolkit	\$2,249.52	N/A	N/A	N/A	N/A	N/A
	8 WinZip 9.0	\$259.92	N/A	N/A	N/A	N/A	N/A
	Unified Network Interface Server Software	Pricing not available					
	SQL Server 2000 Enterprise Edition	\$146,534.08					
PRD	TOTAL	\$169,242.28					
	TOTAL S/W (all Env)	\$2,624,567.22	N/A	30,731.78	30,731.78	30,731.78	30,731.78

Software Pricing Notes:

1. Quantities quoted are based on one unit, unless otherwise noted.
2. WebSphere MQ Licenses – one license is needed per processor. One year of maintenance coverage is included in the price. EDS will work with the State of Michigan for extended maintenance options.
3. MS Internet Information Server – quote price is based on one license per server. Four licenses are required per CPU. MS Active Directory cannot be purchased separately and is part of the MS Internet Information Server license. The price includes Windows Server Enterprise (part #P72-00122), Windows Server CAL 2003 (part #R18-00041) and Windows Server Enterprise 2003 (part #P72-01149). One year of maintenance is included in the price. EDS will work with the State of Michigan for extended maintenance options.
4. MS Active Directory – priced as part of MS Information Server
5. Active PDF Toolkit and WinZip do not include maintenance options. EDS will work with the State of Michigan to determine maintenance availability.

6. SQL Server 2005 is not available until 3Q05. Current price is based on SQL 2000 Standard Edition (part #228-10459) and includes the document kit (part #228-00689) and upgrades (part #KCAMNT-E-500). The purchase of the license and software assurance agreement includes an automatic upgrade to SQL server 2005 when it is released.
7. Serena Version Manager is priced for a concurrent user (part #VMCSN91). One year of maintenance is included in the price. EDS will work with the State of Michigan for extended maintenance options.
8. IBM Rational Rose Enterprise not quoted since the State of Michigan already owns licenses.
9. Essential Studio Professional Edition with source (part #ESPES). Maintenance is not included. EDS will work with the State of Michigan for extended maintenance options.
10. QACenter Performance Edition, QACenter Enterprise Edition, QADirector32 Risk Based Testing Planning and ApplicationVantage are all products purchased through Compuware Corporation.
11. The MQ Client software required for Unisys will be provided by the State as part of the mainframe software licensed.
12. Commercial Off-the-shelf software will be needed to be purchased for Phase 3C. At this time the software cannot be determined. EDS estimated the cost of the software based on available options.
13. Unified Network Interface Server Software - Unified Network Interface (UNI) is a product distributed by the American Association of Motor Vehicle Administrators (AAMVA). Pricing is only released to AAMVA members.
14. Certificate Authority price is for a single license with one year of maintenance. The number of servers and common names required will affected the price.
15. Active Directory User CALS are provided by the State AD initiative for Internal Customers
16. Active Directory User CALS for external customers and public are not needed because they don't access the domain only Web pages.

17. TABLE 2

**DEVELOPMENT & IMPLEMENTATION
PRICE INFORMATION**

<u>Activity/Task</u>	<u>Phase 3A</u>	<u>Phase 3B</u>	<u>Phase 3C</u>	<u>Phase 3D</u>
Project / Contract Management (Activity 1 – all tasks)	\$3,113,200	\$2,140,000	\$1,159,200	\$1,239,400
Technical Planning (Activity 2 Task 2.1 and Tasks 2.3 - 2.7)	\$600,000	\$445,000	\$285,000	\$285,000
Technical Planning (Procure hardware and Software Activity 2 Task 2.2) Excluding Deliverable 3	\$543,600	\$0	\$0	\$0
Application Development (Activity 3 Tasks 3.1 and 3.2)	\$719,200	\$886,400	\$673,600	\$508,800
Application Development (Activity 3 Task 3.3 - 3.7)	\$5,584,000	\$2,335,600	\$1,528,400	\$1,528,400
Data Conversion (Activity 4 – all tasks)	\$836,000	\$551,200	\$427,200	\$410,000
Testing and Software Implementation (Activity 5 – all tasks)	\$3,292,000	\$2,086,800	\$1,258,800	\$1,383,200
Implementation Support (Activity 6 - Task 6.1)	\$60,000	\$80,000	\$40,000	\$96,000
Implementation Support (Activity 6 - Task 6.2)	\$180,000	\$131,200	\$115,200	\$131,200
Implementation Support (Activity 6 – Tasks 6.3 – 6.8)	\$1,015,200	\$430,400	\$259,200	\$277,600
Ongoing Production Support (Activity 7 – all tasks excluding 6 months post 3D implementation see table 4)	\$375,200	\$1,353,200	\$742,400	\$999,051
Miscellaneous (Activity 8 - Task 8.1)	See Table 3	See Table 3	See Table 3	See Table 3
Miscellaneous (Activity 8 - Task 8.2)	\$0	\$0	\$0	\$0
TOTAL DEVELOPMENT & IMPLEMENTATION (by phase)	\$16,318,400	\$10,439,800	\$6,489,000	\$6,858,651

Notes:

- Prices quoted are all inclusive - vendor staff, materials, travel, management overhead, etc. – for:
- Prices quoted are fixed price.
- Payment Schedule: See Section 1.6, Compensation and Payment in RFP for payment schedule details.

TABLE 3
SYSTEM & SERVICE ENHANCEMENTS
PRICE INFORMATION

FIRM, FIXED HOURLY RATES FOR STAFFING CATEGORIES

<u>Staffing Category</u>	<u>Est. Hrs</u>	<u>Hourly Rate</u>	<u>Extended Price</u>
DBA	4,000	\$110	\$440,000
Documenter	2,000	\$88	\$176,000
Facilitator	2,000	\$110	\$220,000
Junior Analyst/Developer	20,000	\$88	\$1,760,000
Project Manager	4,000	\$165	\$660,000
Senior Analyst/Developer	4,000	\$121	\$484,000
Tester	2,000	\$88	\$176,000
Trainer	2,000	\$110	\$220,000
Other	0		
TOTALS	40,000	-	\$4,136,000.00

Notes:

1. The Contractor is required to estimate approximately how many hours in each Category would be required for future enhancements. The total estimated enhancements allowed for the project will be 40,000 hours, all hours will require a change control and billed at actual hours utilizing the quoted price.
2. Hourly rates quoted are firm, fixed rates for the duration of the contract, inclusive of vendor staff and management overhead, travel and other expenses. "Estimated Hours" and "Extended Price" are non-binding and will be used at the State's discretion to determine best value to the State.
3. The State intends to establish funding for 40,000 hours for the contract duration for system and service enhancements from the Development & Implementation Vendor. Actual funding for enhancements will occur on a yearly basis, and there is no guarantee as to the level of funding, if any, available to the project.
4. Invoiced and paid upon successful implementation of given system or service enhancements.

TABLE 4
POST 3D PRODUCTION SUPPORT

<u>Staffing Category</u>	<u>Est. Hrs</u>	<u>Hourly Rate</u>	<u>Extended Price</u>
Implementation Coordinator	960	\$110.00	\$105,600
Configuration Manager	480	\$99.00	\$47,520
Production Support DBA	960	\$110.00	\$105,600
Sr. Analyst/Developer	960	\$121.00	\$116,160
Jr. Analyst/Developer	1920	\$88.00	\$168,960
Model Support SME	960	\$88.00	\$84,480
Technical Writer	480	\$77.00	\$36,960
TOTALS	6,720	-	\$665,280

Notes:

1. The Contractor is required to identify staffing and estimate approximately how many hours in each Staffing Category would be required for six months of Post 3D Production Support. All hours are to be billed at actual hours utilizing the quoted price.
2. Hourly rates quoted are firm, fixed rates for the duration of the contract, inclusive of vendor staff and management overhead, travel and other expenses. "Estimated Hours" and "Extended Price" are non-binding and will be used at the State's discretion to determine best value to the State.
3. The State may chose to utilize some or all of the hours quoted.
4. Invoiced and paid monthly based on actual hours worked.

TABLE 5

BAM PRICE INFORMATION

**CALCULATE/TRANSFER TOTAL PRICE FOR EACH ITEM
FROM APPLICABLE TABLE.**

1.	5-Year Hardware & Software (Table 1)		\$7,965,649.21
2.	Development & Implementation – Phase 3A	(Table 2)	<u>\$16,318,400.00</u>
3.	Development & Implementation – Phase 3B	(Table 2)	<u>\$10,439,800.00</u>
4.	Development & Implementation – Phase 3C	(Table 2)	<u>\$ 6,489,000.00</u>
5.	Development & Implementation – Phase 3D	(Table 2)	<u>\$ 6,858,651.00</u>
6.	Post 3D Production Support (6 Months)	(Table 4)	<u>\$ 665,280.00</u>
7.	5-Year System / Service Enhancements	(Table 3)	<u>\$ 4,136,000.00</u>
TOTAL 5-YR PRICE PROPOSED FOR BAM PROJECT			\$52,872,780.21

Attachment#1, Vendor Q&A Part 1

**BAM Phase 3 RFP (071I5200236)
Questions/Responses
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Ref. No.	RFP Reference	Questions	Responses
1.	GUC037 Access Denied	What is the process to gain access back for a denied/disabled ID?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
2.	GUC037 Access Denied	This use case states that the BAM system generates list of access denials and MDOS Security receives that list from BAM for review. Would this be an online application/screen or a daily/weekly report?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
3.	GUC061 Create Application	If a customer gets an exempt to give SSN, Is there any other identification number that the state requires from the customer?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
4.	GUC061 Create Application	What kind of system/software state has for a Customer to do transaction via the kiosk or phone?	Department of Information Technology (DIT) maintains the Self Service Station (aka kiosk). This is a web-based solution that accesses the mainframe and uses CEPAS for credit card authorization. A 3rd party vendor maintains the phone system, which is a stand alone IVR which interfaces to the mainframe in batch. This system does not access CEPAS at this point.
5.	GUC015 Scan Document	How are the documents getting released to the image repository? Do you have release servers on all the state office locations?	This activity is part of Phase 3A. This activity does not occur in a branch now. Vendors are to propose how this should happen.
6.	GUC015 Scan Document	Is there a requirement to change the scanning/indexing part of document management system?	There is not currently a document management system that will be utilized for BAM. Details of this task will be refined. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
7.	General	Transaction Status: Pass, Fail or Pend: Is there any other status other than the above said for a transaction initiated by a service agent?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
8.	DUCG010 Scrambled Test	After a customer failed the test due to cheating, will there be any restriction when he/she re-takes the test?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
9.	DUCG005 Capture Photograph	"BAM System queues a request for a photograph at the Hard Card Vendor workstation with camera, providing the customer number and transaction information". Is there any other process that is in place to send any other information to the hard card vendor?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
10.	DUCG005 Capture Photograph	Do you have multiple hard card vendors?	No. Digimarc is our current contractor.
11.	GUC007 Calc Fees	"BAM System generates an error report, logging the error and the adjustment, for subsequent review by In House Personnel". Will this be a report or online screen? Is there any workflow involved here?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
12.	GUC007 Calc Fees	Who all have the authority to decide a transaction as no-fee transaction? How will they determine this?	MDOS determines no fee transactions. Current policy, laws, and procedures determine this.

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Ref. No.	RFP Reference	Questions	Responses
13.	VUCG001 Create Update Vehicle Record	What is Group 1 software?	Group1 software provides verification of postal address. It is currently used for address standardization/normalization. The software has more capabilities; vendors can find additional information on their web site.
14.	VUCG033 Validate Vehicle Title	Please provide more details regarding REG-DENIAL	Registration denial is a legislatively mandated program that prohibits certain individuals from registering vehicles due to too many traffic safety offenses.
15.	General	What is HIN?	HIN = Hull Identification Number (for watercraft)
16.	VUC001 Apply In-Branch for Vehicle Reg.	Customer Pre-Registration will be delivered in Phase 3C. So we assume this use case will not include "Customer Pre-Registration". Please confirm.	Customer pre-registration will be in Phase 3C.
17.	VUC002 Apply In-Branch for Vehicle Title	"BAM System notifies issuing jurisdiction of Title transfer". How is this notification sent to Issuing jurisdiction? Will it be a real time notification or a batch?	This will be defined by National Motor Vehicle Title Information System (NMVTIS) requirements. To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
18.	VUC004 & VUC005 Apply Online for Duplicate Registration & Title	Is there a fee involved for issuing duplicate registration/duplicate title?	A duplicate title is usually charged a fee, a duplicate registration is not typically charged a fee. Exceptions to both occur.
19.	VUC015 Visit IRP Branch	This use case states "BAM System to update the Clearing House system on a regularly scheduled basis". What is the Clearing House system and what kind of information is getting updated from BAM to Clearing House system? Please provide details regarding the nature of interface.	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details. Interface description will be provided in last Q & A round.
20.	VUC006 Apply Online for IRP	Is CoversNET a state owned system? Can you please provide more details on the same?	The State owns the application and a 3rd party contractor maintains it. This system will require an interface to BAM.
21.	VUC006 Apply Online for IRP	Does SOS BAM receive only Michigan state related vehicle data from CoversNET?	Financial data is also received for other jurisdictions.
22.	General	What is MSI?	MSI = Michigan State Industries, part of Dept. of Corrections.
23.	General	The functional requirement for phase 3C and D are very high level without significant details. But phase 3A and B have very detailed requirements. Are there additional detailed design documents (specifications, screen designs etc.) available for Phases 3C and 3D? Or is the vendor expected to perform requirement gathering for Phases	Phase 3A will require collection of additional detailed requirements during the refine and analyze phase. Phase 3B, 3C and 3D will require collection of all detailed requirements. There are no additional design documents for Phase 3C and 3D. The contractor is expected to perform further requirements gathering as defined in the RFP.

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		3C and 3D?	
24.	General	Certain business processes like Calculate fees; Product Receipt etc. are specified in all the phases? Is this is one business process or multiple process?	One business function used by multiple processes in multiple phases.
25.	Business Process ID 2.3.3.2	E-Check processing & credit cards process requires an interface with CEPAS system. What are the data points involved? Please provide detailed interface design for this interface.	Detailed interface requirements on other systems will be provided after contract award.
26.	General	If CEPAS an in-house system or is it hosted/maintained by an external party? If changes are required to CEPAS, who will be responsible of implementing the changes? Will the owners of the application be able to implement the changes or will it be BAM Vendor's responsibility?	CEPAS is hosted/maintained by a 3 rd Party. Treasury is the contract administrator. BAM will need to adhere to CEPAS requirements. Changes to CEPAS will be handled by 3 rd Party contractor (if necessary).
27.	MAIN	What is the 'MAIN' system? Is it is separate system or within DIT? What are the interface requirements of this system with BAM?	MAIN = Michigan Administrative Information Network (see Glossary). It is a separate system within DMB that is maintained by a 3 rd party contractor. Interface is required and details will be provided when contract is awarded.
28.		The system needs to provide financial information in order to reconcile daily BAM Transactions (EFT, credit card, etc.) totals with MAIN. Is this is a manual or an automated process? What are the reconciliation requirements that need to be addressed? Does this reconciliation always originate from BAM or it is two-way reconciliation?	BAM will send daily transaction files to the State's accounting system (Michigan Administrative Information Network (MAIN). BAM will essentially be the State's subsidiary ledger and need to provide detailed classification of transactions that can be translated into current MAIN coding blocks (see below). MAIN does generate error reports if data is not properly transmitted. However, a manual, two-way reconciliation will need to take place on a periodic basis to verify that all amounts collected within each transaction type were properly recorded in both systems. BAM will produce reports containing detailed and summary-level information that will allow the reconciliation to take place. Further requirements will be defined in the refine and analyze portion of phase 3C.
29.	Use Case: GUC014	MAIN processes refunds and cuts checks that are sent to the customer. Does BAM receive the confirmation back for MAIN? What sort of reliability requirements (transactional) exists for this exchange of data?	BAM does not receive confirmation back from MAIN after warrants (checks) are sent to the customer, which makes the reliability requirement question not applicable.
30.		Please explain the terms 'distribution code' and 'MAIN coding block'?	A distribution code is a code used to identify which MAIN coding blocks (see below) should be credited with incoming revenues. A MAIN coding block is a group of identifiers in the State's accounting system that distinctly classifies a transaction.
31.		The system shall permit authorized MDOS staff to transmit corrected revenue distribution data to MAIN. What criteria is used to determine whether a staff member is authorized to correct and transmit revenue distribution data?	Specific criteria related to role-based security will be determined in the refine and analyze portion of phase 3C.

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Ref. No.	RFP Reference	Questions	Responses
32.	Remittance Processor	<ul style="list-style-type: none">• The system shall prevent the display of the calculated dollar amount for Remittance Processor transactions. Please elaborate on the remittance processor transactions?• The system shall interface with the Remittance Processing System (RPS) to ensure the validation control number exists and is available for use (balance available). Please provide design details of the interface requirements of the RPS system with BAM?	<p>Remittance processor transactions are those handled in the Renewal by Mail program. The remittance processor is an automated system for handling transactions and associated fees.</p> <p>This question is referring to BFRC64.8.2 - a validation control number is issued by other state agencies that will pay a customer fees for them. This requirement refers to the fact that the BAM system must be able to handle the validation control number as an alternate means of paying fees thru the Remittance Processor. This will be further defined as we get closer to phase 3C. Interface descriptions will be provided in the next release of responses.</p>
33.	Business Process ID: 2.3.4	Does the EFT business process include the banking system?	The EFT business process includes the ability to send a daily EFT file to banking institutions that initiate EFT transactions.
34.	'Other Payments'	The system shall provide a warning for the Service Agent when the cash drop total has reached a warning limit. What is the warning limit? Is it internal or external to BAM?	Warning limit is specified by each Branch. It will be internal to BAM.
35.	General	The system shall prevent the Service Agent from processing further transactions when the cash drop total has exceeded a threshold limit. What is this threshold limit? Is this internal or external to BAM?	Threshold limit is defined by Departmental policy. It will be internal to BAM.
36.	Financial Operations	The system shall incorporate the BOS Cash Management System to permit the Service Agent and In House personnel to process payments via a Validation Control Number (e.g., Cashier Validation). Please provide more details on the BOS Case Management System?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
37.	Business Process ID: 4.4.79	Service Agent selects a response template and composes the correspondence. What is the mechanism for delivery of this correspondence? What format will be used to deliver this correspondence? (Will it be an html page that's displayed or will it be generated as a PDF?)	Correspondence typically is by US mail. Details to be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
38.	General	The system shall store customer correspondence response and link to Customer Record. Does the correspondence need to be stored as a physical file or is the need to simply store all the data related to the correspondence?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
39.	Business	Please explain the term's 'controlled inventory'? Is there 'non-	Controlled inventory are items that have a control number on them and are

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	Process ID: 4.5.40	controlled' inventory as well? What is the major difference between the two?	tracked individually. There are also non-controlled inventory items that are tracked for inventory levels.
40.	General	The system is expected to provide the customer with a pre-registration visit number, pre-registration expiration date and barcode reference on a checklist of the items the customer will need to bring to the branch. Please provide more technical details (like standards etc.) of the barcode that needs to be generated?	Currently using a standard linear bar code, subject to change. To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
41.	General	Is it possible for the customer to stop and resume the pre-registration later point?	No
42.	Financial Operations	The BAM System notifies the authorized agent (Refund) of the refund request. (Phase 3C/3D). What is the notification mechanism? Is it email, or fax or postal?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
43.	Financial Operations	What is revenue distribution library information? Is this a separate system or a separate set of processes?	This will be a new automated process within BAM that details the distribution of funds collected by Department of State.
44.	Business Process ID: 2.3.9	What are the requirements for the generation of notification letters that need to be generated on lifting of a suspension?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
45.	Business Process ID: 2.1.12.3.1	The system is expected to directly transmit Organ Donor information to MTS. Please provide detailed design of the interface provided by MTS to receive this information. If changes are required to MTS, who will be responsible for implementing these changes?	Newly passed legislation, so this will be a new process that may be implemented before BAM. MTS is responsible for changes to their system.
46.	Financial Operations	The system is expected to perform revenue distribution? What is the criterion on which the revenue is distributed? Please elaborate on the process of revenue distribution requirements of the system!	Yes. Revenue distribution is typically legislated but details will need to be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
47.	Technical - General	Do any of the current systems use any sort of message queue technology? If so, please provide a list of the systems that do so and what messaging technology do they use?	No
48.	AS-IS	The vision is that new interfaces will need to be developed into the legacy systems. Can we get a comprehensive list of the documentation available for each of the systems that BAM is expected to interface with? If in the course of implementing these interfaces changes/modifications are required to the legacy systems, who will be responsible for implementing these changes/enhancements (will it be the vendor or will MDOT)?	Not available until contract is awarded. Both. The State will provide technical assistance to the contractor as needed.
49.	General	Is the goal to develop new interfaces for the current systems that are not currently being converted or is the expectation to continue using	There will need to be new interfaces to the current system developed in the appropriate phase.

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		the current system's API's to interface with these systems?	
50.	General	<p>If it's expected to continue to use the current system's APIs, will the vendor have access to these APIs?</p> <p>Do all the current systems use VB to implement the APIs or have the interfaces been deployed using different technologies?</p> <p>If more that one technology has been employed to implement the APIs, can we get a detailed list of technologies implemented by each system the BAM is expected to interface with and convert over?</p>	<p>Continue to use the current API until the appropriate phase of BAM and vendor will have access to API. Some APIs can't be changed, for example, CDLIS or AAMVA communication.</p> <p>No, they do not all use VB.</p> <p>Not available at this time.</p>
51.	General	Will the vendor's team have access to the current development environment?	The contractor team will have access to the mainframe development environment.
52.	Technical Architecture Active Directory	On Section 5.4.3 of the Technical architecture specifications, the third paragraph reads 'Active Directory inside the firewall will replicate it's data to the Active Directory in the DMZ' - Are these Active Directory instances part of one forest or they separate forests? Will user information be replicated as well? If so, it means that no single user is (login id) can be repeated between the internal and external DMZ. Is this a requirement?	The internal active directory information will not be replicated to the DMZ. This was an incorrect statement in the TAS.
53.		Is the vendor responsible for designing, implementing and deploy an Identify Management Solution (Tivoli/Novell eDirectory)?	Answer will be provided in next release of Q & A responses.
54.		If so, will the deployment entail defining provisioning and approval processes for the entire State of Michigan or will the scope be limited to the requirements of the BAM system?	Answer will be provided in next release of Q & A responses.
55.		If the vendors of BAM will not be responsible, can we get further details on the design and implementation details of the IM solution implemented and the corresponding approval and provisioning process flow requirements as it relates to BAM?	Answer will be provided in next release of Q & A responses.
56.		Is the vision that BAM will be deployed as a Web based application that is accessible by internal users (BAM's own staff access the application from the internal network) and external users (accessed over the Internet)?	Answer will be provided in next release of Q & A responses.
57.		If so, what is the expectation with respect to the identity of the users, is it expected that all the users will be stored in a single repository (a single instance of an Enterprise wide deployed Active Directory where in the user-id is common between the internal and external users) or	Answer will be provided in next release of Q & A responses.

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		will the Active Directory instances be independent of each other (external user id's and internal id's can co exist)?	
58.		If BAM requires extensions to the AD Schema, will those be permitted or will BAM be expected to use a separate LDAP repository (like ADAM) to store application specific extensions to the Schema?	Answer will be provided in next release of Q & A responses.
59.		What is the current state of deployment of Active Directory in the MDOS environment?	Answer will be provided in next release of Q & A responses.
60.		Are all network resources currently managed by Active Directory? If not, what other Directory Services are currently deployed in the MDOS network environment?	Answer will be provided in next release of Q & A responses.
61.		Will there be a need to integrate any of these directory services in the proposed BAM system?	Answer will be provided in next release of Q & A responses.
62.		The ITB reads that BAM will use Active Directory (AD) to maintain user ID. It also says that the state's Identify Management solution will be utilized. Is this saying that AD will be used for the data store of ID information in conjunction with either the Tivoli or Novell products? If not, please clarify.	Answer will be provided in next release of Q & A responses.
63.	Security	<ul style="list-style-type: none">Has the State standardized on any particular Web Access Management solutions (like ClearTrust/Netegrity)?Will BAM be required to interface with any Single Sign On initiatives under taken by the State?	Answer will be provided in next release of Q & A responses.
64.	Infrastructure	The RFP recommends the upgradation of WYSE terminals! Who is responsible for procuring the new versions of the terminals? Is the vendor free to recommend additional terminal requirements/versions or should the solution conform to the recommended terminal specifications?	Upgrade is outside of BAM. Vendor can make recommendations.
65.	Security	The technical and implementation documents call for secure interchange of data (using SSL) between the web server and the client and the corresponding encryption of the stored data! Would BAM require implementation of authentication methods over and above password (BASIC) authentication? Is there a need to implement authentication methods based on Bio-metrics or Security Tokens (like	Answer will be provided in next release of Q & A responses.

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		Secure ID) or Client Certificate based technologies? Is there a need to encrypt the messages being exchanged between the various servers (web server to application server to database server)? If so, is the requirement to base the encryption on anonymous SSL or Authenticated (digital certificate) based SSL?	
66.	Security	Has the State deployed any Public Key Infrastructure Technologies to issuance of Client Certificates etc.? Is so, can the vendor be provided a detailed design of this infrastructure? Will this infrastructure be available for the BAM system should the application have a need to leverage it?	Answer will be provided in next release of Q & A responses.
67.	Backup and Data Retention	What is the State of Michigan's standard for the backup and retention of data?	Backups are daily. Retention is departmental policy and legislatively mandated.
68.	Implementation Strategy. (Section 3.2)	This document has the consolidated interface list (65 interfaces). Can you provide a brief description/functionality for each interface?	A brief description/functionality of the interfaces will be provided as soon as completed, no later than last set of responses.
69.	Implementation Strategy. (Page 74)	Consolidated interface list has the complexity level for each interface. We would like to know the criterion for each classification (Low, Medium and high).	The complexity level for each interface was based upon internal resource experience.
70.	General	For questions that are raised past June 10 th , but before June 23 rd , will the State provide responses in multiple batches or will it all be bundled into one set after June 23 rd . It would be beneficial for all bidders to receive responses on a continuous basis so that we can incorporate the information in our proposal development process.	The State will provide one set of responses after June 23.
71.	Infrastructure	Can the State specify what tools and software are currently available and supported for the purpose of testing, debugging, issue tracking, test case management and performance testing? Will the State make available these tools during the project for the contractor?	The contractor is expected to provide mutually agreed upon tools that meet State standards.
72.	1.104, Component Architecture, p. 12	The Storage Area Network that will be used for persistence of BAM SQL data and load balanced IIS Servers are referenced in this section. The technical architecture plan lists servers and software as a required part of the proposal response. Is this inclusive of the services already present in the Data Centre operations? For example, CA Unicenter, EMC Monitors, Perc Cards, and Backup Recovery software.	Current hosting center services will be provided by MDIT for the BAM environment.
73.	Task 3.3, paragraph #1, p. 30	The ITB states " the contractor is required to provide resource(s) to supplement the State staff in making legacy changes." What type of time and materials resources does the contractor need to provide to supplement the State staff and what skill sets are required?	This is not a time and materials contract. Skill set includes but is not limited to: Unisys COBOL, Unisys ALGOL, COMS, DMSII, XGEN.

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		Where should the contractor include the cost of this activity in the pricing sheets?	This is not an additional cost. It is part of each phase, so contractors need to utilize the pricing sheet and include this cost in their overall plan.
74.	Task 3.3, p. 30	Is the list of UML deliverables illustrative or required? Some of the deliverables are duplicated but in a different format. For example, Sequence and Collaboration are performed, but not typically together.	Illustrative.
75.	Task 6.5, pp. 45-46	Currently how do Siebel CRM & Remedy interface? Specifically, is the DIT CSC able to dispatch tickets to the DSIC via Remedy and have a ticket generated in Siebel for the DSIC to work?	They do not interface. No.
76.	Task 7.1, p. 49 and 1.6, p. 62	Task 7.1 requires the contractor to "support the system, once implemented in the production environment, for the duration of the contract" and provides detail on the categories of support required. Section 1.6 specifies that the final 15% of payment for each phase will be withheld until "all functions are being performed by the State." This seems to preclude any payment contingent upon transfer of support to the State until required support ends, either at the end of implementation or six months thereafter if the State utilizes the optional post-implementation support. How is it possible for the contractor to earn the 15% payment while still providing the services required by Task 7.1?	The State will make the last 15% payment at the end of each phase appropriate functions are being performed by the State at the end of Phase A, B, and C, and all functions performed by the State at the end of Phase D. The State will work with the successful contractor to develop the list of criteria for this payment to be executed (for each phase).
77.	Task 8.2, p. 53-54	The ITB states "...the State intends to assign 4-6 DIT and 6-10 DOS staff to the project on a full-time basis..." and "... no guarantee is made as to the State's ability to provide these staff." If the State is not able to provide appropriate staff to the project for purposes of training, mentoring, and knowledge transfer to facilitate transition of support to the State, will the State waive the 15% hold-back for "successful transition of support" and add that payment to the "successful implementation" payment?	The State will provide the staffing as appropriate.
78.	1.6, p. 62	The ITB states "State will sign for payment when ALL functions are being performed by the State, including development of enhancements. The State will need to see at minimum, one enhancement or a software release completed entirely by State DIT staff." If the State chooses to freeze enhancements for a period of time following implementation of a phase, will the State waive this	The outcome that the State is looking for is knowledge transfer to State staff to develop in the .Net environment. The State will work with the successful vendor to finalize the method for the knowledge transfer to occur and agreement for when that has happened.

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		requirement and make the final 15% payment?	
79.	1.6, p. 62	<p>The ITB states "State will sign for payment when ALL functions are being performed by the State, including development of enhancements. The State will need to see at minimum, one enhancement or a software release completed entirely by State DIT staff."</p> <p>Many aspects of this payment criteria are beyond the control of the contractor. Would the State consider replacing this criteria with more objective, deliverables-based criteria?</p>	See response above.
80.	1.6, p. 61	Will the State consider an alternative payment schedule if such a schedule would result in a lower price to the State?	Yes, you can provide alternative payment schedule in addition to the one provided in the RFP. Vendors should be prepared to accept payment schedule as proposed in the RFP if the alternative is not acceptable to the State. It will be the sole discretion of the State regarding whether the alternative proposal will be accepted.
81.	1.6, p. 62	<p>The ITB states "Pricing for all phases should take into account the need to detail additional business requirements and Contractors should adjust fixed prices accordingly."</p> <p>We understand that the effort to refine and analyze requirements (Task 3.2) for each phase should be included in the fixed price. Will there be a change control process during contract execution to adjust the fixed price of development (Tasks 3.3 through 3.7) as the cost impact of each additional business requirement becomes known?</p> <p>Due to the high risk and uncertainty surrounding Phases 3B, 3C, and 3D, would the State be open to receiving a fixed-price proposal for Phase 3A development and implementation and Phase 3B Requirements Refinement work only?</p>	<p>No, price as appropriate and as stated in RFP.</p> <p>Reference Task 8.1 <i>Provide System / Service Enhancements</i> refers to new functionality or changes.</p>
82.	High Level Technical Architecture Requirement	<p>This document states "System shall manage business rules via a robust rules engine" and "System workflow of web pages and program functions must be configurable and modifiable without changing program code. (Additional or modified programmatic validations to support system flow are acceptable)."</p> <p>The Scenario Diagrams and Sequences provided for the solution identify well-defined workflows. Additionally, a global requirement states that transactions will be pended (GUC052) and resumed by service agents (ref. requirement BFRA 1.2(1.2). Pending transactions</p>	BAM will need to have some degree of flexibility built into the system to allow MDOS the flexibility in managing their environment without making permanent programming changes. This requirement is to prevent future programming changes and customizations required to BAM. For example not all branches have the same options for payments, credit card payment functionality

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		along with the use of a rules engine will have a large impact on the development effort, system response times, and overall cost of the project. A rules engine is typically intended to dynamically change workflow or to provide change of parameters that control system behavior. Are there undefined scenarios that will require this capability?	<p>should be required to be turned on or off based on a branch table. Another example pending transaction is brand new functionality that maybe required to be turned on or off by MDOS. Overall the workflows are well defined, as BAM moves into the refine and analyze stage for each sub phase it will be determined what the appropriate use of “rules engines” will be required.</p> <p>At this time there are no undefined scenarios that will require this capability.</p>
83.	High Level Technical Architecture Requirements	The requirements state “System shall provide support to generate scrambled tests in multiple languages.” Scenario DUCG010 identifies the use of interpreters for scrambled tests unavailable in native language. What languages will require interpreters? Are terminals and printers capable of printing and displaying multi-byte character sets?	DUCG010: The purpose of this exception requirement is to record interpreter information.
84.	High Level Technical Architecture Requirement	<p>This requirement states “The core class model or data object model must be normalized, making proper use of foreign keys, constraints, and domain based data types.”</p> <p>Does this normalization take priority over inheritance? Class models look for inheritance chains for efficient object design and class models are evaluated based upon super class and subclass inheritance and affinities. In addition, data normalization is a primary technique used in Entity Relationship Diagrams.</p>	Inheritance takes priority.
85.	High Level Technical Architecture Requirement	<p>This requirement states “System must support fault tolerance and failover of Web, application, database servers, storage devices, and secondary devices such as load balancers in order to support high availability.”</p> <p>Hardware Services – Production Environment, paragraph 3, describes the system as “High Availability”. Fault Tolerance and High Availability are typically defined terms related to transaction recovery and systems availability, respectively. Fault tolerance will require a witness program to run in parallel to every system interaction. In case the system</p>	High availability is required.

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		component fails, the parallel witness will continue processing the transaction. By contrast High Availability will have redundant components in hardware and software but without a witness component. The cost and effort to provide a witness greatly increases the complexity of the solution and will add significant cost to the project. Please clarify if High Availability or Fault Tolerance is required.	
86.	High Level Technical Architecture Requirements	This requirement states "Access to the database from the application must be through standard ODBC drivers." .Net wouldn't typically use ODBC but rather ADO.Net. Is ADO.Net acceptable?	ADO.Net is acceptable.
87.	ITB / Implementation Strategy, page 14	Is it acceptable to propose a different implementation strategy as long as justification is provided and best value to the state of Michigan is maintained? Will this cause a deduction of points in the scoring process?	Yes. Vendors must first respond to the RFP with how they will provide the solution included in the TAS. If there is an alternative solution, that solution can be provided as an addition to the one proposed in Phase 2 of BAM. Vendors must be willing to provide the requirements in the TAS as stated. It will be the sole discretion of the State regarding whether the alternative proposal will be accepted.
88.	ITB/Data Alignment, pg13	Will the successful bidder have any input to data alignment issues if benefits to alternatives prove best value to the state of Michigan?	Yes.
89.	ITB / Work and Deliverable, page 10	One of the nine mandatory objectives for BAM listed is "User Interface" – please elaborate on what this means.	The application must be easy to use, intuitive, contain help screens, consistent between applications and the complexities of the system must not be a burden to the user.
90.	ITB / Requirement Documentation, page 11	The ITB indicates "there will be a 'refine and analyze" requirements task for each of the four phases of BAM". Does this mean that vendors will have an opportunity to "refine" pricing as the project moves through the subsequent phases?	No.
91.	Architecture Specifications – Phase 3C, page 14	Please clarify how you want the vendors to respond to and price the requirement for Finance and Inventory systems that meet BAM requirements. The Technical Architecture Specification (Section 3.4.3) suggests that these may both be COTS packages. The Implementation Strategy document also suggests that the Finance system will be a COTS solution.	Provide a solution with costs.
92.	Technical Architecture Specifications – Workstations / Desktops, page 15-16	In section 3.5 of the Technical Architecture Specifications there is a discussion regarding the Wyse terminal and attachment of peripherals. Does MDOS plan to utilize additional peripherals in the branch such as cash drawers and barcode readers? If so, will the Wyse terminals support these devices?	Branch technology refresh is outside the scope of BAM and will be completed prior to implementation of BAM.

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93.	Compensation and Payment, page 62	The state calls for 40,000 hours to be priced for service enhancements. In other large public sector transformation projects, the maintenance costs have sometimes varied by as much 5-6 times between similar projects based on the approach taken by vendors. Asking for only hours and rates could deliver some very skewed results where a vendor with higher rates could be 5-6 times less costly because of system development strategy. Would the state consider separating the pricing for the 40,000 hours from the base project cost so that the base costs could be compared, which would be a more meaningful comparison for MDOS?	This cost is separate – please refer to the Pricing Sheet.
94.	ITB / Capabilities and Qualifications of Organization, page 111	The ITB calls for the bidder to indicate “Size and location of facilities that will be involved in servicing the Contract”. Please define what you mean by “size” – does this refer to the number of employees, square footage?	It is the actual facilities.
95.	ITB / Award Process, page 115	Please provide clarification regarding the requirements for the vendor regarding document scanning and Image retrieval. Does the State currently have a document scanning and retrieval system? If so, please describe. Is the vendor required to expand/enhance the scanning/retrieval system? Will BAM be integrated with the scanning/retrieval system? If so, please describe.	No. The State is asking for a new system.
96.	General	Can the vendor get a copy of the UML diagrams in the native format rather than PDF? Also, if vendor can obtain copies, can it be provided now? Can a vendor obtain the artifacts from Phase 2 in their native format for analysis and estimation purposes?	The BAM Q & A CD1, contains the products included in Rational Rose. Products included in the Requisite Pro are in a database and will not be provided, as the entire database would need to be copied. Vendors are to use their own resources to utilize what has been provided.
97.	General	On the Traceability matrix, the requirements are truncated. Can the vendors get a copy with the full requirement?	Included in the BAM RFP Q & A CD1 are two alternative views of the Traceability Matrix.
98.	Technical Architecture Specification	For the proposed technical solution, can the state share how they came to this solution and the comparatives that were used?	The comparative analysis was provided in the Technical Architecture Specification (TAS) documentation included in the original attachments to the RFP. Vendors must first respond to the RFP with how they will provide the solution included in the TAS. If there is an alternative solution, that solution can be provided as an addition to the one proposed in Phase 2 of BAM.
99.	Task 6.1	What is the skill set of state staff with .Net development?	Vendors should review the requirements stated in Task 6.1, <i>Prepare and Perform Technical Training</i> , as it is a requirement of the vendors to perform training for technical staff in the new tools. Within the major development team, there is

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			limited knowledge and experience utilizing .Net suite.
100	Timeline	What are the timelines for each phase? Or are the timelines to be determined by the vendor? Is there a reason why timeline spread over 5 years – can the schedule be shortened?	Estimated timelines are in RFP attachments, specifically located in the <i>Implementation Strategy</i> . If vendors have an alternative timeline, they should propose the timeline and provide justification as to how the vendor will meet their proposed timeline. Vendors should take into account the requirements set forth in the RFP to combine their timeline with the State's staff at project start-up, which means there may be constraints on State staff's availability. Vendors should also include an understanding of the requirement to complete knowledge transfer with State staff. It will be the sole discretion of the State regarding whether the alternative proposal will be accepted.
101	Data Conversion Implementation Strategy. (Section 3.2)	<ul style="list-style-type: none"> Data Conversion, Page 33 of ITB. Data dictionary for legacy systems mentioned – no Data Dictionary Schema in the RFP. When will the state provide? Or is it in the UML tool? Data conversion and synchronization – need to understand legacy to estimate and determine complexity. This document has the data conversion inventory for all the 4 phases. It will be necessary to understand existing data model and data volume for each table or database. Could you please provide the same? 	Included in the BAM Q & A CD1 is the database documentation (data dictionary) for the current legacy system. High-level estimate volumes are in the RFP.
102		<ul style="list-style-type: none"> Data question follow-up after phase 3A – data sync between old and new...data validation done? 	Vendors are required to complete data synchronization in each phase.
103		<ul style="list-style-type: none"> Has data validation been completed? Data mapping – new data model will do what needed and able to map back to legacy. If the data validation hasn't been done yet, how will the vendors be able to determine complexity? Was a cross reference from the current system to the new system constructed during those sessions? Is there a field-to-field comparison? On Page 33, a working draft of a data dictionary is included in the attachments, is it for the new system or the old? Were there detailed data mapping completed in the JAD sessions? 	Data validation for Phase 3A was completed. Included in the Logical Data View portion of the RFP original attachments, is a table level cross-reference. Task 4.4, <i>Detailed Data Mapping Document</i> , requires the Contractor to provide this document as part of Phase 3.
104		<ul style="list-style-type: none"> Data conversion – supplying data extracts – Is the State doing all the work or is the vendor performing data extracts too? 	The State will be responsible for extraction of data from the DMSII database. Vendors will be responsible for extraction of data from all other databases.
105		<ul style="list-style-type: none"> Data conversion – reference to extract in ASCII flat files – Will there be packed data in the extract? 	All data will be unpacked ASCII flat files.

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		<ul style="list-style-type: none"> On Page 35 sec 4.6. Several data environments referenced, will all extracts be in ASCII? 	
106		<ul style="list-style-type: none"> There is a reference for the need to load data in specified time frame – can the vendor suggest a platform to do the extract, transformation, load and conversion? 	Once the data is extracted from the source host the data will be loaded into a BAM environment. Vendors can propose additional environments. Reference Task 2.1, <i>Design and Define Application Infrastructure</i> .
107		<ul style="list-style-type: none"> Does state have any software for data conversion? Please state those software details if you have any. 	The State does not have software and will not provide. The contractor is expected to provide and utilize a mutually agreed upon tool.
108		<ul style="list-style-type: none"> Data cleansing of millions of rows, has any preliminary analysis been done to get an idea of what exactly needs to be done?.....mapping/migration...manual vs. automated....For vendor to provide fixed price bid, they need to understand. 	No preliminary analysis has been completed. See response below.
109		<ul style="list-style-type: none"> Can you give us details about percentage of data that can be migrated using automated tools in phase 3B, 3C and 3D? 	In Task 4.1, <i>Plan for Data Conversion</i> , some estimates were provided. In addition the following estimates are added: <ul style="list-style-type: none"> Estimate Phase 3B at 80%, but in 3B we may not convert the entire file. Phase 3C and 3D estimate 90%
110		<ul style="list-style-type: none"> "Approximately 1 million client and 1 million driver records will require additional work." Can you give us details/complexity of the additional work involved for these 2 million records? 	The complexity though is not known at this time. Contractor must provide cleansing routines. For the most part, these records will not require manual intervention. Records that cannot be cleansed are referred to MDOS to do further manual evaluation.
111		<ul style="list-style-type: none"> "It is estimated that automated tools will handle the majority of the client and driver records." Please give us the details about this data conversion estimation process. Please also give us the estimated timeframe if you have any. 	This is an estimate and no timeframes have been determined.
112		<ul style="list-style-type: none"> Data conversion requests that the mapping document be submitted in spreadsheets. Vendor has another tool. Are spread sheets required or a minimum request? 	Spreadsheets were the minimum tool required. Other tools that a vendor wants to propose are allowed, but product and licensing will be the vendor's responsibility.
113		<ul style="list-style-type: none"> On page 36 sec 4.8 – manage data conversion and providing a staffing plan. Is the team to be exclusive vendor or some state FTE? Responsibility for cleansing legacy dataIs the state just providing assistance or is the state actually doing the manual data cleansing? Please clearly specify the State's responsibility with respect to the data cleansing in the conversion process. Will the State provide all the necessary resources to perform manual data cleansing? Can the State assume full responsibility for this activity subject to the 	In Tasks 4.5, <i>Data Cleansing or Scrubbing</i> and 4.8, <i>Manage Data Conversion Activities/Staff</i> , the State requires the Contractor to be responsible for the data conversion. The State will provide the staff and expertise to analyze and perform manual data cleansing – the vendor will oversee that task.

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		<p>contractor providing the technical direction and guidance to the state personnel?</p> <ul style="list-style-type: none">• RFP document states that the manual fixed needed for 200,000 records. We assume state will take care of these fixes. Please state otherwise.• ITB states, "Of the 2 million records, it is anticipated that the State will have to manually fix 200,000 records." Task 4.5, however, states that the Contractor is responsible for this and that the State will assist. Will State resources be performing this work, or is this expected of the bidder?	
114	General	<p>Statement that requirements are validated and the class diagram need further validation. What is the State talking about? Does the BPR need validation? Are the BPR artifact requirements set?</p>	<p>The business requirements are completed; vendors will be required to take the requirements to the next level of detail. This activity is to be completed in the refine and analyze, Task 3.2, <i>Perform Analysis, Refine, and Requirements Definition</i>, in Phase 3. Please reference the information within this task related to the level of detail for each of the phases.</p>
115	General	<p>Page 58 section 1.4.03 Change control process will be made available for the vendors, when will they get to see it?</p>	<p>Included in BAM Q & A CD1, is a matrix that shows current MDOS projects and identifies potential touch points on business requirements to BAM. The State is still evaluating the impact of these projects to BAM. Included within the CD, are addendums the State has identified as changes to BAM requirements.</p>
116	Network	<p>Were assessments done on the network bandwidth capability to handle BAM?</p> <p>The state's web-based solution for BAM will make considerable network bandwidth demands. Has there been any recent BAM bandwidth assessments/forecasts for the DOS Branch LANs, the DOS WAN, and the Lansing metro-WAN?</p> <p>While the network has been defined as out of scope, would the state be willing to share with the bidders at this time any such assessments/forecasts?</p>	<p>All branches have 10/100MB switches WAN will be minimum of 512K by BAM implementation. LMAN is 2GB backbone and is fully redundant Further network assessment will need to be completed when application is designed and being developed. Please note that the application will need to meet bandwidth requirements to allow other traffic.</p>
117	General	<ul style="list-style-type: none">• Section 2.2.06 Does the vendor need to have staff on-site?• How many vendor staff can the state facilities accommodate on site? Will the state provide work stations and required tools and licenses?• Need to employ in Michigan. If a MI based corporation able to provide a global solution and save costs is that acceptable?	<p>Vendors should assume staff would be required to be in Michigan. The State will make any necessary adjustments to locations for staff once the contract is awarded. The State will provide for up to 10 workstations, the successful contractor must supply remaining workstations.</p> <p>The State does not have a formal policy – vendors are to provide efficiency information in your bid.</p>

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118	General	Evaluation criteria – in reference to the 30 points. How is the State going to score those 30 points?	The 30 points in the selection criteria are included so that all vendors demonstrate understanding of the vision, objectives, documentation, and requirements from Phases 1 and 2. The State will not repeat previous phases.
119	Funding	<ul style="list-style-type: none">• Has project funding been secured?• Budget questions within the documented risks- higher dollars needed than in early estimate. Is there a budget available?	The State is committed to the success of this project. Budget appropriations are made on an annual basis. See section 2.301 of the ITB document regarding appropriations. Budget information is not necessary to provide a responsive proposal.
120	General	Questions on the 10 th and the 23 rd . If have more questions before the 23 rd , can vendor submit the question early or must they hold until the 23 rd ?	Please send your questions in as early as possible, as this will help us keep up and meet the response deadlines.
121	General	Michigan 1 and single customer number – what is the status on these projects?	Single customer number: work has begun, defining issues and providing recommendations at this point. No programming work has begun. Michigan 1 project is on track.
122	General	Page 35 – Data scrubbing – state software. Will the vendor have full access to state software for calculating the DL number?	Contractor will have access to the algorithm, as they will be required to create the algorithm as part of BAM.
123	General	Who is making the modifications to the legacy environment? Is it the State's responsibility or the vendors?	Both. The State will provide technical assistance to the contractor as needed.
124	Section 1.201, Item 1	Section 1.201, Item 1, states "the Contractor is accountable to the...DOS Program Manager." Section 1.202 states that the Technical Project Manager will have "some oversight of the Phase 3 Contractor." However, the BAM Project Organization Chart appears to show the Vendor Project Manager reporting directly to the Technical Project Manager who then reports to the State Program Manager. Please clarify the reporting structure for the Vendor Project Manager.	The Vendor Project Manager reports to the Technical Project Manager who reports to the Program Manager.
125	General	The ITB clearly indicates a 12-week procurement and installation window. Yet the subsequent A-D Gantt charts (Implementation Strategy) depict 2-3 week timing in the work plan for the same activity. Is the 12-week window the time period that our proposed plans are to be based upon?	If the State procures the hardware, it is anticipated it will take 12 weeks. Timelines would be adjusted after the award of the contract when it is determined if the State will procure hardware or the contractor.
126	General	Will the use of the Serena Change Management product be required for promotions to non-production environments?	Serena Change Management will be required for all promotions except for development.
127	Page 25	ITB indicates that the bidder's Technical Team Staffing Plan include "network administrators." On page 7, the ITB indicates that LAN/WAN support is performed by DIT Infrastructure Services. Please clarify the contractor's network responsibilities so that the Technical Team Staffing Plan will be consistent.	Network administrators are out of scope and should be removed from the reference on Page 25.

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128	General	Task 3.3 clarifies that the State will "provide the technical expertise to the Contractor to design the legacy enhancements." Does this mean that the State will provide the legacy technology expertise for such things as Algol, Xgen, and the like?	The State will provide the expertise on the design of the current legacy environment and will work with the Contractor. The Contractor should have staff that can code in these languages.
129	General	Are the bidders encouraged to propose alternative (additional) testing environments that can expedite the completion of testing phase?	Testing should be thorough and complete, vendors can propose alternative environments.
130	Page 39	The ITB refers to the vendor's UAT support as including "... both business and technical assistance." As this term can cover a rather broad spectrum of client activity, it would be helpful if the state would more clearly specify the range of activities/tasks intended here.	The Vendor should provide application support (i.e., how to use the application), as well as responding to technical questions that may arise. The Contractor should assign appropriate resources to ensure the application is appropriately tested and performing to business requirements.
131	Training	Will the State serve as 'registrar' for training? That is, will the state handle all class enrollments, confirm the existence of any prerequisites, student attendance tracking, and related student logistics?	The State will identify (enroll) attendees for both technical and business training. Prerequisites for technical training will be the responsibility of the vendor to identify. The State assumes there will be no prerequisites for business training, other than branch knowledge and keyboard/PC usage. It is expected that a sign-in log be used in the training class and provided to the State for all training modules.
132	Training	Is only one (1) train the trainer session (for up to 25 individuals) required for each phase?	No more than 25 train-the-trainers will need to be trained.
133	Training	Will the State assume responsibility for all desktop devices, LAN equipment, and networking required so that all students will have their own PC during all training sessions?	A training site with adequate workstations will be provided.
134	General	What is the difference, if any, between Tasks 5.3 and 6.7?	User acceptance testing is smaller in scope and verification of all requirements to the application. Statewide user acceptance testing is after user acceptance testing, goes outside LMAN, and includes multiple locations across the State.
135	General	Can the vendor propose the use of a different set of test tools?	Yes.
136	General	The sample project plans provided in the ITB suggest a straight waterfall approach for the phased development efforts. Does the State have a preference for the development methodology to use or can an iterative development methodology be used in order to reduce project risk?	Yes.
137	General	How were the hardware recommendations, specifically server quantities, determined? What supporting documentation is there that shows how the recommendations were arrived at?	The recommendations were based on the requirement for high availability and amount of transactions per day.
138	General	Since all of the BAM Phase 2 requirements are already in Rational, does the State requires the Phase 3 artifacts to be archived using Rational?	Yes.
139	General	Since the .NET framework was chosen, why was IBM Websphere MQ	IBM Websphere is a State standard.

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		selected instead of the free Microsoft MSMQ product?	
140	Technical Architecture Specification	In the Technical Architecture Specification, the identification of Itanium processors limits 3 rd party software choices. Can vendors propose x86 64-bit architectures from Intel or AMD?	Yes.

Attachment#2, Vendor Q&A Part 2

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141.	Section 1.1	Overview "One Neighboring state elected to pursue the <i>big bang</i> approach and has not met with success, experiencing difficulties such as shutting down branch offices, law enforcement being unable to check driver records, cost overruns, implementation delays, and other undesirable and unacceptable impacts." Which neighboring state are you referring to?	The State's preference is for vendors to complete their own research on other states. All information has been in news articles that are available on line.
142.	Section 1.1	Overview "However, throughout Parallel Processing, "transaction bridges" will be created between the BAM and Legacy Systems using the WebSphere MQ message queuing technology. Is the state using the WebSphere MQ message queuing technology for any specific reason? Does the vendor have any option of recommending or using any alternate technologies?	See Response to question 139 in first Q & A.
143.	Section 2.1	Phase 3A "Establish document scanning capabilities for designated Branch Offices." How many branch offices will scan the documents in phase 3A ? Will more offices be added in other phases (3B, 3C, 3D) of the project?	Current intent is to phase in scanners (approximately 20) beginning in Phase 3A, and all other Branches for 3B. (Note: Final determination on number of locations will be in the refine and analyze stage of 3A). The State is reviewing requirements with the federal Real ID Act, which may impact requirements related to scanners. Vendors may want to review the Real ID Act but at this time limited information is available.
144.	Section 2.1	Phase 3A "Connect to proprietary interfaces (e.g., Digimarc, UNI, PDPS, CDLIS, SSOLV)" We have experienced in other DMV implementations that with migration of the applications to the new technologies the interface implementations also change e.g. UNI interface has a separate legacy and web interface. If an interface is common to driver and vehicle e.g. UNI then we need to support both legacy and web version of the same interface. Does AAMVA support multiple versions of UNI support to the state?	Currently there is not a UNI interface to the Unisys Clearpath environment.
145.	Section 2.1.1 – Legacy Interfaces	How are fees collected currently? With Phase 3A only Driver Issuance is migrated to BAM which means that for fee collection the Branch Office users will have to interface to multiple systems to complete the transaction i.e. BAM for collection Driver Information, Digimarc for photos and BOS for fee collection.	BOS has a cash register function and all fees are then sent to the mainframe for revenue distribution. The fees will be collected the same way they are now in Phase 3A, in Phase 3B, when BOS goes away, changes will be required. BAM will be interfacing with multiple systems that shall be transparent to users.
146.	Section 2.2	Phase 3B "Implement complete Voter Registration via Branch Offices." As suggested that QVF is not in scope of this RFP. Are the Voter Registration and Printing of Voter Registration Cards Process in scope of this RFP? What is the impact of HAVA on these processes?	The QVF application is not within the scope of BAM. What interfaces with the mainframe, is voter registration, which is within the scope of BAM. As far as the printing of cards, that will be defined in the business requirements in Phase 3B. The impact that HAVA may have on BAM is to develop an interface with HAVV (for a check on name, DOB, and partial SSN). BAM doesn't have these requirements at this point, as it is not in place.
147.	Section 2.2.1	Legacy Interfaces "BAM and BOS - Disabling program/systems no longer	At the end of Phase 3A all Driver Issuance will be done through the new BAM system.

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		necessary. Driver Issuance will no longer be replicated to the Legacy system." This implies that Driver Issuance will be replicated to the legacy system until Phase 3B is implemented. What is the rationale for replicating Driver Issuance to the legacy system? Is vendor to create the replication and support of Driver Issuance to the legacy system?	All driver records will be replicated to the Mainframe enabling the mainframe interfaces to remain intact. Once Phase 3B is completed all interfaces will be migrated to BAM and the replication of the data will no longer be required. The vendor is required to create the replication of the data to the legacy system. See Interface Overview, Phase 3A, Driver Update (Line 16) and Driver Updates (Box, 16, 19, 26, 51).
148.	Technical Requirements	"System shall provide support to generate scrambled tests in multiple languages." How many languages (which ones) will be supported?	English, French, Italian, Spanish are required as a Scrambled test and are printed using current equipment. Also see response to question 83 in first Q & A.
149.	Technical Requirements	"System shall manage business rules via a robust rules engine." Does the State have a preference for a business rules engine. Has there been a Cost benefit analysis done for a business rules engine – sometimes a parameter driven application is more cost effective overall as compared to developing/using/maintaining a business rules engine.	The State is open on how to accomplish this. A cost benefit has not been completed. Also see response to question 82 in the first Q & A.
150.	Technical Requirements	"System workflow of web pages and program functions must be configurable and modifiable without changing program code. (Additional or modified programmatic validations to support system flow are acceptable)." Does the State have a preference for a workflow package. Has a Cost Benefit analysis been done for using a Workflow package vs a Custom solution?	The State is looking for a custom business application as the solution for BAM. If a workflow package would bring a benefit as a part of the solution, the Vendor will need to include the benefits and cost in the response. All response must meet the requirements as provided in the RFP.
151.	Technical Requirements	"System shall provide wizards for performing common or well-defined development actions." Please provide more clarification on this requirement.	The system should be intuitive and assist users in performing common transactions.
152.	Technical Requirements	"System shall provide tutorials, task-oriented user guides, and context sensitive help." Does the State have a standard product in mind that will be preferred for this requirement?	No.
153.	Technical Requirements	"Standard browser functions such as the back and forward buttons must be visible and enabled." Is this requirement only for the Self-service internet application or also for the intranet Branch Office BAM application. A related question is – does the State prefer a .NET smart client application (Winforms) or a thin tier application using ASP/HTML screens. Does the State want to leverage their existing Citrix metaframe infrastructure in the new solution?	Both may be required but final decisions will be in the design portion of each phase. The State is looking to take advantage of .Net framework and smart client application may be used. The State is not looking to leverage Citrix in the new environment.
154.	Technical Requirements	System must be able to comply with enterprise application access rules for the State Of Michigan (policy 500.01). Request State to point us to where this policy is (if it is on the web).	The policies are available at www.michigan.gov/dit and perform search on 500.01

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155.	Technical Requirements	"System must support an enforceable password policy for end users, including specifying password length, minimum complexity, expiration, password reuse and history, and lockouts for failed login attempts. (see 1410.17 Michigan State Government Network Security Policies.)" Request State to point us to where this policy is (if it is on the web).	The policies are available at www.michigan.gov/dmb
156.	Technical Requirements	"System must interface with the concept of an identity vault, containing usernames and passwords loaded from a secure/trusted source." We would like to understand the business context for this technical requirement.	This requirement is in support of the State's Identity Management project.
157.	Technical Requirements	"System must support the concept of a service directory that contains the usernames and passwords replicated forward from the identity vault, and any other security information needed by the applications supported by the service directory." We would like to understand the business context for this technical requirement.	This requirement is in support of the State's Identity Management project.
158.	Technical Requirements	"System must provide sufficient failover support to re-establish the system within eight hours of the loss of the primary hosting center." We assume since there is a requirement for 99.999% availability, the system cannot be down for 8 hours so a secondary system will function till the time the primary server comes up in 8 hours – wanted to clarify if our understanding is correct.	The production system needs to be available 99.999% of time. The reference to 8 hours is only in case of a complete disaster of the production hosting center. A production environment should be able to be re-established and functional in a maximum of eight hours.
159.	Technical Requirements	"System should support Symantec on Windows 2000." Wanted to clarify if this is "Symantec Antivirus" on Windows 2000?	Correct it is "Symantec Antivirus".
160.	Reference 1.403 pg 58	"CONTRACTOR NOTE: A change control process is being utilized for this and will be available to contractors mid-way through the bid process." Can we get a copy of this process of tracking the changes to requirements?	See response to question 115 in first Q & A.
161.	Project Timeline	Is there a reason for the project timeline covers almost the entire 5 years with very little overlap between the phases? Was there a risk assessment and some other analysis done to determine this? If yes, would request the State to share the analysis with us	The project timeline presented is only an example. The State assumes there will be overlap between phases. Please review <i>Implementation Strategy</i> and reference Proposed phase 3 roll out diagram on page 7. For additional information see response to Question 100 in first Q & A.
162.	Project Timeline	Would appreciate if the State can share with us anticipated timeframe for review/approval/signoff of deliverables.	Reference RFP Section 1.5 for acceptance criteria. Final timeframes will be determined with input from selected vendor and State when developing joint project timeline.
163.	General	Modifications would be required to be made to the legacy application to interface with the BAM application – Does the State envision the vendors	This is the vendor's responsibility with the State providing assistance. See response to Question 123 in first Q & A.

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		to make changes to the existing legacy and BOS applications.	
164.	General	<p>Do we need to price for the following hardware, software licenses?</p> <ul style="list-style-type: none">• Workstations – How many• Filenet• Active Directory• Rational Rose licenses <p>Would appreciate a list of any other existing tools, software, hardware that the State would like us to leverage?</p>	<ul style="list-style-type: none">▪ No branch workstations need to be included. See response to Question 117 in first Q & A regarding contractor workstations.▪ Filenet is not part of the proposed BAM solution.▪ No, see response 127 in this Q & A for status on Active Directory.▪ Vendor will need to provide the appropriate licenses (for vendor staff they are bringing on site to maintain business requirements) for Rational Rose and Requisite Pro.▪ There is not a listing, requirements are defined in the RFP and the software and hardware needs to be proposed by the vendor. The Software and Hardware will need to adhere to State standards.
165.	General	Would like a breakup of transactions between “mail-in” and “walk-in”, if possible	For FY04 Renewal by Mail processed an estimated 2,500,000 transactions, branch offices processed an estimated 18,000,000. FY04 is a typical yearly breakdown for these two channels.
166.	General	30 Points for “Contractors demonstrated understanding and acceptance of Phase 2 deliverables” – need more information, if possible on how will this be scored	See response to Question 118 on first Q & A.
167.	General	In the implementation strategy document under Risk Analysis section it says “The BAM program budget is estimated to higher than earlier estimates.” Would appreciate if the State can share this information on “Project Estimates” with us.	<p>BAM is funded through a yearly appropriation. New estimates were developed in Phase 2 (included on Q & A CD2, Budget Impact.pdf) but vendors should understand the State is bidding Phase 3 to determine the actual costs. Also, there are items not in scope for Phase 3 that were included in the Phase 2 documentation, so vendors should prepare their own costs based on requirements as set forth in the RFP for Phase 3. All costs in the Phase 2 documentation were vendor proposed estimates and no validation was completed. The State used the estimated budget documents during Phase 2 to make decisions for what to move forward in Phase 3, not as a definitive budget.</p> <p>Also see response to Question 119 in first Q & A.</p>
168.	General	<p>Request the State to extend the due date for the RFP (by at least 2 weeks) to give us time to produce a good quality response – as there is lot of Phase 2 material to go through.</p> <p>We would request the State to extend the due date for the RFP response (by at least 2 weeks) to give us more time to produce a good quality</p>	In order to meet internal timeframes, the State is not extending the due date and the time allowed is sufficient for all vendors to respond.

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		response – as there is lot of Phase 2 material to go through. As a lot of questions will be answered after June 23, we may need to modify our responses based on these answers. The extension will help in leveling the playing field with the phase 2 vendor – this will cover the time it took for us to obtain the Phase 2 deliverables CD, go through the deliverables and waiting for responses to our queries which impact our response.	
169.		While a 7X24X365 w/ 99.999% high availability system is desirable and achievable, this type of system is much more costly due to the multiple levels of hardware redundancy and complex support processes required to meet this level of uptime. Would the State consider a highly available alternative with less than 7X24X365 w/99.999% availability if the cost is significantly less? If so, what is the minimum requirement?	The system has to be available 7X24X365, 99.999% of the time. Vendors should respond to the RFP as proposed and if alternatives are being suggested, they can be included.
170.		Request the State to provide the number of reports expected to be produced by BAM and the number of forms that will be handled by the application.	The number of reports for Phase 3A is 30. There should not be more than 30 reports for each phase or a total of 120 split between all phases. Forms will be defined in the refine and analyze phases.
171.		Is the State planning to use handheld devices like PDAs, tablet PCs or other microbrowser based devices to access the application?	The possibility does exist but is not a requirement at this time.
172.		After reviewing the information provided by the State, it is assumed that there are seven source databases; it is requested that the State provide the following: a) Approximate number of records in each source database? b) Approximate number of tables in each source database? c) Approximate number of fields per table?	The seven databases on the interface diagram are not all inclusive. There are other databases on the mainframe and applications outside the mainframe on the interface diagram that contain databases. Please see BAM Q&A CD2 files Record Counts.doc for a draft list of databases, tables, and record counts.
173.		Does the State either currently or in the future intend to employ a “name-matching” tool to consolidate clients? If so, will the successful vendor be expected to use the output of this tool for the construction of the common customer file?	It is expected that vendors are responsible for determining tools to use for data cleansing/name matching. See responses to questions 101-113 in first Q & A.
174.		Related to the Common Customer ID effort that is now in process; will the State explain the expected outcome and anticipated use of this effort by the successful vendor?	Yes, the State will advise the successful vendor. The expected outcome is for the State to have a single non-changing identifier for businesses and individuals.
175.		From a State staffing view, will domain experts from the State be available to work with the successful vendor in the data inventory and source to target mapping process?	Yes
176.		Does the State require the successful vendor to perform image conversion of the existing microfilm and microfiche?	No

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177.		With assurances of security, will the State allow source data to be processed through a conversion tool set/engine located off of the State's site (US Based) prior to loading into BAM?	The State would be willing to explore this option but is not committing to this method, as "assurances of security" may not be agreeable. Vendors should be prepared to complete tasks within the State.
178.		Besides the deliverables already shared with us, are there any other Phase 2 deliverables or work products by the phase 2 vendor?	There are deliverables from Phase 2 that are not in the scope of the Phase 3 RFP (DOS determined not to bid some items). The Budget Overview is provided to vendors on Q & A CD2. Vendors have been provided all relevant deliverables from Phase 2 for the bidding process.
179.		Under this ITB, will the DOS be evaluating (and purchasing) the modernization of business processes that include paper to electronic conversions (i.e. Scanning Hardware, OCR/ICR Software, or even Outsourcing the Paper to Electronic Conversion Process to a Service Provider?). Is there a description of this specific requirement in one of the attachments? if so, we will reply with the information you requested to gain access to attachments.	The requirement is to add scanning of appropriate documents. These requirements are detailed in the functional requirements and use cases already released.
180.	1.103, p. 8	The Branch Office System (BOS) including Dealer Direct is written in Visual Basic 6.0. How many COM objects and resultant DLL's are there in BOS?	Included in BAM Q&A CD2, M F BOS Components.xls.
181.	Task 3.3, p. 30	As stated in the ITB legacy enhancements are required in the first three phases of BAM to interface with the current legacy environment. Please provide any available sizing metrics that can be applied to the estimated effort for this task. For example, number of programs or source lines of code to analyze and/or modify.	Included in BAM Q&A CD2, Legacy Enhancements.doc.
182.	4.601, Step 1, Bullet 1, p. 115 Technical Requirements Document bullets 13, 14, 15	What records create the delta between the 35 million Customer and Vehicle records identified in the Technical Requirements Document and the 250 million identified on ITB page 115?	The 35 million was driver and vehicle records only, a more complete list of record counts are included in BAM Q&A CD2, Record Counts.doc.
183.	GUC037: Access denied	Disable the account when maximum invalid accounts is met. What is number of attempts to disable the account?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
184.	GUC032: Encryption and Data exchange	Connecting through secured shell. What is the authentication procedure for this connection?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.

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185.		Data encrypt and decrypt mechanism for communication with external system. Does the State require the vendor to use specific tools and follow any specific guidelines for implementing the encryption/decryption mechanism?	See Technical Architecture Specifications 4.2 Software recommendations page 19.
186.	GUC033: Password reset Public customer	Generate new password in case of incorrect APR answer. What is the password generation rule? How will the password be communicated to the customer?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
187.		An alternative is to mail the notification to the customer's address of record using postal mail. Is this automated or manual process?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
188.	GUC039: id Request	BAM System creates the ID. What is the standard for creating the ID? What is the customer id referred in this use case? How it is different from user id or the login id?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
189.	DUCG002: Verify Documents	This use case is used in various transaction (licensing) type. Do the documents vary based on transaction type or remains the same for all transaction?	Documents vary based on transaction type.
190.		Image (When appropriate). Does BAM system need to validate when appropriate or it is discretion? What is types of images will BAM support?.	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
191.		Branch Creates an Unverified Customer Record To Prevent Branch Shopping. What is unverified customer record? Can we create an unverified customer record for an existing customer?	And unverified customer is a person who has not provided sufficient proof of identity. It may be possible that a duplicate record is created for an unverified customer, although it is not the State's intent to create duplicate records.
192.	GUC015: Scan Document	The BAM system prompts the Service Agent to scan the appropriate document(s) including Acceptable foreign documents? What are the acceptable foreign documents? Do BAM system needs to validate these documents? Is this scanned documents are common for all transaction type? Does the system require the implementation of OCR based technologies to analyze and process scanned documents to collect data off of them?	This information is not required to respond to the RFP. No, but State may add this requirement later (using an interface with an outside product). No No
193.	DUCG006: Verify Information	This use case interface with different application to verify information. Does that mean that all the interfaces need to be tied together under single transaction such that one fails the entire transaction will have to be roll backed?	No, a use case scenario is based on business objects in order to create object-orientated code. One transaction will not be hinged on another.

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194.		This use case requires various historical data, does that mean that all the required historical data would have to be migrated into the new BAM system?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
195.	DUCG011: Issue Medical Test	What are the criteria to determine whether the medical test is a pass or fail?	This information is not required to respond to the RFP.
196.		BAM System shall pre-populate the DI4P/DI4V form with information. From the Customer Record. What customer information needs to be pre-populated?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
197.		BAM System is expected to support 'pending' transactions! What mean would the system need to support to 'complete' these transactions? What will be the behavior of 'pending' transactions?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
198.	DUCG010: Scrambled Test	BAM System determines the appropriate test for the transaction type. What does the term 'appropriate test' mean? Where this information is located? What are the rules that determine which tests get selected?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
199.		BAM system generates the scrambled test. What are the questions and responses? What is the business rules that governs the generation of the test.	This information is not required to respond to the RFP.
200.		Is BAM system also used for customer testing or BAM system should interface with any third part customer testing tool.	BAM is generating the test. The State is looking at a Third Party software, with whom BAM would then have to interface.
201.		In case CDL group designator or endorsement or Hazmat endorsement, BAM system interface with the Third party CDL testing product to retrieve CDL examination. Is the information is stored of data or documents?	Data.
202.	DUCG005: Capture Photograph	The Hard Card Vendor system captures a customer Photograph and BAM System links the stored photograph. Is the Hard Card Vendor system part of BAM or an external application? If it is external application, please provide details on the design of the interface to this system!	External – details of this application are not required to respond to this RFP.
203.	DUCG018: Issue TOP	BAM System calculates the TOP expiration date. What is the criteria for calculating the expiration date?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
204.	GUC027:Search System with Partial Info	BAM System searches for exact matches and near matching records. What are the fields needs to be part of near matching records.	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
205.		Narrows the search with additional information. What are the data items	To be determined in refine and analyze phase. Please refer to task 3.2 Perform

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		that should be part of advance search?	Analysis, Refine, and Requirements Definition for specific details.
206.		BAM System stores the combine request. When and how is the request processed?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
207.	GUC030 & GUC030b: Investigation fraud - Customer (driver)	The system places the appropriate restrictions (flashes, holds, suspension or locks) on the Customer Record. What is the implication of this lock? Is the locking for the transaction or entire customer record?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
208.	DUC025a: Batch Combine process	Once a week, BAM System reviews all customer records and links potentially matching records, storing the links between the records. What is the criteria for the matching records?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
209.		In House Personnel select fields to copy to the primary Customer record. In case of more than one secondary customer records, what are the selection criteria?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
210.	DUC002: 180 Day Extension	Update temporary mailing address. Is the temporary mailing address different from mailing address ?	Yes
211.	DUC006: Commercial Driver License Helpdesk	Helpdesk update the record in CDLIS and the CDLIS will update BAM system to unlock transaction. Is the CDLIS system responsible for pushing this update to BAM or is it BAM's responsibility to pull it from CDLIS?	BAM's responsibility to lock or unlock a transaction based upon information from CDLIS or the Michigan CDL HelpDesk. Please see DUC006.
212.		The BAM System notifies the Service Agent that a CDLIS error has been resolved. What is the notification mechanism for BAM?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
213.	General	Few use cases specify lock and unlock transactions. What mechanism does the system employ to handle these transactions? Specifically, what is the requirement with respect to handling locked and unlocked transactions?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
214.	General	Few use cases specify pending and continue transactions. What is the expected behavior of pending and continue transaction?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details. See Question 58.
215.	General	BAM is required to implement several interfaces with legacy applications. In order to accurately estimate the effort needed to implement the system, it's imperative to study the detailed design and implementation documentation of these interfaces. Can the vendors be provided with detailed design of these interfaces along with the architectural and implementation details of all the interfaces?	Attached is a high level overview of the interfaces, see BAM Q&A CD2 (Interface Definition.xls) details of these interfaces will be provided to the successful vendor.
216.	General	What is Verified and unverified customer records?	See response to Question 51 in this Q & A.

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217.	General	Phase 3A mentions about the authentication steps, but does not provide any details on the authorization needs of the system. What authorization rules need to be implemented for each phase of the system?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
218.	General	Can customer apply more than one transaction type at a same time through web? If so what are the transaction they can apply for?.	Yes, please see functional requirements for those transactions that can be completed via the web.
219.	VUCG034: Validate Vehicle Registration Data	What are the business rules/regulations pertaining to the validation of Vehicle Registration requests?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
220.	VUCG002: Verify Customer Documents	This use case seems to be a manual process. Does the service agent require any system assistance to do this operation?	Manual, any differences will be determined in refine and analyze in 3B.
221.	VUCG031: Manufacture Plate	Plate order to MSI. Will this be a real time update to MSI? If so can we be provided with information of the data elements that need to provided to MSI along with the API's that MSI provides to process the requests?	Batch – data will be determined in refine and analyze phase of 3B. See box 52 on Interface Overview Diagram for Phase 3B.
222.	DUC004: Process Organ Donor Requests	Transmit the data to Michigan Transplantation Society. Will this transmission be I Real Time or Batched? What APIs does the MTS provide?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details. See Box 25 on Interface Diagrams in 3C.
223.	DUC031: Abstract of Conviction	The BAM System captures Judge's Alcohol and Audit Statistics. Will the Court enters this data directly into BAM or is BAM expected to interface with the Court's internal system? If BAM is expected to interface with the Court's systems, how man such systems would BAM interface with? Would all the systems be able to supply the data in a consistent XML format or would BAM have to implement separate interfaces for each of the systems?	The Court submits the data to BAM. They are not separate interfaces and the Courts submit in a consistent format. See Box 34 on the Interface Diagrams
224.		Forwards conviction information to appropriate state electronically. Will this be a batch FTP process? Does this system have to communicate to all 50 different states?	Real time and we communicate with all 50 states plus Mexico through AAMVANet.
225.	General	There are some use cases that exist in both Phase3A and Other (Final, Global, etc) directories. What is the basis of categorizing these use cases?	They are categorized based on when used and how often used in scenarios.
226.	GUC037 Access Denied	What is the process to gain access back for a denied/disabled id? Does BAM system need to handle this or it will this be handled using Active Directory native UI? What process will be followed to provide this functionality?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
227.	GUC061 Create Application	Will the customer continue to use the existing self service station (kiosks) that DIT maintains or is the expectation of BAM to replace these kiosks	We will utilize the existing equipment but we anticipate there would be re-writes required for the application.

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		with new technologies?	
228.	GUC061 Create Application	What is the vision for the IVR system? Is BAM also expected to replace the IVR system or is the vision to migrate the existing IVR system to integrate with BAM?	Replacing the IVR is outside the scope of BAM but BAM will need to interface with the IVR.
229.	GUC015 Scan Document	Is there any infrastructure currently in place to handle scanning of document? If so, does the State envision continuing to use this infrastructure?	BAM does not plan on utilizing the current infrastructure for scanning documents. (See response to Question 91 in this Q & A.)
230.	GUC015 Scan Document	If not scanning infrastructure is currently in place, is the vendor free to spec out the infrastructure for the scanning subsystem? Who will be responsible for implementing and deploying the new infrastructure? Who will be responsible for procuring and supporting this infrastructure?	Yes, it is a requirement for vendor to bid scanning infrastructure. The Phase 3 vendor is responsible for implementing during BAM. Refer to Task 2 for options on infrastructure procurement and support.
231.	GUC015 Scan Document	Question 95 states that the state doesn't have a system for document scanning and Image retrieval. What is the current process and how are the documents getting scanned? Does state has any standard software for Image/Document processing?	They are not being scanned, majority of documents are microfilmed. There is a small system that scans vehicle error documents but it is not expected to be utilized by BAM. For State standards please see the following sites: www.michigan.gov/dit www.michigan.gov/dmb
232.	GUC015 Scan Document	To determine the fixed-bid price for the BAM system, we need to have a clear understanding of the scope of the requirements. Can the State specify the exact requirements of the Document Managements requirements of BAM?	Refer to GUC015 and GUC021 for requirements.
233.	General	Can the State provide a complete list of all the interfaces along with the technologies used to implement each interface?	An overview of the interfaces are provided on Q&A CD2 - Interface Definition.xls
234.	General	Is there a difference between the status of a transaction and the status of an application? What sort of constraints need to be implemented to handle transactions that are in a particular state?	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
235.	DUCG010 Scrambled Test	In order to determine the scope of the application, we need to know the process that needs to be implemented to send the customer number and transaction information to the hard card vendor!	See Item 5 in DUCG009 for information passed to vendor. The information is sent via FTP to hard card vendor over VPN.
236.	GUC007 Calc Fees	What is the process for handling errors. BAM is expected to an error report. To understand the scope of the system, we need to know what type of an error report is expected out of BAM and what will be review and error correction procedure that needs to be supported by BAM!	To be determined in refine and analyze phase. Please refer to task 3.2 Perform Analysis, Refine, and Requirements Definition for specific details.
237.	GUC007 Calc Fees	Is it safe to assume that the process used to determine whether a transaction will be a no fees transaction will not need to be automated? Or	Neither assumption is correct. The service agent may either select a no-fee transaction or the system will generate an indicator that a transaction is no-fee.

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		is the requirement for the system to evaluate whether a transaction will be a no-fees transaction?	
238.	071I5200236 itb.pdf (RFP Document – Section 4.1)	"It is estimated that automated tools will handle the majority of the client and driver records." Please give us the details about this data conversion estimation process. Please also give us the estimated timeframe if you have any.	See first QA response to Question 111
239.	071I5200236 itb.pdf (RFP Document – Section 4.1)	"Approximately 1 million client and 1 million driver records will require additional work." Can you give us details/complexity of the additional work involved for these 2 million records?	See first QA response to Question 110
240.	071I5200236 itb.pdf (RFP Document – Section 4.1)	Can you give us details about percentage of data that can be migrated using automated tools in phase 3B, 3C and 3D?	See first QA response to Question 109
241.	071I5200236 itb.pdf (RFP Document – Section 4.1)	RFP document states that the manual fixed needed for 200,000 records. We assume state will take care of these fixes. Please state otherwise.	See first QA response to Question 113
242.	General	Does state have any software for data conversion? Please state those software details if you have any.	See first QA response to Question 107
243.	Implementation Strategy.pdf (Section 3.2)	This document has the data conversion inventory for al the 4 phases. It will be necessary to understand existing data model and data volume for each table or database. Could you please provide the same?	See first QA response to Question 101
244.	Implementation Strategy.pdf (Section 3.2)	This document has the consolidated interface list (65 interfaces). Can you provide a brief description/functionality for each interface?	See Q&A CD2, Interface Definition.xls
245.	General	Does State want the vendor to execute this project onsite at DOS facilities or offsite at vendor facilities?	See first QA response to Question 117
246.		Will State provide development hardware (computers, servers) and software for vendor team members assigned to work onsite at State's facilities?	See first QA response to Question 117
247.		If offsite/offshore development is preferred, will DOS provide VPN connectivity to State's development and test environments?	See first QA response to Question 117
248.		What is State/DOS policy with respect to offshore based delivery model?	See first QA response to Question 117
249.		Will State provide necessary tools for testing system performance in	The vendor needs to propose a testing system tool and the State will approve.

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		accordance with State technical standards?	
250.		Can post implementation support be provided offsite from vendor facilities or does the State prefer this to be done onsite at DOS' facilities?	Onsite
251.		The ITB indicates the need for vendor to provide pricing for hardware. Can you clarify the need for hardware considering the State has requested that all services be provided on site? Is the State looking to procure hardware for the development of this BAM Application? If yes, does the State have any preferred hardware standards that they want the vendor to price for?	The vendor is to provide pricing for hardware for the BAM application – see Pricing Sheet.
252.		Has there been any preliminary analysis completed by EDS with respect to hardware requirements. If yes, can you provide a copy of that assessment?	Yes – it is provided in the Technical Architecture Specification document (RFP attachment).
253.		Please confirm that the ITB requires vendors to provide separate hardware for the development, test, UAT, and Production environment that will reside at the State's facilities.	Correct.
254.		Does the State want the vendors to also provide pricing in order for the State to obtain the necessary development software licenses? If yes, please provide a detailed description as to what software licenses and quantity the vendor should provide pricing for.	Yes, but the vendor has to provide the descriptions as to what is being proposed.
255.		We understand that the State will provide office facilities for the vendor personnel, however, Vendors are required to provide their own personal computers. Will the State provide the necessary development software to the vendor personnel? Please explain as licensing issues could be a constraint if vendor is required to bring software development licenses to work at State facilities.	The State will not provide development software for the vendor; the vendor has to define software requirements.
256.		During the prebid meeting, it was stated by state representatives that Data Cleansing would be the responsibility of the State. The vendor's responsibilities would be to manage and provide direction, but the State would provide the necessary subject matter experts to cleanse the data. Please reconfirm.	See response to question 113 in first Q & A.
257.		Please confirm that defects in the current system will not be vendor responsibilities as bridges and interfaces are built in accordance with the Implementation Strategy Document provided in the ITB.	The State is responsible for current defects.
258.		The risk mitigation document mentions the Washington DMV LAMP project as a project that failed and that documents were reviewed by the State to learn from. Can you provide those Washington DMV LAMP documents so	The State's preference is for vendors to complete their own research on other states. All information has been in news articles that are available on line.

Attachment#2, Vendor Q&A Part 2

**BAM Phase 3 RFP (071I5200236)
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Ref No.	RFP Reference	Questions	Responses
		vendors can understand what the State learned with respect to that project failure.	
259.		Can you provide the name of the vendor that was the primary contractor on Washington DMV LAMP Project.	The State's preference is for vendors to complete their own research on other states. All information has been in news articles that are available on line.
260.		During the pre-bid meeting, it was stated by the buyer that all companies are on equal grounds and that EDS does not have any additional advantage for this bid. The risk mitigation document mentions that EDS gave the State during phase 2 a budget estimate for BAM Phase 3 (this current ITB). It also mentions that Phase 3A costs are about 50% higher than the "EDS Original Estimates". In order to remain consistent with the buyer's statement in the prebid meeting, please provide a copy of "EDS Original Estimates".	See response to Question 27 in this Q & A (See Budget Impact.pdf included on BAM Q & A, CD2).
261.	Prior 53	Is the vendor responsible for designing, implementing and deploy an Identify Management Solution (Tivoli/Novell eDirectory)?	The BAM contractor will not be responsible for implementing and deploying a separate identity management solution. The BAM contractor will need to work with the State's identity management team and integrate the BAM requirements into the state identity management solution.
262.	Prior 54	If so, will the deployment entail defining provisioning and approval processes for the entire State of Michigan or will the scope be limited to the requirements of the BAM system?	The scope is limited to BAM.
263.	Prior 55	If the vendors of BAM will not be responsible, can we get further details on the design and implementation details of the IM solution implemented and the corresponding approval and provisioning process flow requirements as it relates to BAM?	The details are not available at this time.
264.	Prior 56	Is the vision that BAM will be deployed as a Web based application that is accessible by internal users (BAM's own staff access the application from the internal network) and external users (accessed over the Internet)?	Yes, it is the vision of the State that BAM will be deployed as a Web based application. Internal users access via the internal network; and external users over the Internet.
265.	Prior 57	If so, what is the expectation with respect to the identity of the users, is it expected that all the users will be stored in a single repository (a single instance of an Enterprise wide deployed Active Directory where in the user-id is common between the internal and external users) or will the Active Directory instances be independent of each other (external user id's and internal id's can co exist)?	There is not a requirement for all users to be stored in a single repository; external user information will not be co-mingled with internal user information.
266.	Prior 58	If BAM requires extensions to the AD Schema, will those be permitted or will BAM be expected to use a separate LDAP repository (like ADAM) to	Specific extensions have not been defined at this point; the vendor should propose the best way to accomplish these extensions and they would integrate with State's active

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Ref No.	RFP Reference	Questions	Responses
		store application specific extensions to the Schema?	directory.
267.	Prior 59	What is the current state of deployment of Active Directory in the MDOS environment?	The Current AD schedule is: 1. Active Directory Office Platform Technology (ADOPT) Phase I * Active Directory Design Completed April, 2005 2. ADOPT Phase II File, Print, DNS, WINS, and SMS design including support structure recommendations is in progress to be completed July, 2005 3. Active Directory Production Shell was brought into operation May, 2005 4. Design and upgrade Exchange infrastructure to Exchange 2003 has begun 5. ADOPT Phase III * Pilot implementation at DLEG planned to begin August-September, 2005. According to the latest status report dated 6/3/05 the project is on schedule
268.	Prior 60	Are all network resources currently managed by Active Directory? If not, what other Directory Services are currently deployed in the MDOS network environment?	Not at this time, with Michigan/1, MDOS is moving towards Active Directory for all file and print services.
269.	Prior 61	Will there be a need to integrate any of these directory services in the proposed BAM system?	No.
270.	Prior 62	The ITB reads that BAM will use Active Directory (AD) to maintain user ID. It also says that the state's Identify Management solution will be utilized. Is this saying that AD will be used for the data store of ID information in conjunction with either the Tivoli or Novell products? If not, please clarify.	Correct, BAM will need to integrate into the State identity management system. The active directories will be considered one of the service directories for the identity management solution.
271.	Security Prior 63	<ul style="list-style-type: none">Has the State standardized on any particular Web Access Management solutions (like ClearTrust/Netegrity)?Will BAM be required to interface with any Single Sign On initiatives under taken by the State?	The State standards include both Novell and IBM products. The BAM Vendor will need to integrate with the single sign on project.
272.	Security Prior 65	The technical and implementation documents call for secure interchange of data (using SSL) between the web server and the client and the corresponding encryption of the stored data! Would BAM require implementation of authentication methods over and above password (BASIC) authentication? Is there a need to implement authentication methods based on Bio-metrics or Security Tokens (like Secure ID) or Client Certificate based technologies? Is there a need to encrypt the messages being exchanged between the various servers (web server to application	Please see Technical Architecture Specification document, sections 4.2 and 6.2. No biometric or security tokens have been defined for BAM security for Phase 3A. The Vendor will need to work with the State Office of Enterprise Security.

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		server to database server)? If so, is the requirement to base the encryption on anonymous SSL or Authenticated (digital certificate) based SSL?	
273.	Security Prior 66	Has the State deployed any Public Key Infrastructure Technologies to issuance of Client Certificates etc.? Is so, can the vendor be provided a detailed design of this infrastructure? Will this infrastructure be available for the BAM system should the application have a need to leverage it?	The State has deployed public key infrastructures for other departments but PKI has not been utilized as an enterprise solution. BAM will be required to develop its own authority, see section 4.2 in the Technical Architecture Specification document.

Attachment #3, EDS Proposal Activity 1

Appendices A-E

Activity 1: Appendix A - Project Plans

EDS has taken its Object Component Engineering approach to development and transformed these project schedules accordingly when appropriate. For instance, object component engineering provides an iterative approach to application development and fits nicely into BAM Core development, BAM Legacy Interfaces, and BAM Data Conversion/Data Match/Data Scrub activities. But for BAM Legacy Enhancements, the waterfall approach to development still applies. Figure A-1 - Project Plan Flow provides a global view of how we have organized the Project Plans and MS Project Schedules. To understand the cost according to effort and duration, the staffing plan is documented in Activity 1 Appendix C - Contractor Staffing Plan. This approach applies to all phases, except that in BAM Phases 3B, 3C, and 3D minor alterations to this approach will occur once we have defined the detailed scope.

The development of every project plan includes the identification of included tasks, assumptions, constraints, and risks. The EDS team will analyze the scope of work, applying our expertise to develop an estimate that subsequently can be translated into a schedule with task durations and specified dependencies. A critical component of proper estimating techniques is the capability to repeatedly generate an objective quantification of the time required to complete assigned work. EDS will employ a robust estimating process and procedures that accurately predict needed development effort. This estimating process includes the following major components:

- Metrics repository containing historical metrics from all EDS projects
- Easily quantifiable size component
- Estimating algorithms for all platforms based on historical metrics
- Automated estimating worksheets to be completed for a bottom-up estimate
- Estimate reviews

To gain a complete representation of the time required to deliver project work, the EDS team will perform individual task estimation, considering resource-leveling techniques, task interdependency, and other constraint information.

Using the estimating algorithms and experienced-based estimating approaches, EDS has allocated the following size estimates for each BAM Phase:

- BAM Phase 3A Estimated Hours: 169,520 hours
- BAM Phase 3B Estimated Hours: 106,880 hours
- BAM Phase 3C Estimated Hours: 66,720 hours
- BAM Phase 3D Estimated Hours: 70,301 hours

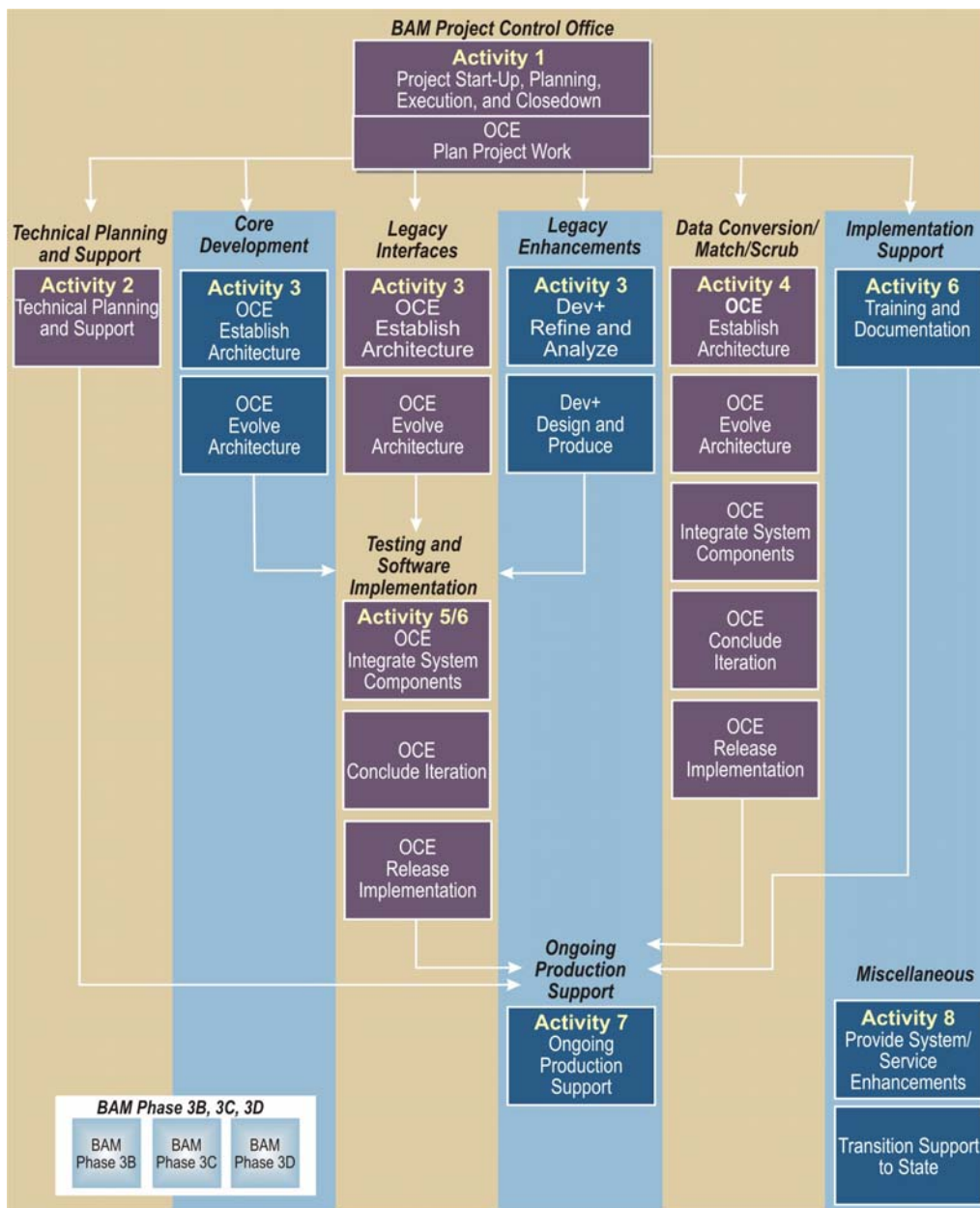


Figure A-1, Project Plan Flow

EDS agrees that BAM is within the five-year window of implementation. EDS will deliver this contract in 57 months. The BAM Project Schedules are detailed to the point of listing each deliverable put forth in the ITB and listing the high-level development tasks that will occur over the course of these 57 months.

Figure A-2, High-level Project Schedule provides a global view of Phases 3A, 3B, 3C, and 3D. Following this global view, on the next pages, EDS provides individual project plans for Phases 3A, 3B, 3C, and 3D.

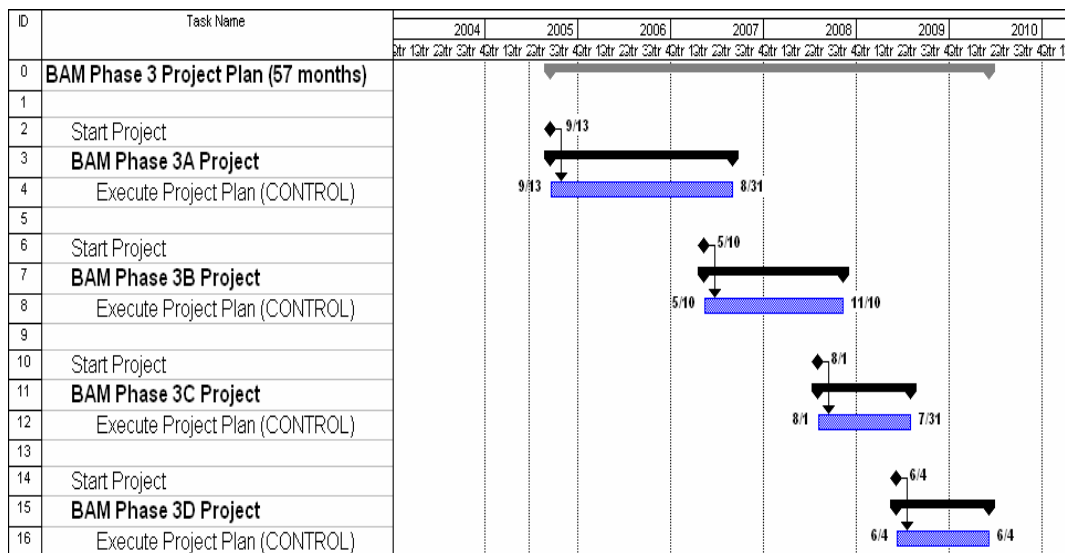


Figure A-2, High-level Project Schedule

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Activity 1: Appendix B - Draft Risk Mitigation Plan

Risk Management

A project risk is an uncertain event or condition that, if it occurs, can have either a positive or a negative affect on at least one project objective, such as time, cost, scope or quality. A risk may have one or more causes that could potentially result in one or more impacts. Project risk has it origin in the uncertainty that is present in all projects. To be successful, DOS, DIT and EDS must be committed to proactively and consistently addressing risk management issues throughout the BAM Phase 3 project.

EDS will establish a proactive and ongoing risk assessment review process wherein identified risks will be reassessed on at least a monthly basis. Accordingly, EDS will establish appropriate risk control actions plans, and ensure that such plans are both implemented and monitored.

Risk Mitigation

Risk Mitigation requires that potential risks be proactively identified and that appropriate efforts be employed to secure either complete elimination of the risk or, at a minimum, a reduction in severity of an adverse risk event to an operationally acceptable threshold. EDS will work with both DOS and DIT to employ appropriate early action to reduce the probability and/or impact of a risk occurring on the project. Such early action is more effective than trying to repair damage caused by inappropriate risk mitigation activity.

Risk Identification

The EDS methodology for Risk Identification that will be employed throughout the BAM Phase 3 project itemizes identified risks and documents appropriate mitigation strategies. Additionally, the EDS methodology assigns an overall probability impact for each identified risk and a separate probability impact resulting from EDS management and mitigation of the risk. Risk Identification is an iterative process because new risks may become known as the BAM Phase 3 project progresses through its implementation life cycle. The following table itemizes known, identified risks, mitigation strategies, and probabilities of impact.

Associated Activity	Risk Description / Impact	Mitigation Strategies	Overall Probability	Probability w/ EDS
Activity #1 Risks				
Activity #1	Continued Executive Sponsorship and PCO Governance. Continued Executive Sponsorship and PCO Governance create a positive implementation environment. The	A Roles & Responsibilities plan at the beginning of the project will define roles. Continued communication with Executives will need to	High	Low

	PCO concept should be established to ensure consistent project management, quality assurance, and testing, common processes, etc. Staff will need to be dedicated to the BAM project to implement it properly. The Executives and PCO need to shield this project from any administrative meddling or legislative agendas that do not align with the overall scope. This will take executive sponsorship and needs to be clearly pushed down to all levels of management.	be executed. The PCO is seasoned in Project Management, Quality Assurance, and the rolling wave implementation technique. The PCO, in coordination with the State, will define up front clear project authority and oversight responsibilities by Steering Committee.		
Activity #1	Scope Control. Realistically, once detailed business requirements were completed for Phase 3A, development costs were nearly 50% higher than originally expected. The development costs are the “heart and soul” of the BAM project. Scope Control is essential to the success of BAM.	Based on this proposal being a fixed price contract, it will be imperative to control the scope, especially in the outer phases of 3B, 3C, and 3D. Develop a project budget process that reports all spending and projected spending on a monthly basis.	High	Low
Activity #1	Overall complexity of legacy replacement. Several motor vehicle agencies have embarked on a replacement of their legacy system and failed. There are valuable lessons learned in these failures and they also point out a significant risk related to projects with the size and scope of BAM.	DOS and DIT leaders need to ensure BAM stays focused on the original goals and monitor “scope” creep at every stage. Develop an integrated project plan with the State and ensure steps are included to accurately assess progress. Talented and “future-focused” staff should make u the BAM core team to help ensure alignment to strategic direction as well as maintaining original scope.	High	Low
Activity #1	Availability of State SMEs with the necessary business and technical knowledge for duration of project. The duration of the BAM project will impact resources for both DOS and DIT. Some of the most critical resources that keep both agencies moving forward will be asked to devote 100% of their efforts for BAM. Key resources will be committed to the project and vacation schedules will be identified proactively and calculated into the schedule. Vacations will be managed to meet schedule requirements.	Identify resources for both DIT and DOS that can perform certain job functions while BAM is under construction. Identify the critical full time BAM project staff members and allow for other staff to “work out of class.” Hire temporary help when high workload is anticipated (e.g., data conversion). Project resources with critical roles will provide delegated responsibility during project	High	Low

		absence.		
Activity #1	Needs and expectations of other State agencies, especially DIT need to be planned and defined. Formal Communication Plan will address what must be communicated, when, and to whom to obtain appropriate input throughout the project. DIT and other State agencies (i.e. DHS, DNR, etc.) will have task responsibilities and will need to be staffed to meet the BAM Phase 3 initiatives.	Thorough startup and planning will be conducted to address any resource constraints, including resource impacts on other agencies. Ensure that any agency that ends up with major changes for BAM are part of the executive committee.	High	Low
Activity #1	Delays in preparing space for the project team to reside at the client site. EDS has a local presence with the necessary space, equipment, and tools to provide a comfortable working environment. This would enable the project to begin quickly. Cubicles are recommended for resource privacy and efficiency.	Many Internal services like message router, active directory methods, database access and logging, address verification and systems interfaces (interaction between systems services) can be done offsite. These tasks can proceed ahead of space availability on site for customer facing activity. EDS will formalize a balanced workspace plan to ensure the right resources are onsite compared to offsite.	High	Low
Activity #1	Delays occur in making expedient decisions that are critical to the continued progress of this project based on the established project plan. Formal process established for routine reviews of the project plan with the State's IT and Business Manager. Milestones and deliverables for client and vendor will be reviewed. The PCO must be integrated as part of the BAM Leadership team and be considered part of the overall decision-making.	During project progression, a continuous interaction with the business customer needs to be maintained. A well defined set of roles should be set at the outset of the project. This will identify who approves, reviews, collaborates, and is informed on project decisions along with a time frame for these actions. Clearly articulate roles and responsibilities	High	Low
Activity #1	State of Michigan resources are constrained and unable to meet commitments for the tasks assigned to them in the Project Schedule. The PCO will work closely with the State Program Manager and Technical Project Manager and stress the importance of decision-making personnel (sponsors) being closely involved in this project.	Project schedules can be projected in only two ways - resources or time. The project demands on State Resources need to be planned, identified and managed to allow enough lead time to ensure that resources are not a hindrance to the project schedule. Formal reviews will occur throughout the project, and the importance of State resources providing good feedback in the reviews will be stressed. Formal signoff procedures will be required.	High	Low
Activity #1	Ability to manage changes to the project scope for the duration of the	A clear escalation path for vendor and State roles will	High	Low

	project. The PCO will use a formal Change Control process and work closely to identify and estimate change controls including impact to project deliverables, resources, and cost, using approval sign offs before implementing change. BAM will be a large effort and change controls will occur.	provide a timely resolution to scope issues.		
Activity #1	Methodologies have to be tailored to be consistent with the State's methodologies. EDS needs tailored methodologies to meet State requirements on project development and project management.	PMM Methodologies will be used. Unified Modeling Language will be used. This is a well defined and industry known methodology. Hence, tailoring decisions will be minimized for applications development activities. DCO methods are emerging in an Information Technology Infrastructure Library (ITIL) framework. This framework can be used to establish the specific tailored decisions of the DCO support.	Medium	Low
Activity #1	Dedicated Administrative help is required for a project this size. Dedicated administrative help associated with the BAM project is warranted. Dedicated resources available to attend meetings to take minutes, procure supplies, and general administrative assistance is necessary based on the broadness of BAM. This will help with the discipline of documenting the outcomes of meetings to keep all communication flowing properly.	Support roles will be incorporated in the contractor staffing plan.	Medium	Low
Activity #1	BAM Communications are essential to communicating with the stakeholders. The ability of the BAM Program Manager to coordinate communication and action items across State agencies. The BAM Program Manager will use a formal Communications Plan and work closely with the State IT and EDS Project Manager to coordinate communication needs and include milestones in the Project Plan.	BAM newsletters and other communication mechanisms (email, voice mail.) will provide a communication delivery method. The Communication Plan and Organization Change Management plan will need to be monitored by PCO with appropriated feedback mechanisms to ensure communication needs are met.	High	Low
Activity #1	Third-party resources, not part of the main EDS team, employed by the State and used for this project. The BAM Program Manager will work with the PCO to include tasks and deliverables for these resources in the master Project Plan and Schedule.	Delivery of outcomes at key dates and milestones will be monitored. Schedules will be released with enough time to meet the planned and anticipated delivery of the 3rd party vendor's responsibility.	High	Low

Activity #1	DOS and DIT Resources have not been formally budgeted and forecasted.	A baseline estimate of DOS and DIT resources will be created during the interim phase of the project start date. Special considerations of DOS and DIT resources must be given for a simultaneous implementation. It is clear that key roles in each wave will be a constraint. Careful planning of these roles to project timing in the rolling wave must be given.	High	Low
Activity #2 Risks				
Activity #2	The Michigan 1 initiative is the future for the State of Michigan as an enterprise for technology / infrastructure (Note: Michigan 1 is still in the planning phase and, because of budget constraints, BAM may be implemented prior to Michigan 1 startup). The Michigan 1 initiative is a directive that must be closely monitored. EDS will use the Michigan 1 direction to justify BAM direction.	EDS will Align to the Michigan 1 Active Directory enterprise direction when possible. BAM design reviews with the office of strategic planning will continue to ensure direction and alignment with current and future Michigan 1 initiatives. The critical dependency with Michigan 1 is Active Directory. This project is planned to be implemented in the fall of 2005. It will be monitored to validate its availability in 2006 for BAM project needs. If the Michigan 1 project isn't implemented a set of AD servers can provide BAM security needs for DOS until Michigan 1 is implemented.	High	Low
Activity #2	Infrastructure Lead Time. The underlying foundation of BAM infrastructure constraints needs to align with the BAM application changes. EDS must be aligned with DIT to drive these changes in a timely manner according to schedule and budget.	BAM Architecture and Specifications need to break down dependencies between BAM and other applications. These designs will be loosely coupled and message based. As a result, projects can be started with enough lead time to ensure a successful end date and provide enough reaction time should a project experience delay. Infrastructure dependency with the .Net framework minimizes the delay of Data Center Operations implementation of the four BAM environments. Microsoft Development Environment (MSDE) can be used on developer desktops to continue with construction should infrastructure delays occur.	High	Low
Activity #2	Network Capacity and Bandwidth. The underlying foundation of BAM network capacity to support decentralized imaging at branch	A network impact estimate will be verified and refined with enough lead time to react to potential Network Capacity Issues. Network	High	Low

	offices needs to align with the BAM application changes. EDS must be aligned with DIT to drive these changes in a timely manner according to schedule and budget.	Band width impact can be minimized through quality of service configurations by separation of scanned images from transactions at router queues. Therefore, where bandwidth is a constraint, alternate methods can be used.		
Activity #2	State is unable to procure all needed hardware or software and appropriate licenses in advance of schedule deadlines. EDS will work with the State Technical Project Manager to provide lead-times necessary for procurement of goods.	EDS is qualified to coordinate and expedite IT commodity purchases using existing contracts (i.e. Michigan Master Computing Contract). Use of Microsoft's Unrestricted Access Framework can provide licenses during development of BAM. Microsoft Developer Network Subscribers can download and upgrade developer tools for Visual Studio 2005 at no added charge.	High	Low
Activity #2	Wyse Terminals Upgrade. Wyse Terminals only support CE version 5.0 and will need to be upgraded to meet the browser needs of the BAM System	As an interim step, Wyse terminal upgrades should be completed ahead of BAM project start with new terminals/PC's. If the Wyse terminals can't be upgraded to meet the BAM needs, the current Citrix servers can satisfy this with a browser configuration on Citrix.	High	Low
Activity #3 Risks				
Activity #3	New legislative changes, determined during BPR sessions and occurring throughout this BAM project, will impact functionality within Phase 3. The current legislative changes have been identified and will be carried forward by the DOS Executive Team.	In absence of legislative changes, the BAM team will proceed with current processes per the direction of the BAM Steering Committee. A legislative plan will continue to be developed that ties to the BAM initiative, budget, and outcomes.	High	Low
Activity #3	State agency integration with EDS. DOS and DIT will need to work closely with EDS to ensure appropriate integration of the State business and technical teams with the EDS team for the creation of one integrated BAM Team. The integration is required in order for the transition of knowledge from the State to the EDS and visa versa.	Both DOS and DIT will need to provide dedicated and goal-oriented team members to the BAM project that will work as one team in the creation of the new system. Phase 3A will need to be structured for integration and transition points throughout the project.	High	Low
Activity #3	Touch Tone or Dial Tone Modulated Frequency (DTMF). The DTMF System provides for numeric values only and will require extensive upgrades to meet the BAM System needs	DTMF in BAM Phase 3A will be used for renewals. A numeric PIN will be created for the renewal that will be stored with the customer record. As a result, 3A will be capable to support touch tone interfaces. Subsequent phases of BAM will need to be closely aligned with infrastructure decisions made in the Customer Contact Centre. If digital switches	High	Low

		are used, voice traffic will be carried in (h323) digital format. As a result, voice recognition application can be developed with the existing BAM hardware/software planned.		
Activity #3	Consolidated Customer Contact Center. Projects are progressing for Consolidated Customer Contact Center and Active Directory implementation. These two projects in particular have several integration points with the BAM System	BAM's use of WebSphere MQ will help. Currently available messages in pre-built application objects will provide direct integration with Siebel for the planned CRM system. Infrastructure elements used for Automatic Call Distribution (ACD) will be another BAM dependency. If analog instead of digital switches are used, BAM will need to establish Voice channel infrastructure capabilities itself. BAM can stand up its own Active Directory server to accommodate role based security. DOS will be aligning all projects in consideration of BAM.	High	Low
Activity #3	Ability of development project team to reside at the same location for the duration of project. Phase 3 resources need to be local and the majority of the team on-site in one unified location for collaboration efficiencies.	The .Net development can be separated into two categories; customer facing designs and internal system services. Customer facing development (interactions with human actors) will be designed in iterative Joint Application Design Session. This improves training and human interface design efforts. Internal services like message router and active directory methods (interaction between system services) can be done off-site and VPN access to BAM will be required.	Medium	Low
Activity #3	Legacy System Testing. Based on all the DIT changes to the legacy code in order to bridge to the phased BAM database, extensively planning is necessary to properly test the legacy system.	Message oriented interfaces will break dependencies of BAM and legacy testing. During design, message formats and actions will be defined. These messages can then be introduced and replayed in BAM or Legacy regardless of each others phase of development.	High	Medium
Activity #3	The current requirements need to be maintained in Rational. Time will be allocated in the BAM Phase 3A that allows a re-evaluation of current requirements. Time will be naturally incorporated in 3B, 3C, and 3D to refine and analyze all the requirements to ensure a good project scope.	Requirement and RASIC approval in Rational should be created for the next phase of BAM. Rational User Roles and ID's along with requirements approval attributes will facilitate the management of scope. Completion of the Transition project.	High	Low

Activity #3	External Interface Costs. For Phase 3A, for example, no changes to the data formats have been considered for Department of Natural Resources, Department of Human Services, Michigan State Police, and List Sales. There is potential for scope increase once the external agencies determine we have improved data and may affect current MOAs.	The business value of changes to these interface behaviors and capabilities will need to be evaluated independently from the current scope of BAM.	High	Low
Activity #3	Lifetime Customer ID number that never changes. There are divided opinions on how to implement a lifetime customer ID number that would be their ID to access services. This change will affect the Michigan State Police, Banks, etc. that are accustomed to the DL# having the Soundex functionality built into the ID. The communication of this change to the affected organizations must be communicated in a timely manner to avoid any confusion or bad press.	As part of the transition project, the State is developing a plan to accommodate the need for a non-changing number that takes into account potential issues from primary users of the DLN. Institute a solid communication plan for both internal and external entities impacted by a change in the DLN configuration. Follow AAMVA standards where appropriate to align with direction from a "homeland security" perspective.	High	Low
Activity #4 Risks				
Activity #4	Data conversion, data matching, and data scrubbing. The underlying foundation of BAM data conversion, data matching, and data scrubbing needs to align with the BAM application changes. EDS must be aligned with DIT and DOS to drive these changes in a timely manner according to schedule and budget.	An agreed upon logical model of data (Class & Entity) will be a required design deliverable. The resultant Data Transformation Services will also be a deliverable within UML Sequences to assign data and systems responsibilities for this effort. Additional DOS resources will be made available to assist with data issues. Develop solid data conversion plan and have a single oversight manager.	High	Low
Activity #5 Risks				
Activity #5	Branch Terminal response time should be 1 second or less for Driver and Vehicle related transactions.	Network traffic can be separated and prioritized with multi-protocol layer support currently available in CISCO managed networks. Transaction can be given top priority and images a lower priority. Testing of internal and external response times will need to be modeled with planned volume testing tools. Adjustments to Max Transmit Units (MTU) to optimize response times from simulated results are potential improvements that can be	High	Low

		made.		
Activity #5	With BAM in phases, unless there is complete redundancy built into BAM and the legacy in each phase, BAM will roll out to the branches in a simultaneous manner or all branches at one time. A staggered approach has risks in that data synchronization between two systems can be problematic, costly, and require significant resources to verify and review information in both systems.	Develop an implementation strategy that provides thorough testing in the branch environment to ensure confidence for DOS for simultaneous implementation. Develop a training mechanism that will accommodate the implementation strategy.	High	Low
Activity #6 Risks				
Activity #6	Loss of knowledge gained during Phase 2 Requirements gathering. The transition of a new team will add great risk based on the lost knowledge of the current team. This knowledge transfer is always a greater risk than most projects/programs anticipate.	Completion of Transition project to transfer at a minimum, the requirements repository knowledge. Develop core listing of skills required for next phase.	High	Low
Activity #6	Rational Product Suite Knowledge including UML. The Rational tool is a complicated tool to understand, as is the Unified Modeling Language (UML). It has many interface points to each of its child products such as Rational Rose, RequisitePro, and ClearCase. DIT and DOS are lacking the experience at this time to fully understand how the integration of this tool is being utilized to store the BAM requirements.	Completion of Transition project to transfer the requirements repository knowledge. Training on the concept of UML and the Rational Suite will be required to continue with the later phases of BAM.	Med	Low
Activity #6	Change Management experience is needed in DOS. There are considerable needs for change management in DOS and DIT. DIT will need technical skills enhanced. DOS will need process/procedure modifications. Both organizations have differing levels of staff availability to handle Organizational Change Management. DIT and DOS need to determine who the dedicated resources are for change management.	Change Management Tasks and Activities identified will need to be assigned to a specific resource capable of delivery. Business and Technical training plans will be planned and executed by EDS.	High	Low
Activity #6	Communication Costs related to business changes that BAM is implementing. As BAM is implemented, communications will be needed. There will be potential costs related to communication activities such as, newsletters, web site communications, literature in the branch, etc. This budget item must be taken seriously.	Budgets for the communication plans will need to be created.	Low	Low
Activity #6	Citizen Change Readiness Assessment. It will be necessary to	Evaluation of customer impact will need to be assessed.	High	Low

	determine if and when there is an appropriate time to obtain feedback from the DOS customer-base regarding BAM.			
Activity #6	Dearborn Police Department. The Dearborn Police Department serves as an independent branch. They need to be communicated to the affects of the BAM changes and guided through the changes. They fund their own equipment and upgrades. This is an implementation concern.	A standard Web Browser is required to accomplish current BAM application access needs. The addition of a signature pad may be required. These costs are estimated at under \$300 per pad.	High	Low
Activity #6	Delays in decision and communication of implementation plans. Delays in management decisions to decide rollout and implementation schedules will cause first-line managers to be left in the dark about changes and slow progress of implementation. Business changes not undertaken in a timely fashion to implement new business processes, thus creating loss of productivity and confusion about which process to follow.	Formal Communication Plans and Roles & Responsibilities will reduce this risk.	High	Low
Activity #7 Risks				
Activity #7	Hardware & Software versions will change. Based on the longevity of BAM, planned hardware and software versions will change over the course of the project because of latest releases. Extensive planning is necessary to properly test the new versions for compatibility.	This will likely occur through Ongoing Production Support. The Windows Management Infrastructure (WMI) is planned to provide the methods for upgrades to the BAM environment. Processes will provide stability of release and refresh. A release schedule with critical and prioritized releases will need to be created for application enhancements along with environment upgrades.	High	Low
Activity #7	Dual Systems. Keeping two environments is always a risk. Staffs need to be clear on roles and decisions about which work will follow which processes.	Well defined application responsibilities along with a loosely coupled message based interface will relax this constraint.	High	Low
Activity #7	Ongoing Production Support happening in a timely fashion. Based on the proposed technical architecture, formal training from a vendor and DIT standpoint needs to happen in a timely fashion.	A finite set of Microsoft Certified Developers will be needed to take over the production support of the new BAM system. EDS developers will be available after implementation to smooth the transition to this support.	High	Low
Activity #8 Risks				
Activity #8	Integration of ongoing projects for DOS and DIT. In order for BAM to be	Support for the Transition project which has specific	High	Low

	successful, other ongoing projects and service requests will need to align to the future that BAM is building.	tasks tied to developing a process for integration of other DOS projects. Ensure alignment with DIT projects through established communication channels with the IT project leadership team.		
Activity #8	Ongoing Legislative Requirements. Start-Up / Transition	Develop repeatable process for changes to current repository. Assess new requirements with BAM in mind.	High	Low

Activity 1: Appendix C - Contractor Staffing Plan

Introduction: Managing the Various Teams / State Staff

Starting with the estimates provided in this proposal, EDS will develop a resource plan for each release, applying tools tailored to meet the needs of BAM, project-specific resource productivity assumptions, and our expertise in workload planning. EDS will be responsible for managing the interdependencies between the various development teams / sub-teams (i.e., Technical Planning and Support, Application Development, Data Conversion, Testing/ Implementation Support, and Ongoing Production Support) to efficiently and effectively complete the BAM project work. EDS will work in conjunction with the Technical Project Manager (Larry Freimark), and will assist the BAM Program Manager (Rose Jarois) to appropriately staff the project and oversee all the teams (DOS, DIT, EDS). EDS will be responsible for transitioning staff onto and off of the project as needs dictate. This includes management of the overall contract, and any processes and procedures necessary to ensure the efficient and effective management of the contract.

This staffing plan is balanced against the resource needs of other releases and the skill profiles of available personnel. These staffing plans are refined in collaboration with the State. The resource plan identifies the specific personnel who are assigned project deliverables, incorporating hour allocations per week, vacation schedules, and holiday assumptions. After the initial staffing plan is approved, the PCO will monitor actual resource allocations against this plan by applying weekly time tracking output to the project schedule. Resource under-allocation or over-allocation issues will be reviewed and resolved with the Development Manager and Project Level Coordinators. Misallocation of personnel to tasks outside of the approved work plan will be reviewed and resolved with the State. Within six weeks of contract start, EDS will provide an updated Staffing Plan for performing all tasks for the particular BAM projects. This plan shall identify individuals assigned to the team, the percentage of time assigned to the team, and the total number of full-time equivalents (FTEs), by month, by role, including Administrative Support. If the resource plan indicates a significant shift from existing staff levels or skill sets, a training plan that addresses resource and skill set ramp up time will be created.

State Staff Team Management. On the basis of a realistic assessment of the State requirement to direct and control project activities for the BAM project, EDS forecasted the estimated additional state staff allocations. This only addresses the additional staff requirements not listed in the ITB attachment 'State Project Team Description.doc'. These are most likely the staff needed from the 'State Project Team Description' defined as 'Phase Teams'. It is not meant to identify or estimate all of the State resources that will be involved in the BAM project. EDS estimated these roles by ITB Activity.

The State will provide the resources listed in the ITB to directly augment the EDS staff. They will be valued team members, full participants in all appropriate BAM activities.

They will receive their daily direction and task assignments either from the BAM Program Manager or the Technical Project Manager or other PCO staff, depending upon their roles. Their assignments will be commensurate with their skills and without delineation between State tasks and EDS tasks.

Assuming a base skill set appropriate for the position, we will assess the project specific skills and knowledge each resource required to perform their appointed function. The resulting training plan would emphasize self-paced review of existing project process and tool documentation and provide extended on-the-job training with an experienced mentor.

Based on our understanding of the ITB tasks and the State's expectations, we would recommend augmenting staff by pairing State staff resources with their EDS team mates. This assumes that the State staff has not yet been identified and when identified, their skill sets match these tasks. Ultimately, EDS will work with the State to place the staff in the most appropriate roles to match their skill sets and the projects needs.

Recommended Allocation of Additional State Staff					
BAM Role	Responsibilities:	Time Commitment Phase 3			
		3A	3B	3C	3D
Activity #1					
Web Tools Support	Assuming the named PCO Tool Suite is approved for use on this project, a person should be identified from the state to help maintain the tools that are the property of the State.	1	1	1	1
Activity #2					
DIT DCO Engineers	These DIT DCO Engineers will work directly with the EDS 3 rd level engineers to perform the installation, integration of course and fine grain monitoring tools, configuration, production acceptance readiness (PAR), and production control handoff (PCH) of all hardware/software for BAM	2	2	2	2
DIT Network/Development Environment Support	Ongoing Network/Development Environment Support will be provided by DIT during the development of BAM.	1	1	1	1
Activity #3					
DIT System DBA	This DIT legacy database SME will work closely with the EDS Development teams to create BAM deliverables.	1	1	1	1
DIT Technical SMEs	These DIT application development SMEs will work closely with the EDS Development teams to create BAM deliverables.	6	6	3	3
DOS Business SMEs	These DOS application development SMEs will work closely with the EDS Development teams to create BAM deliverables.	Up to 10	Up to 10	5	5
Activity #4					
DIT System DBA	This DIT legacy database SMEs will work closely with the EDS Development teams to create BAM deliverables.	1	1	1	1

DOS Data Cleansing	These DOS data cleansing resources will fix the erroneous data that could not be fixed by automated tools	5	5	2	2
Activity #5					
DIT UAT/FAT Testers	DIT will provide as many DIT QA/FAT Testers as feasible.	TBD	TBD	TBD	TBD
DOS UAT/FAT Testers	DOS will provide as many DIT QA/FAT Testers as feasible.	TBD	TBD	TBD	TBD
Activity #6					
DOS 'Trainers'	DOS will provide 25 people that will be trained by EDS to subsequently train the rest of the DOS resources.	25	25	25	25
Activity #7					
DIT 'Ongoing Support'	DIT will provide resources to serve as the first level of support with EDS serving as second level support.	TBD	TBD	TBD	TBD
DOS 'Ongoing Support'	DOS will provide resources to serve as the first level of support with EDS serving as second level support.	TBD	TBD	TBD	TBD
Activity #8					

The State of Michigan and EDS have a history of forming project teams that work together seamlessly. To be successful, the BAM project requires both the best effort of the EDS team and a high level of State involvement. Through DOS and DIT, the State will offer a breadth of knowledge, vision, and direction as we perform the tasks cited in the ITB.

The Contractor Staffing Plan is shown on the following pages.

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Activity 1: Appendix D - EDS BAM Transformation Framework

CMMi Level 5 Processes

Several years ago, the federal government found itself facing a situation in which project cost and schedule overruns were common and expected-in which vendors routinely “guesstimated” cost models knowing that, historically, budgets and timelines were simply extended to meet the demands of the project. Vendors were not held accountable for meeting timelines, and no metrics were collected.

Recognizing this shortcoming, the federal government formed a partnership with the Carnegie Mellon Foundation to address the situation. Several years of research went into identifying what makes a project successful and how success can become repeatable. The outgrowth of this research was the creation of the Capability Maturity Model (CMM). The CMM is a rigorous assessment of a company’s documented processes, tools, and documentation. Assessments range from levels 1 to 5, with each level requiring the vendor to show more complex project management aptitude.

EDS will establish a delivery-focused project management model for BAM, leveraging our expertise from the Lansing-based resource center, which has been assessed as a CMMi Level 5 organization. We will apply this expertise and these process sets to support Michigan. As illustrated in Figure D-1, CMMi Benefits for Predictability, Project Duration, and Costs, as an organization matures, project duration and costs decline, and predictability increases. EDS has accrued such benefits repeatedly in our CMMi transformation initiatives throughout the corporation. As demonstrated by the Lansing Solution Centre achieving CMMi Level 5 certification, EDS possesses the vision, desire, and knowledge necessary to assist the State in maximizing the performance, predictability, and reliability of the BAM project.



Figure D-1, CMMi Benefits for Predictability, Project Duration, and Costs

PM2 - EDS' Project Management Methodology

EDS' Project Management Methodology, PM2[®], is based on Carnegie Mellon University's Software Engineering Institute (SEI) practices and the Project Management Institute's (PMI's) nine areas of project management, as defined in the Project Management Body of Knowledge (PMBoK). EDS uses this industry-leading project management methodology to establish a standard approach to implementing projects. EDS proposes to apply PM2 on this contract, in conjunction with the State of Michigan's Project Management Methodology (PMM). PMM and PM2 are highly compatible, both being based on the PMBoK. EDS has enhanced PM2 by the linkage to the program management disciplines.

PM2 defines the management of systems development projects, systems maintenance releases, systems integration, consulting engagements, proposal developments, and other efforts. The methodology defines a project as any effort that has a plan and deliverables, that is constrained by schedule commitments, resource requirements, and budget limitations, and that can be delineated from other concurrent activities.

Functions

PM2 is integrated throughout any development, enhancement, or support project to reuse general project management activities and work products. PM2 encompasses the following eight functions:

- **Scope management** - The EDS project manager will lead the identification of requirements and deliverables and will establish an understanding and agreement with the State of Michigan about project requirements. The EDS project manager will subdivide the work into manageable tasks to forecast the cost and completion date. Defining the scope will provide the baseline for evaluating the impact of potential scope changes on schedule, budget, and performance requirements.
- **Quality management** - The EDS project manager will work with the State of Michigan to define performance requirements. Together, we will create a plan to achieve the requirements. All project participants will follow the plans and procedures. Performance to the project's requirements, goals, and standards will be analyzed to monitor compliance with both State and project team expectations. Inspection at appropriate points will help keep progress consistent with expectations.
- **Resource management** - The EDS project manager will create the strategy and determine procedures for timely, cost-effective acquisition, use, and reallocation of resources, human and otherwise, to provide products and services of quality to the State of Michigan.
- **Schedule management** - The EDS project manager will create the project schedule to encompass all deliverables and resources for the project. The EDS project manager will evaluate the schedule's thoroughness, verify that work is accomplished, validate that resources are expended as planned, and update the schedule as the project progresses.
- **Risk management** - The EDS project manager will assess systematically a project's risk factors and identify specific risks. EDS manages risk by accepting, transferring, or mitigating exposure to it. Contingency plans can be created to reduce related uncertainties and consequences. Reducing risk increases the probability of a project's success.
- **Communication management** - The EDS project manager will determine the messages or reports that are to support the project, who needs information, and when they need it.
- **Contract management** - The contract manager will identify and monitor adherence to the State's legally binding or regulatory requirements (which the State of Michigan will communicate to the EDS team), the project team, and the service provider to maintain fairness and regulatory compliance.
- **Financial management** - The financial or audit services manager will establish the financial infrastructure to support estimating, forecasting, budgeting, and tracking of project economies.

Stages

Project management functions are organized into the following phases:

- Startup
- Planning
- Execution
- Closedown.

These phases are explained in the following paragraphs.

- Startup - The EDS project manager will initiate the project and establish the project's operational framework. At this point, the State of Michigan and the EDS project manager will establish initial expectations of project deliverables, scope, and internal procedures and will organize the team to complete planning.
- Planning - The EDS project manager will establish objectives, standards, and procedures for the project team to meet the State's expectations. An integral plan will define activities, required resources, and assignment of responsibility and accountability.
- Execution - The EDS project manager, the Project team, and the State of Michigan will carry out the plans as specified. To facilitate compliance, the EDS project manager will direct, monitor, adjust, document, and control activity changes. The EDS project manager and the State of Michigan will continually communicate status, variances, and changes.
- Closedown - The EDS project manager will end the project in an orderly, controlled manner that will include a review of the project process and outcome. A post-project review will identify improvement areas and measure the State's satisfaction.

Benefits of PM2

A repeatable project management process enables consistent and effective engineering and control of projects to meet State of Michigan requirements. The application of PM2 provides the State with the following benefits:

- Improves the response to changing business needs
- Improves communication between the Project team and the State concerning statuses, issues, and decisions
- Promotes teamwork between the State and EDS in managing the project's scope that, in turn, enables informed decisions about project objectives
- Increases the quality of the delivered products through a proven, defined project management process
- Enables efficient, effective resource management
- Increases awareness of the effort, time, and money required to complete each project phase
- Improves the stability of the project's progress through risk management.

SLC3- EDS' SLC Methodology

Building information technology (IT) solutions to meet business needs is complicated by changing business requirements and advancing technology. To meet the challenge, EDS has developed Systems Life Cycle methodology, Version 3 (SLC3), the most recent of EDS' preferred systems engineering methodologies. Using SLC3, teams can customize, continuously improve, and reuse business processes for specific unit and client needs. SLC3 supports successful project completion by facilitating teamwork, active client participation, engineering discipline, flexibility, and rapid delivery.

Methodology Overview

SLC3, the current methodology for systems engineering, implements the following five strategy components:

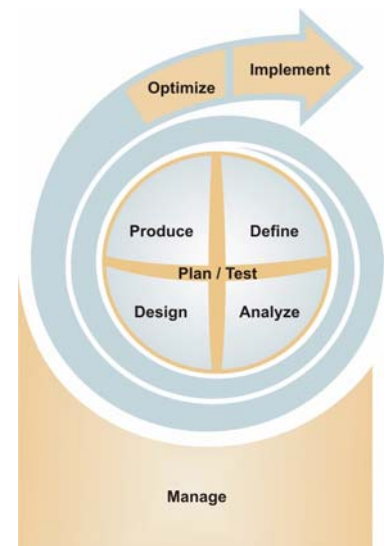
- Leverage - EDS uses systems engineering knowledge and practices at the highest appropriate level to reduce time spent by individual teams and units to determine and document good practices.
- Electronic deployment - SLC3 deploys through Process Sourcerer, an interactive electronic medium that encourages project teams to use the SLC as an integral part of current practice. The use of Process Sourcerer for SLC3 enables units and teams to access and reuse the systems engineering knowledge and practices used at higher levels.
- Customization - SLC3's multilevel structure enables units and teams to customize corporate methods and processes for specific client needs. The SLC can be specialized into multiple unit and team processes based on many considerations, including the work type, technology, and industry.
- Support for iterative development - The SLC supports, but does not mandate, iterative development. SLC3 provides guidance for iterative development, including steps for iteration planning and client prototype reviews.
- Continuous improvement - EDS uses input from business units throughout our company to continually improve the SLC. Future releases of the SLC will include those improvements.

Figure D-3, SLC3 Structure

SLC3 is a systems engineering methodology that has evolved from EDS' collective systems engineering experience and industry insight. EDS can customize SLC3 to support work types such as maintenance, minor enhancement, new development, or systems integration. SLC3 also provides the flexibility to support systems engineering on various platforms and tools, from mainframe to desktop.

As illustrated Figure D-3, SLC3 Structure, SLC3 has six phases. To develop the business solution, SLC3 balances iteration and repetition of certain phases with management control. The appropriate use of iteration evolves the business solution, providing clients with early opportunities to clarify expectations and anticipate changing business needs.

The Manage component defines work that cannot be scheduled because it recurs throughout the project. This component includes management control functions that are critical to a successful project, such as scope management, issue management, software configuration management, and risk management. Many of these components are reused from Version 2 of EDS' Project Management methodology.



The organization of each phase can be described as Plan-Do-Test. This cycle is repeated for each iteration and each phase within iteration:

- The Plan component represents the preparation required to perform the phase effectively. Plan also keeps the phase's work directed toward the objectives of that particular iteration.
- The Do component represents the actual performance of the defined work within each phase.
- The Test component verifies that work was performed as specified and validates that the work properly addresses the business need. Test also assesses the results according to these objectives to determine and report the project's progress and status.

The structure of SLC3, which is logical rather than sequential, provides the necessary flexibility for customization and continuous improvement of processes. The six phases of SLC3 are documented in logical groupings; however, the sequential occurrence of events is not implied. The sequence of SLC3 work is determined during the customization process of a project.

SLC3 Phases

The following information describes SLC3's six phases:

Define Phase

The purpose of the Define phase is to identify the business need, articulate high-level requirements, and determine the project scope that will satisfy the requirements.

During the first iteration, EDS and the client initiate the project and link it to the client's overall business and technology plan. The business need and project scope is defined. High-level requirements, as well as the number and scope of iterations, are determined. EDS then creates a high-level project plan defining these iterations.

During the Define phase, EDS determines the scope of a specific iteration, and all remaining phases within that iteration focus on its defined scope.

Analyze Phase

The purpose of the Analyze phase is to accomplish the following:

- Assess the current business and technical aspect of the client's environment
- Refine the high-level requirements into detailed business requirements that satisfy the business need
- Define the logical system

During the Analyze phase, EDS uses our Requirements Determination Process (RDP) to determine detailed business requirements that are clear, complete, appropriate, and verifiable. We also identify the system's logical components, such as business data and processes.

Design Phase

The purpose of the Design phase is to build design specifications that can be used to produce and implement a system that satisfies or exceeds client requirements. EDS considers both business and technical components in the Design phase. In fact, EDS designs the application itself with consideration for the impact on the business organization.

During the Design phase, EDS creates, refines, or eliminates business processes. We establish technical components, such as software, hardware, and network architecture, and we devise conversion and migration procedures.

Produce Phase

The purpose of the Produce phase is to translate designs and specifications into automated and non-automated components that meet client requirements. EDS then tests these components both as independent units and as an integrated system.

During the Produce phase, EDS develops business processes and creates templates and procedures. EDS creates or obtains software, obtains and installs hardware and network components, and assembles the pieces into a functional unit. EDS also prepares user training materials.

The product of each iteration adds significant functionality to what was produced in earlier iterations. The results of the Produce phase are functional and demonstrable, although they are not yet ready for use in the client's production environment.

Optimize Phase

The purpose of the Optimize phase is to verify that the produced system is complete, performs efficiently, meets the client's requirements, and is ready for implementation.

Although EDS makes some architectural and efficiency modifications during the iterative phases, the Optimize phase provides the opportunity to address these modifications in terms of the whole system. EDS further tests and refines business processes, databases, and network components for performance. We improve critical software and architectural components for reliability, adaptability, and other technical considerations. EDS obtains final client acceptance for implementation into the production environment.

Implement Phase

The purpose of the Implement phase is to accomplish the following:

- Train users
- Install the produced system with minimal disruption to the client's business environment
- Migrate current processes and data to the new solution
- Establish or modify the new production environment.

Client Benefits

SLC3 does more than guide EDS in the development of IT solutions. This methodology also provides direct value to clients by maintaining a consistent balance between business and technical considerations. For the client, SLC3 affords the following benefits:

- Aligns IT with the client's business requirements
- Strengthens communication between the client and EDS
- Delivers the best practices from all of EDS
- Reduces risk by applying iteration to verify and validate intermediate results
- Directs timely implementation of products that meet or exceed client expectations
- Facilitates process customization to meet unique client needs

Benefits to EDS that Extend to the Client

SLC3 also provides the following benefits directly to EDS accounts and systems engineering groups:

- Facilitates continuous improvement as new practices and technologies are developed, field-tested, and redeployed throughout EDS
- Establishes a common basis for communication throughout EDS
- Assists contract teams to blend their own requirements with engineering discipline and proven best practices
- Provides a foundation for increasing systems engineering process maturity
- Supports industry standards for improving a systems engineering organization's process maturity and capability
- Improves client satisfaction

Conclusion

The SLC3 methodology establishes the foundation for predictable, repeatable performance that meets or exceeds client expectations. SLC3's flexible structure enables EDS teams to customize their processes to meet diverse client business needs.

The SLC3 methodology, with EDS' PM2, references the practices of Carnegie Mellon University's Software Engineering Institute Capability Maturity Model (SEI CMM). EDS uses the SEI CMM to measure the maturity of its systems engineering process capability.

Activity 1: Appendix E - Tracker Tools

Issue Tracker

The Issue Tracker furnishes mechanisms for entering, tracking, and reporting project issues, change controls, and risks. This tool supports the creation of automatic e-mail notifications to apprise the Project team about all events in the life cycle of an issue, risk, or change control. Various reports exist to aid in the monitoring of issue progress. Change control management is provided as a subfunction within Issues Tracker.

Project/Report Tracker

The Michigan Department of Information Technology (DIT) standard toolsets do not solely support the activities of the Technical Support team. Project management uses Project Tracker functionality to generate project scorecards. Report Tracker provides access to weekly performance metrics, including basic task completion counts by project, by deliverable, and by life-cycle phase. Report Tracker also affords access to weekly earned value reporting. This information is categorized by project, by deliverable, and by phase.

Time Tracker

The Time Tracker contains functionality for automated uploading of project plan tasks from Microsoft Project (.mpp files), generating timesheets for individuals, adding custom time tracking tasks to time sheets, and logging time sheet entries. Reports are also provided to allow project managers to assess data needed to progress project schedules and determine accurate project task status by estimated remaining work entry features within the time sheets. Project managers and team leads can also pull reports identifying late tasks and effort-overrun tasks based upon submitted time sheets. A recent improvement to Time Tracker is the Vacation Scheduler portion that allows project team members to define planned vacation time and submit it for approval by team leads and project management. This enhanced functionality allows the Project Management team to tailor critical path task assignments accordingly to meet milestones.

Configuration Tracker and Build Tracker

Build Tracker is a template-based configuration management and information application. Build Tracker enables the parameterized generation and scheduling of build scripts to eliminate errors and enhance flexibility, especially in a multiple development environment scenario. Furthermore, this tool includes postbuild information and auditing capabilities as originally presented in Configuration Tracker. Build Tracker is an extension and integration of the configuration management framework, positioning the EDS BAM team to respond to ever-changing conditions with precise, predictable results.

System DB

The System DB is the Oracle database instances servicing the DIT standard toolset. Each instance provides some retention of the information in the Tracker suite (Build Tracker) or the Infrastructure Request System. A Microsoft SQL Server instance also provides data retention for Tracker Tools, such as Time Tracker and Issues Tracker. Additionally,

WorkDB is emerging as an area for individual schemas to facilitate unstructured, ad hoc experimentation in an environment isolated from application development and testing environment, which are under application configuration management. The EDS BAM team will define appropriate backup strategies to make sure the valuable project information assets are preserved and protected.

Infrastructure Request System

The Infrastructure Request System provides additional workflow processing for items such as builds, database creations, environment preparation tasks, and toolset improvements. The Infrastructure Request System provides request entry, assignment, status tracking, and automated e-mail notification features to propagate communication about events in each environment. On the MiCSES project, the environment preparation and planning team uses this system constantly to generate many useful reports about the environments and to coordinate activities such as database refreshes, application build requests, batch execution requests, and ID and password access management. Access to this application is password-secured, and group ownership constraints allow only authorized requesters and gatekeepers to initiate activities in the controlled environments. EDS will apply these features to the BAM project, enhancing the DIT standard toolset to facilitate automation whenever possible.

Test Tracker

Test Tracker is the consolidation of prepared test steps and execution status for the purpose of identifying test phase progress or areas with quality concerns within the application development cycle. The test scripts are automatically uploaded into the tool via formatted, standardized spreadsheets. This process is assumed to be retained identically on the BAM project. Test Tracker is employed during the system and user acceptance test cycles to provide necessary controls and monitoring of testing results.

Ticket Tracker

Ticket Tracker is a collection of reports from the Remedy (Action Request System) database providing the ability to manage production maintenance ticket flow and assist with release composition. Used primarily by the workflow coordinator, Ticket Tracker displays information used to make sure tickets are not overlooked and are classified correctly according to their designated release dates.

Load Tracker

Load Tracker collects user logon information at half-hour intervals to show peak concurrent usage and daily usage patterns. Other functionality categorizes the distribution of active users by county location. As the selected BAM architecture and system user security attributes allow, the EDS BAM team will establish and maintain this toolset for the BAM project. In addition, EDS will work with Data Center Services administrators to obtain and display available system performance metrics (CPU utilization, memory usage, disk operations, network performance, wait times, and so on) using the DIT standard toolset. If possible, EDS will work to integrate heartbeats, timers, event logging, or other application features to provide remote measurement collection capabilities from the user desktops in an effort to capture the end-to-end transaction and user experience. EDS understands the value of detailed system monitoring and will use

available information for troubleshooting, capacity planning, trend analysis, demographics, and overall management of the BAM system.

Improvement Requests (CIR, Infrastructure Request System)

EDS designed the Continuous Improvement Request (CIR) to provide a mechanism to request enhancements or other support work on the toolsets. We have since incorporated this feature into the Infrastructure Request System as part of the overall service request process. EDS will establish and maintain this functionality within the Infrastructure Request System to centralize work order processing, assignments, and tracking for the EDS BAM team.

The EDS BAM team will continue improvements and enhancements to the DIT standard toolset as needed for the BAM Project Control Office (PCO). EDS will schedule enhancement requests according to priority and available tools support resources and work with the requestors to design user-friendly solutions delivering the desired functionality.

Establishment and Maintenance of PCO Toolset

EDS recommends that the State leverage the DIT standard toolset developed on the MiCSES project for use within BAM. Working with the State to create the original toolset, EDS is knowledgeable, experienced, and prepared to establish and maintain the PCO toolset to service the BAM implementation effort.

Another possible approach would be to enhance the current infrastructure and toolset used to support the MiCSES effort, allowing an enterprise utilization of a single toolset in support of both the MiCSES and BAM systems. EDS is experienced and able to support any such enterprise approach to the toolset, should it be the desire of the State. This type of approach may create some additional leverage and savings not yet accounted for.

While we assume the physical hosting and administration of the DIT standard tools and associated server hardware and software is the responsibility of the State Data Center Services and Technical Services teams, EDS will provide expertise and assistance with the installation, configuration, and maintenance of the specific system software layered products necessary to operate the PCO tools for the BAM project. EDS will also recommend backup and export strategies and retention periods, development environment separation, application tier architecture options, and other technical considerations, such as patching and upgrade strategies.

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Attachment #4, EDS Proposal Activity 2 Appendix A

**Activity 2: Appendix A – Draft Technical Architecture Plan
(Draft Engineering Work Order - BAM Site Configuration)**

Michigan Department of Information Technology
[Data Center Operations BAM Environment]
[Street Address]
[Lansing, MI, USA]



**Prepared for DOS/DIT By:
EDS Engineering**

Prepared [BAM Phase 3A]: [October 17, 2005]

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Change History

Table 1 – Change History

Revision No.	Date	Author	Section	Nature of Change
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•
•	•	•	•	•

Table 2 below identifies the EWO Template Shell version that this document was created from.

Table 2 – Template Shell Information

Document Number	Release Number	Version Number	Date Released
• 1	• 1.0	• 01.00	• 10/17/05

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Introduction

Conventions Used In This Document

Table 3 – Icons





Text Description	Icon	Use
• Note:		• The Note icon is placed next to information that provides additional explanation about a subject.
• Warning:		• The Warning icon calls your attention to information that is of major importance in installing or using the product. This information generally describes things that you should do to avoid encountering problems with the product.
• Important:		• The Important icon calls your attention to information that you must understand to install and use the product successfully.
• Reference:		• The Reference icon allows you to quickly determine which documents are needed at the beginning of a section.

Table 4 – Document Conventions

Item Description	Convention	Example
• User is required to type something exactly as shown	• Select the text and use the User Type style	• Enter the following: <code>c:\ntinstal\adduser.bat usamc jdoe</code>
• Example of text displayed on screen	• Select the paragraph and use the Screen Type style	• The following text displays on the screen: <div>Updating configuration files...</div>
• Buttons and icons are clicked and the button or icon name is capitalized	• Place button name within square brackets	• Click [OK]. • Click the Explorer icon.

Item Description	Convention	Example
<ul style="list-style-type: none"> Keys are pressed 	<ul style="list-style-type: none"> Place text within square brackets 	<ul style="list-style-type: none"> Press [Enter]
<ul style="list-style-type: none"> Variables to be replaced 	<ul style="list-style-type: none"> Place text within brackets and use the Variable style 	<ul style="list-style-type: none"> Enter <NT Domain>. Next, select <User's Log on Name> and click [Add]
<ul style="list-style-type: none"> User is required to press numerous keys at once 	<ul style="list-style-type: none"> Place text within brackets with a plus sign between values 	<ul style="list-style-type: none"> Press [Ctrl + Alt + Del]
<ul style="list-style-type: none"> User is required to press numerous keys and then a single key 	<ul style="list-style-type: none"> Place text within square brackets with plus signs between values and follow with a comma and the single key value within square brackets 	<ul style="list-style-type: none"> Press [Shift + F7], [A]
<ul style="list-style-type: none"> Window or dialog box name, document sections, check boxes, menu selections, and icons 	<ul style="list-style-type: none"> Show in bold text 	<ul style="list-style-type: none"> With the Reference window open, go to the File menu and select Print. This will open the Print dialog box.

Purpose

The purpose of this document is to provide a template for the configuration of the BAM Windows 2003 Application Servers.

Audience

The intended audience of this document is individuals who are involved in the deployment of the BAM Application Infrastructure.

Installer Knowledge and Abilities

Personnel must successfully complete the following courses or possess equivalent experience:

- MCSA Training

Documentation Referenced



If working from a printed copy of this EWO without access to referenced documents, print referenced documents prior to performing procedure.

The following table lists documentation that is referenced in this EWO:

Table 5 – Documentation Referenced

Document Title	Location
EWO IIS Server Installation	SOSFP02\BAM\EWO
EWO Router/Switch Configuration	SOSFP02\BAM\EWO
EWO AD Plug-ins Configuration	SOSFP02\BAM\EWO

Pre-Configuration Procedures

This EWO will be executed after the Router/Switch Configuration and EWO and AD Domain ID Configuration have been completed.

Expected Configuration Time

The following table shows the approximate time to perform a manual configuration of each component of the BAM Server:



The information in the table is an example only.

Table 6 - Installation Timeline

Installation Step	Time to Implement
Window 2003 Configuration	3.50 hours
	0.50
	1.00
PAR\PCH Test and Acceptance	4.00 hours
	=====
Total	7.5 hours

Pre/Post-Configuration Support

Pre-Configuration and Configuration Support

This EWO will be executed after the EWO Router/Switch Configuration and EWO AD Domain Configurations have been completed.

The EDS BAM Technical Planning and Support provides technical support for pre-installation and installation related questions. Support is transferred to post installation support within one to two weeks following the installation.

Post-Configuration Support

Local Site Administrators should contact the EDS BAM Command Center.

Site Configuration Information

All sections in this Windows 2003 Site Configuration EWO for this site are to be installed by the DIT/DCO Team.

Installer Instructions

The audience for these instructions is the actual person(s) performing the configurations and procedures within this documentation.

This document contains macros that the Site Engineer who prepared this document for execution, used to populate the necessary site-specific information where necessary. The following two sections explain how the installer is to read and perceive this document during its execution.

Grayed-Out Sections

While reviewing this document, you may encounter some sections that have been “grayed out” – or in other words, appear to be a very light gray font, as opposed to black (as this text you are currently reading appears). When executing the procedural steps in this document:

Do not execute the steps that are grayed-out – even if some of the grayed out sections have text in black font inside them.

Site Engineering Tables

Within certain sections of this document, you may encounter tables of information that are for Site Engineering’s use when populating this document. Each of these tables will be identifiable as a Site Engineering Table, located in a box at the top of the table, written in white text against a black background.

Do not change any values inside these tables as they may adversely affect the integrity and accuracy of this document (as shown below). Simply skip the table to the next section of procedural steps.

Do not alter values in tables with this

Site Engineering Table	
Informational Requirement	Value
Active Directory Domain Controller Host Name	<Obtain from DNCC>
Server Name	<Obtain from DNC C>

Installers may skip directly to Section 5 to begin executing this document

Site Engineering Instructions

The audience for these instructions is the Site Engineer who will populate the variable *information within this document, and prepare its use for deployment.*

How to Auto-Populate This Document

Macros are used throughout this document. These macros are unsigned, and Microsoft Word (in all versions) must be configured to support Medium Security for Macros in order to successfully automate this document.

- 1) In MS Word, go to **Tools, Macro** and select **Security...** from the menu.
- 2) Select the **Medium** radio button in the **Security Level** tab, and click **[OK]**

This document has been developed with a cross-referencing feature, which automatically populates *target* fields, after values in *source* fields have been entered and the entire document is updated. This feature is intended to reduce the time required to fill out this document, as well as reduce the possibility of human error.

For example, **EDS** may need to appear as the value for the field **Company** in many places throughout the document. In this document, this value (**EDS**) will be cross-referenced to every target field **Company** in the document that requires this value. Therefore, by entering the value only once in the source field, all target fields requiring the same value will be automatically populated when the entire document is updated. Each target field will be identifiable with a gray background behind the text.

This association of values from the source to target fields is accomplished in several places throughout this document. In each table containing source fields (specified below), a set of instructions will appear informing you how to fill out the source fields properly in order to obtain the proper results in all target fields.

The following tables contain source fields requiring initial values to be entered. Read the instructions for each table before updating the document.

- Section 0 - Table 7 - Site Identification Table
- Section 0 - Table 8 – Site Information Table
- Section **Error! Reference source not found.** - **Error! Reference source not found.**

The document may be updated by “selecting all”, or Press [Ctrl] + [A]. Once the entire document is highlighted, right-click on any part of the highlighted text, and click [Update Field]. A dialog box may appear (once or twice) asking you to “Update Page Numbers Only” or “Update Entire Table”. Select the **Update Entire Table** radio button (both times if necessary), and click [OK]. Review your target fields (gray background behind text) to ensure that the correct value was properly inserted.

Source Field Population Instructions

Follow the instructions below to prepare source fields in all Site Engineering Tables in this document for auto-population.

1. Select the area in between the brackets (as shown below – do not select the brackets themselves)

EXAMPLE SELECTION – Select only the value inside the brackets and replace with proper site value

<Site Name>

2. Type in the appropriate Site Name and Code values.
3. Delete the brackets on both ends after (only after) you insert the proper value.

Update Document Button

In section 0 Update Document, a button exists for the purposes of finalizing this document. You may press this button as often as you need to in order to update values and format changes in the document according to choices you make in the Site Engineering tables below. Once you have completed this document, press the button before saving and submitting for review.

Unneeded Sections, Tables, or Fields

This document has been developed as a template for all BAM Server Clusters, regardless of Site size or configuration. If any sections, table rows, or fields appear to not apply to your site; enter N/A in italicized, bolded red font in the source field of the table.



Do Not Delete any portions of this document prior to its review by an Engineering and/or Operations board.

Site Configuration Information

The following table will be used by the Site Engineer to establish the Site Code that will be implemented as the base naming convention for many of the components to be configured in BAM Server.

Table 7 - Site Identification Table

Site Engineering Table	
Site Name	<BAM>
(WW) 2-character Country Code	<US>
(yyy) 3-character Site Code	<SOS>
(zz) 2-character State/Province Code	<MI>

Site Identification Code

<US><SOS><MI>

This Box will automatically update

Site Information Table

The following table contains information necessary to configure the Window 2003 System for BAM.

Table 8 – Site Information Table

Site Engineering Table

Required Information	Variable Data	
IS THIS SITE A Data Center Operations Site?	Yes	No
Site Main Phone Number	<E.164 Prefix> <i>(Enter only the PSTN Prefix – for “12482937000”, enter only “1248293”)</i>	<Extension> <i>(Enter the four or five digit extension per the site’s dial plan)</i>
Site’s Time Zone <i>(Refers to the Time Zone this Server is located in)</i>	<Adjust as necessary (i.e. GMT-05:00)>	
Country Code	<US>	

Servers	
Server Cluster Designation <i>(refers to which cluster this system represents for this site – use A for first -or if the only- cluster, B for second cluster, C for third, etc.)</i>	<A, B, or C>
Server IIS Name	<Obtain from DIT>
IIS IP Address	<Obtain from DIT>
Enter first <u>10</u> characters of Server NetBIOS name	<Enter first 10 Characters>
Server <u>First</u> Primary Subscriber Name <i>(Use this if only one Subscriber Server)</i>	<Obtain from DIT>
First Primary Sub IP Address	<Obtain from DIT>
Enter the first <u>10</u> characters of the First Primary Sub NetBIOS name	<Enter first 10 Characters>
IIS Primary Server Information	

IIS 6 Server Data	
IIS Farm IP Address (IP Address refers to Logical IP of the Redundant Web Servers)	<IP Address>
IIS Web Site Name (Refers to Site Specific URL that identifies this server group)	<Obtain from DIT>



Caution must be exercised when configuring routers between the VLans and backup VLans. Conflicting IP Address ranges must be avoided in order to prevent problems between the two systems.

Router Gateway Data		
First Router Name/IP Address for the load balance required for the server group	<Router Name>	<IP Address>
Site Bandwidth Data	<xxxx Kbps>	

Update Document

Press the button below to update this document according to the choices and information provided in the sections above.

UPDATE DOCUMENT

Windows 2003 Setup

The BAM Servers will be installed and loaded with the .Net application. After both Servers are operating, use the attached information to configure them. The following instructions will be used to configure the Server parameters and IIS features. All IIS Servers in this cluster are configured via the Publisher.

System Configuration

The following sections are configured by selecting the appropriate choice under the “System” drop-down button in the Server Administration Page.

Server

Primary IIS Server in Farm	
• DNS/IP Address	• <Obtain from DIT>
• MAC Address	• Leave Blank
• <u>Update button</u>	
First Included IIS Server in Farm	
• DNS/IP Address	• <Obtain from DIT>
• MAC Address	• Leave Blank
• <u>Update button</u>	
Included IIS Server in Farm	

BAM Server

Primary IIS Server in Farm - <Obtain from DIT>

• Primary Server Name	• CM_<Obtain from DIT>
• Description	• Primary BAM IIS Server in Farm
• Logical IP Number	•
• Physical IP Number	•
• Partition	• <none>
• Ethernet	• 2000
• Digital Port	• 2001

First Included IIS Server in Farm - <Obtain from DIT>

• CallManager Name	• CM_<Obtain from DIT>
• Description	• First Primary Server Include in Farm
• Logical IP Number	•
• Physical IP Number	•
• Partition	• <none>
• Ethernet	• 2000
• Digital Port	• 2001
• Digital Port	• 2001

Second Included IIS Server in Farm

•	• Primary Server Include in Farm
• Logical IP Number	•
• Physical IP Number	•

Date/Time Group

The application will have already created a Date/Time Group entitled “CMLocal”. You must create a new group by clicking the link at the left of the window that reads “<**Add a New Date/Time Group**>”. Enter the information as follows:

• Group Name	• BAM_<US><SOS><MI>_DT
• Time Zone	• <Adjust as necessary (i.e. GMT-05:00)>
• Separator	• /
• Date Format	• M/D/Y
• Time Format	• 24hr
• <u>Insert button</u>	

Device Defaults

No changes are required for the Device Defaults setting. Do Not make any changes for Device Defaults in this IIS Cluster.

ASPState at Command

To configure ASP State open a command prompt and enter “Start aspstate” then the following commands

```
Enter config.web
<configuration>
  <sessionstate>
    Mode="statesever"
    cookieless="true"
    timeout="20"
    sqlconnectionstring=data source=127.0.0.1;user id=sa;password="server="127.0.0.1"
    port="42424"
  />
```


Test & Acceptance - Site Configuration

The Test & Acceptance for this EWO will not be included within this document, as proper testing requires .Net Application and Appliances, and other devices that may not be available at the time this document has been executed.

The Test & Acceptance for this document will reside within the EWO entitled “**EWO_BAM_BAT_Process&Configuration.doc**”; as this document is used for deploying the BAM application from which the tests must be run.

For Test & Acceptance of this document, refer to the BAM Web Site for the EWO listed above at

Back-out

Back-out of any of the above procedures is unnecessary for this configuration, unless the server is adversely affecting network components. If the BAM server(s) is/are adversely impacting other network devices shut down all of the IIS services, and start each service individually to diagnose the problem. Contact BAM Hardware Software Technical Support Leader for support of any unresolved issues.

EWO Template Changes

Record any procedural or process changes that need to be incorporated in the EWO template. Forward the changes to the Engineering organization responsible for updating BAM templates

Appendix A – Environment Topology

Attachment #5, EDS Proposal Activity 2 Appendix B

Activity 2: Appendix B – Procurement Plan

For the past 10 years, EDS has proven to be the State's choice for large hardware and software procurements. As the prime contractor for the former End User Computing Contract (EUCN) and the current Michigan Master Computing Contract (MMCC), EDS has an in-depth understanding of the State's procurement processes. Based on this understanding, EDS has developed complementary processes.

For BAM Phase 3, the procurement process will begin with the Hardware and Software Inventory form, which will detail commodity items at a part number and product description level. The components detailed will be derived from the Technical Architecture Plan, the Proof of Concept Environment Plan, and the EWO detailed in Activity 2.

During the creation and review of these documents, EDS will work with the State of Michigan to ensure that all BAM procurements meet the needs of DOS and the State's enterprise direction. When the specific procurement needs are approved, the BAM EWO will be sent to the EDS-State quote team. This team of Lansing-based EDS resources has been processing State of Michigan quote requests and associated orders for more than 10 years.

EDS will leverage corporate alliances with key vendors such as Dell and Microsoft to bring significant volume-based discounts to the State. When the quote has been created, it will be presented and validated by the collective DOS, MDIT, and EDS BAM team. After validating the quote, the procurement approval processes of MDIT and DMB (AS-1, MDIT-15, purchase order request, and so on) will be followed to produce a purchase order. EDS will fulfill the order following proven MMCC processes and deliver the required products to the State.

EDS understands the State's Depot and DCO receiving and configuration processes also. Achievable commodity purchasing timelines have been developed based on our strong understanding of EDS and State of Michigan procurement processes. Details, tasks, and timelines for each phase and each BAM environment appear in our project plan (see Activity 2 sections, by phase).

With EDS, the State of Michigan can count on a vendor with proven experience in the integration of hardware and software procurements to large-scale State of Michigan IT projects. EDS' procurement experience with the State of Michigan adds value to all involved with the BAM Phase 3 project and mitigates the common risks associated with procurement delays.

The Michigan Master Computing Contract

EDS was awarded the Michigan Master Computing Contract (MMCC) in 2004 following a competitive bid process. The contract encompasses hardware and software procurements in three categories:

- 1) Desktop/Portable Hardware and Microsoft Software*
- 2. Server and LAN Hardware, Peripherals, and Operating Systems*
- 3. Desktop, Enterprise, and Network Software*

Under MMCC, EDS consistently exceeds the contractual service level procurement metrics, specifically:

- Desktops and laptops delivered within 10 business days*
- LAN hardware delivered within 20 business days*
- Software delivered within eight business days*

This page has been left blank intentionally.

Attachment #6, EDS Proposal Activity 3, Appendix A

Activity 3: Appendix A

Draft Application Development Knowledge Transfer Plan

1.0 Introduction

The success of the BAM Phase 3 project is about more than technology and systems working properly to enable the State to manage its Driver Issuance, Vehicle, Finance and Driver Activity processes. It is about the State's ability to effectively execute application development activities for the BAM System without consultant support after the implementation. To accomplish this goal of State self-reliance designated Michigan Department of Information Technology (DIT) staff members must acquire adequate Applications Development knowledge and skills. Knowledge transfer in its literal sense, refers to the transfer of capability, both knowledge and skills. The term "capability" refers to a cluster of knowledge and skills required to execute a task or role. Accordingly, EDS will enable the smooth transition of Application Development activities to the State upon contract completion.

The Application Development Knowledge Transfer Plan is designed to support the State's self-reliance by providing the knowledge and skills required by two major groups – the EDS Team and the State Team (e.g., the support team that will perform Application Development for the BAM System following implementation). These staff members will be responsible for all application development activities for the new BAM System that will support application development associated with new business processes, third-parties, agencies and vendors. Developed on the principle that *learning is not an event, it is a process*, the Application Development Knowledge Transfer Plan is organized in a phased, process driven approach. Specific knowledge transfer details for the individual BAM Phases (e.g., Phase 3A, 3B, 3C and 3D) will be developed addressing each of the following:

- Identifying what knowledge and skills are required for each of the six to eight designated DIT staff members to execute
- Determining the role of each of the six to eight designated DIT staff members
- Defining appropriate learning strategies to transfer identified knowledge and skill for each role
- Other criteria deemed appropriate

A general review process will monitor DIT staff member progress and validate that appropriate learning is taking place. In the event that inadequate knowledge transfer has occurred, a remediation process will be initiated. Additionally, EDS understands that involving the six to eight DIT staff members in Application Development Knowledge Transfer will not permit EDS to reduce its staffing levels. Instead, EDS will lead the application development effort across all BAM System phases, while DIT staff members will provide input and learn the EDS methodology. Accordingly, EDS will determine the best method in which to include the designated DIT staff members in application development activities. The ultimate goal is a successful deployment and execution of the Application Development Knowledge Transfer Plan that will support the State's self-reliance after the BAM System implementation has been completed.

1.1 Purpose

The purpose of the Application Development Knowledge Transfer Plan is to provide a roadmap for transferring the capabilities, knowledge, and skills required for BAM System application development without the assistance of external contractors.

1.2 Audience

The audience for this document is the BAM Phase 3 Leadership, the BAM Phase 3 Project Management, and the BAM Phase 3 Technical Management.

2.0 Approach

2.1 The EDS Approach

The EDS approach to Application Development Knowledge Transfer considers that knowledge transfer will emerge over the life cycle of the project. It is a stated goal of both EDS and the State that the six to eight DIT staff members to be assigned to the BAM Phase 3 Application Development Knowledge Transfer effort be involved in application development activities from the beginning of the project. During each BAM Phase (e.g., Phase 3A, 3B, 3C and 3D), additional knowledge transfer elements will come to light, culminating in an understanding of what will be necessary for application development after full BAM System implementation. Therefore, knowledge transfer for the BAM Phase 3 project will use a phased approach to support continual refinement of application development knowledge transfer.

Application Development Knowledge Transfer consists of two main components:

- **Part A** – Includes application development knowledge transfer required to equip the project team as they implement each phase of the BAM System. A phased approach enables responsiveness to decisions, solution details and changes as they occur. Knowledge transfer for the project team will be planned and executed by understanding the following:
 - **What:** What are the specific tasks that must be performed during each phase according to the project plan and therefore what capabilities will be required to execute these tasks?
 - **Who:** What role (who) will be responsible to execute each task and therefore who will require what capabilities to be successful?
 - **When:** When will each task need to be executed and when must knowledge transfer occur?
 - **How:** How should knowledge transfer be accomplished? What is the most efficient and effective learning strategy to transfer the required knowledge and skill?
- **Part B** – Represents knowledge transfer for the team that will provide ongoing application development support for the BAM System after the implementation. For this group, knowledge transfer will be planned and executed by understanding the following:
 - **What:** What are the responsibilities and tasks that must be performed following full BAM System implementation and what capabilities are required to perform these tasks?
 - **Who:** What role (who) will be responsible to perform each task following full implementation?
 - **When:** When will process changes for each role take place and when is the best time to acquire the required knowledge and skill (e.g., as the solution is configured or as the solution is implemented)?
 - **How:** What is the most efficient and effective method to transfer knowledge to roles while balancing team member availability with the need to ensure appropriate knowledge transfer?

2.2 Effectiveness Evaluation

Application Development Knowledge Transfer will occur through a combination of self-evaluations and leader evaluations. The evaluation is intended to assess knowledge transfer and not team member performance.

2.2.1 Assessment Approach

An assessment approach (i.e., *how to determine if application development knowledge transfer has occurred*) will be defined for each *capability*. This will serve as the basis for leadership and self-evaluations. As capabilities and the method of assessment are identified, appropriate documentation will

record the adequate and successful transfer of knowledge.

2.2.2 Review Meetings

Review meetings will be scheduled at the end of each phase. The purpose of the meetings will be to review and determine whether an appropriate quantity and quality of Application Development knowledge has been transferred. Prior to the review meetings, each designated DIT staff member will be asked to complete a self-evaluation. During this evaluation, each DIT staff member will be asked to assess how effective knowledge transfer has been in preparation for executing his or her role and in gaining the required knowledge and skills.

2.2.3 Scorecard

An Application Development Knowledge Transfer progress report (scorecard) will be developed to track knowledge transfer for each of the six to eight DIT staff members. The scorecard will provide a method of tracking and monitoring the effectiveness and execution of the Knowledge Transfer.

3.0 Learning Strategies

There are two critical components in defining Application Development Knowledge Transfer learning strategies (activities to be used in completing knowledge transfer). The first is to understand what each of the six to eight DIT staff members need to know to successfully fulfill his or her role within DIT. The second component is to identify specific learning strategies (activities) that will most appropriately enable each individual DIT staff member to acquire the knowledge and skills (capabilities) needed to perform his or her Application Development role. EDS will employ a variety of differing learning strategies to assist each DIT staff member.

3.1 Formal Instructor-led or Web-based Training

Necessary formal training on the BAM System operation will be delivered to each of the six to eight DIT staff members via the EDS/PTD Training Staff in accordance with Activity 6: Implementation Support, *Task 6.1 - Prepare and Perform Technical Training*.

3.2 Informal Training

Informal training will occur as EDS involves the six to eight DIT staff members in Application Development activities from the beginning of the BAM Project. This method of knowledge transfer will occur throughout the project life cycle.

3.2.1 On-the-Project Knowledge Transfer

When On-the-Project Knowledge Transfer is the identified learning activity, the knowledge transfer will be planned in advance so the affected DIT staff member may pay particular attention to the knowledge to be transferred. The DIT staff member should assess the knowledge transferred as input to his/her self-evaluation as shown in Figure 1. The example provided in Figure 1 is not finalized and represents only a few of the On-the-Project learning activities. EDS will develop a formalized and complete list of On-the-Project learning activities.

Knowledge	Skill	Audience/Role
Create Class Model	Rational Rose	DIT Sr. Developer, DIT Jr. Developer
Quality Assurance Code Review	Review application code to ensure requirements are met and code adheres to standards	DIT Sr. Developer, DIT Jr. Developer

Figure 1 – Examples of On-the-Project Learning Activities

3.2.2 Shadowing / Mentoring

Shadowing and mentoring will be the primary means for ensuring the necessary hands-on exposure and experience to Applications Development knowledge used to develop the BAM System project is legitimately passed on and absorbed by the six to eight DIT staff members. The DIT staff member should assess the thoroughness and effectiveness of knowledge transferred as input to his/her self-evaluation as shown in Figure 2. The example provided in

Figure 2 is not finalized and represents only a few of the shadowing and mentoring learning activities. EDS will develop a formalized and complete list of shadowing and learning activities.

Knowledge	Skill	Audience/Role
Conduct Formal Acceptance Testing	Testing the BAM System	DIT Sr. Developer, DIT Jr. Developer
Create Data Access Objects (DAO)	Support storage and retrieval of data associated with business entities	DIT Database Administrator, DIT Jr. Developer

Figure 2 – Examples of Shadowing / Mentoring Learning Activities

3.3 Learning Strategies for Phased Implementation

As the BAM Phase 3 project progresses through its phased implementation, the Application Development Knowledge Transfer will be refined to provide what is required for the six to eight DIT staff members to execute and successfully support the new business processes after implementation.

4.0 Deployment

The Application Development Knowledge Transfer Plan will be deployed through a phased approach that mirrors the BAM project phases (e.g., Phase 3A, 3B, 3C and 3D) and leverages the experience of the EDS team.

5.0 Risks and Mitigation Strategies

The following risks and mitigation strategies have been identified for the Application Development Knowledge Transfer Plan:

- Risk: DIT Team members will not take Shadowing / Mentoring seriously and, therefore, will not be adequately prepared to support Application Development following full implementation of the BAM System.
- Strategy: EDS will be certain to address the increased risk of using certain DIT staff members if it becomes obvious to EDS that the designated DIT staff is not taking the Application Development Knowledge Transfer seriously.
- Risk: EDS determines that Application Development Knowledge Transfer is consuming excessive time to the detriment of the BAM Phase 3 implementation and project schedule.
- Strategy: EDS will advise the State of the negative impact to the project implementation timeline and the project delivery schedule.
- Risk: Some of the six to eight DIT staff members may not have the necessary background skills to appropriately fill and perform Application Development roles.
- Strategy: DIT will remain responsible for providing the appropriate DIT staff members for Application Development Knowledge Transfer. If a designated DIT staff member appears to lack the necessary background skill sets to appropriately grasp the Application Development concepts, EDS Project Management will coordinate with the DIT leadership to identify an appropriate staff replacement(s).

- Risk: The six to eight DIT staff members will not be honest in terms of their comprehension and the quality of the Application Development Knowledge Transfer because they feel it is a reflection of their personal abilities.
- Strategy: It will be reinforced with each of the six to eight DIT staff members that the Application Development Knowledge Transfer evaluation is not a measurement of performance, but rather an assessment of how successful EDS was in providing the knowledge transfer required for the DIT staff member to appropriately perform Application Development in support of the BAM System.

Attachment#7, EDS Proposal Activity 4 Appendix A

Activity 4: Appendix A

Draft BAM Data Conversion Plan (by Phase)

1.0 Introduction

Conversion of production data to the BAM Database represents a critical element in the Michigan Department of State (DOS) BAM Project. The Data Conversion Plan will describe the individual tasks and responsibilities that will be required to convert the Legacy Systems data to the BAM database. The Data Conversion Plan will be created and modified as appropriate for each specific BAM Phase, 3A, 3B, 3C, or 3D.

1.1 Purpose

The primary goal of the Conversion Plan is to design and build a conversion process that is effective and efficient. The Conversion Plan identifies existing data and data structures in the Legacy Systems that will be converted to support the design of the BAM system. It also defines the process for performing the conversion.

1.2 Audience

The audience for this document is the BAM Phase 3 Leadership, the BAM Phase 3 Project Management, and the BAM Phase 3 Technical Management.

2.0 Data Inventory

The Data Inventory specifies which Legacy databases, data files, and data fields are required for conversion in the specified BAM phase. It will include name, location, any special instructions, assumptions, any structures existing in the underlying data, and any other information identified during Conversion Planning.

3.0 Conversion Requirements Document

This section refers to the Conversion Requirements Document. It will be a separate document, and a link will be provided. All conversion requirements, rules, edits, sort, match, and merge criteria will be documented in the Requisite Pro tool from the Rational Suite of Development tools. Examples of possible criteria for conversion for the different phases are indicated in the following table:

Phase	Requirement / Rule / Criteria
Phase 3A – Driver License Issuance	Customer Number must be unique
	Customers must be assigned a type: individual, business, etc.
	Deceased customers will not be converted
	A customer may have more than one address
	A customer must have at least one address which will be identified as type 'Residence'
Phase 3B – Vehicle Title and Registration	Records marked as purged will not be converted
	Only historical data from the past 10 years will be converted
Phase 3C – Financial	Only historical data from the past 10 years will be converted
	Fee codes must be defined
Phase 3D – Driver Activity and Driver Responsibility	Outdated codes will not be converted
	Records marked as purged will not be converted

4.0 Data Mapping

This section refers to the Detailed Data Mapping document. It will be a separate document, and a link will be provided. The Detailed Data Mapping Document will map the data elements from their source(s) in the Legacy Systems to their target(s) in the BAM System.

5.0 Data Cleansing

This section will document the planning of the data cleansing process which will determine the quality and integrity of the data that will be loaded into the BAM database. EDS' data cleansing strategy and analysis will determine which data elements will require correction. The strategy will also identify whether data cleansing will occur before or after data conversion. EDS recommends that the data is cleansed as early as possible in the process in order to have accurate data for the data Extraction, Transformation, and Loading processes.

5.1 Data Entry Requirements

The Data Entry Requirements section will list requirements identified during Data Conversion Analysis for each BAM Phase regarding manual input for data cleansing.

5.2 Maintaining data integrity after cleansing and prior to conversion

This section will identify procedures and processes for maintaining data integrity after data cleansing is completed. It might involve Legacy program fixes to correct existing problems or additional programs to cleanse new data entered into the Legacy Systems data stores.

6.0 Validation and Audit Reporting Requirements

The BAM Data Conversion and Cleansing projects will include several validation and audit reports that will verify the accuracy and correctness of both the data cleansing and data conversion processes. Examples may include:

Report Type	Description
Field Match Reports	List of matching fields for matching customer names and addresses.
Rank and Audit Rank Reports	Based upon matching criteria, records are partially matched. For example, a match on address may be made but some of the corresponding fields don't match exactly. Each data field would have a rank. Based upon the number of fields matched, the common records would be listed on the Rank Report. When records match at a high enough score, the records would be cleansed automatically. When records score close but not high enough to automate the fix, they would go and the Rank Audit Report, but would need to be reviewed and manually updated by DOS.
Load Error Reports	List of records, including error record, error code, and error message that didn't load correctly.
Extract Reports	Counts of records by type extracted from the Legacy Systems.

6.1 Validation Criteria

This section identifies criteria for validating the data conversion data and also lists the person or persons responsible for sign-off.

7.0 Interface Impacts

The Interface Impacts section will identify any and all interfaces that are impacted by data conversion.

- Social Security Online Verification (SSOLV) – used to verify social security numbers and update verification dates
- TBD
- TBD

8.0 Conversion Testing

The Conversion Testing section will document Conversion Testing; including Unit, Quality Assurance, and User Acceptance procedures.

9.0 Implementation

The Implementation section will document any Implementation procedures regarding data cleansing and data conversion. It will be incorporated into the System Implementation Plan.

9.1 Scheduling

The Scheduling section will document the implementation schedule procedures, constraints, and sign-off requirements for data conversion. It will also include identifying any issues regarding converting to the BAM System while continuing to support the existing DOS business. The itemized schedule for the entire Data Conversion process is defined in Section 12.0 Schedule.

10.0 Detailed Task List

The Detailed Task List identifies the discrete tasks involved in the Data Conversion and Data Cleansing Processes. A partial list is shown in the following table:

Task	Person Responsible
Compile Data Inventory	
Data Mapping – Driver database Client dataset	
Data Mapping – Driver database Driver dataset	

Task	Person Responsible
Data Mapping – Driver database Personal Identification dataset	
<i>...additional data mapping activities</i>	
Identify and Document Conversion Requirements and Rules	
Review Conversion Requirements with DIT and DOS	
Design Data Cleansing programs	
Code Data Cleansing programs	
Unit Test Data Cleansing programs	
Review Audit and Validation Reports	
Manual data correction of errors	
<i>... multiple iterations of Data Cleansing</i>	
Design Extract File Layout	
Design Legacy Data Extract programs	
Code Legacy Data Extract programs	
Unit Test Legacy Data Extract	
Design Data Conversion (Transformation and Load) programs	
Code Data Conversion (Transformation and Load) programs	
Unit Test Data Conversion (Transformation and Load) programs	
Review Data Conversion Audit and Validation Reports	
<i>... multiple iterations of Data Conversion</i>	
Data Cleansing Quality Assurance Testing	
Data Conversion Quality Assurance Testing	
User Acceptance Testing (Both data conversion and data cleansing)	
Implementation	
Production	
Decommissioning of Identified Legacy Systems	

11.0 Schedule

The schedule identifies general tasks and scheduled start and end dates for completion. A partial list is shown in the following table:

Task	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date	Responsible Person
Compile Data Inventory					
Data Mapping Documentation					
Conversion Requirements Documentation					

Task	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date	Responsible Person
Build BAM Database					
Data Cleansing Planning and Documentation					
Data Cleansing Design, Code, and Testing					
Data Extraction, Transformation, and Loading Design, Code, and Testing					
Data Cleansing Unit Testing					
Conversion Unit Testing					
Data Cleansing Quality Assurance Testing					
Conversion Quality Assurance Testing					
User Acceptance Testing (Both data conversion and data cleansing)					
System Freeze Date					
Implementation					
Production					
Decommissioning of Identified Legacy Systems					

12.0 Decommissioning of the Legacy Systems

12.1 Backups

The Backups Section of the Conversion Plan identifies any backup requirements that will be needed prior to implementation of the Data Conversion activities.

12.2 Stakeholders

This section will identify the Legacy Systems being decommissioned in the BAM phase and the affected stakeholders, such as the system producers and system users.

Attachment #8, EDS Proposal Activity 8 Appendix A

Activity 8: Appendix A

System Support Transition Plan

1.0 Introduction

The success of the BAM Phase 3 project is about more than technology and systems working properly to enable the State to manage its Driver Issuance, Vehicle, Finance and Driver Activity processes. It is about the State's ability to effectively execute System Support activities for the BAM System without consultant support after the implementation. To accomplish this goal of State self-reliance designated Michigan Department of Information Technology (DIT) and Michigan Department of State (DOS) staff members must acquire adequate knowledge and skills to support the BAM System. Knowledge transfer in its literal sense, refers to the transfer of capability, both knowledge and skills. The term "capability" refers to a cluster of knowledge and skills required to execute a task or role. Accordingly, EDS will enable the smooth transition of System Support activities to the State upon contract completion.

The System Support Transition Plan is designed to support the State's self-reliance by providing the knowledge and skills required by two major groups – the EDS Team and the State Team (e.g., the DIT and DOS support team that will perform system support activities for the BAM System upon contract completion). These staff members will be responsible for all System Support activities for the BAM System. Developed on the principle that *learning is not an event, it is a process*, the System Support Transition Plan is organized in a phased, process driven approach. Specific knowledge transfer details for the individual BAM Phases (e.g., Phase 3A, 3B, 3C and 3D) will be developed addressing each of the following:

- Identifying what knowledge and skills are required for each of the designated DIT and DOS staff members to execute
- Determining the role of each of the designated DIT and DOS staff members
- Defining appropriate learning strategies to transfer identified knowledge and skill for each role
- Identifying documentation that must be transitioned to the DIT and DOS staff members providing System Support of the BAM System
- Other criteria deemed appropriate

A general review process will monitor DIT and DOS staff member progress and validate that appropriate learning is taking place. In the event that inadequate knowledge transfer has occurred, a remediation process will be initiated. Additionally, EDS understands that involving the DIT and DOS staff members in ongoing production support activities will not permit EDS to reduce its staffing levels. Instead, EDS will lead the ongoing production support effort across all BAM System phases, while DIT and DOS staff members will provide input and learn the EDS methodology. Accordingly, EDS will determine the best method in which to include the designated DIT and DOS staff members in ongoing production support activities. The ultimate goal is a successful deployment and execution of the System Support Transition Plan that will support the State's self-reliance after the BAM System implementation has been completed.

1.1 Purpose

The purpose of the System Support Transition Plan is to provide a roadmap for transferring the capabilities, knowledge, and skills required for BAM System Support without the assistance of external contractors.

1.2 Audience

The audience for this document is the BAM Phase 3 Leadership, the BAM Phase 3 Project Management, and the BAM Phase 3 Technical Management.

2.0 Approach

2.1 The EDS Approach

The EDS approach to System Support Transition considers that knowledge transfer will emerge over the life cycle of the project. It is a stated goal of both EDS and the State that four to six DIT staff members and six to ten DOS staff members to be assigned to the BAM Phase 3 System Support Transition effort

be involved in ongoing production support activities. During each BAM Phase (e.g., Phase 3A, 3B, 3C and 3D), additional knowledge transfer elements will come to light, culminating in an understanding of what will be necessary for System Support after full BAM System implementation. Therefore, knowledge transfer for the BAM Phase 3 project will use a phased approach to support continual refinement of System Support Transition.

System Support Transition consists of two main components:

- **Part A** – Includes knowledge transfer required to equip the project team as they perform ongoing production support for each phase of the BAM System. A phased approach enables responsiveness to decisions, solution details and changes as they occur. Knowledge transfer for the project team will be planned and executed by understanding the following:
 - **What:** What are the specific tasks that must be performed during each phase according to the project plan and therefore what capabilities will be required to execute these tasks?
 - **Who:** What role (who) will be responsible to execute each task and therefore who will require what capabilities to be successful?
 - **When:** When will each task need to be executed and when must knowledge transfer occur?
 - **How:** How should knowledge transfer be accomplished? What is the most efficient and effective learning strategy to transfer the required knowledge and skill?
- **Part B** – Represents knowledge transfer for the team that will provide System Support for the BAM System after the implementation. For this group, knowledge transfer will be planned and executed by understanding the following:
 - **What:** What are the responsibilities and tasks that must be performed following full BAM System implementation and what capabilities are required to perform these tasks?
 - **Who:** What role (who) will be responsible to perform each task following full implementation?
 - **When:** When will process changes for each role take place and when is the best time to acquire the required knowledge and skill (e.g., as the solution is configured or as the solution is implemented)?
 - **How:** What is the most efficient and effective method to transfer knowledge to roles while balancing team member availability with the need to ensure appropriate knowledge transfer?

2.2 Effectiveness Evaluation

System Support Transition will occur through a combination of self-evaluations and leader evaluations. The evaluation is intended to assess knowledge transfer and not team member performance.

2.2.1 Assessment Approach

An assessment approach (i.e., *how to determine if System Support Transition has occurred*) will be defined for each *capability*. This will serve as the basis for leadership and self-evaluations. As capabilities and the method of assessment are identified, appropriate documentation will record the adequate and successful transfer of knowledge.

2.2.2 Review Meetings

Review meetings will be scheduled at a time determined by EDS and the State after each phase is implemented. The purpose of the meetings will be to review and determine whether an appropriate quantity and quality of System Support knowledge has been transferred. Prior to the review meetings, each designated DIT and DOS staff member will be asked to complete a self-evaluation. During this

evaluation, each DIT and DOS staff member will be asked to assess how effective system support transition has been in preparation for executing his or her role and in gaining the required knowledge and skills.

2.2.3 Scorecard

A System Support Transition progress report (scorecard) will be developed to track knowledge transfer for each of the four to six DIT staff members and six to ten DOS staff members. The scorecard will provide a method of tracking and monitoring the effectiveness and execution of the System Support Transition.

3.0 Learning Strategies

There are two critical components in defining System Support Transition learning strategies (activities to be used in completing knowledge transfer). The first is to understand what each of the four to six DIT staff members and six to ten DOS staff members need to know to successfully fulfill his or her role. The second component is to identify specific learning strategies (activities) that will most appropriately enable each individual DIT and DOS staff member to acquire the knowledge and skills (capabilities) needed to perform his or her system support role. EDS will employ a variety of differing learning strategies to assist each DIT and DOS staff member.

3.1 Formal Instructor-led or Web-based Training

Necessary formal training on the BAM System support operation will be delivered to each of the four to six DIT staff members and six to ten DOS staff members via the EDS/PTD Training Staff in accordance with Activity 6: Implementation Support, *Task 6.1 - Prepare and Perform Technical Training*.

3.2 Informal Training

Informal training will occur as EDS involves the four to six DIT staff members and six to ten DOS staff members in System Support activities from the beginning of the BAM Project. This method of knowledge transfer will occur throughout the project life cycle.

3.2.1 On-the-Project Knowledge Transfer

When On-the-Project Knowledge Transfer is the identified learning activity, the knowledge transfer will be planned in advance so the affected DIT and/or DOS staff member may pay particular attention to the knowledge to be transferred. The DIT and/or DOS staff member should assess the knowledge transferred as input to his/her self-evaluation as shown in Figure 1. The example provided in Figure 1 is not finalized and represents only a few of the On-the-Project learning activities. EDS will develop a formalized and complete list of On-the-Project learning activities.

Knowledge	Skill	Audience/Role
Create Sequence Diagram	Rational Rose	DIT Sr. Developer, DIT Jr. Developer
Upload Functional Requirements	Rational RequisitePro	DOS Business Analyst

Figure 1 – Examples of On-the-Project Learning Activities

3.2.2 Shadowing / Mentoring

Shadowing and mentoring will be the primary means for ensuring the necessary hands-on exposure and experience to System Support knowledge used to develop the BAM System project is legitimately passed on and absorbed by the four to six DIT staff members and six to ten DOS staff members. The DIT and/or DOS staff member should assess the thoroughness and effectiveness of knowledge transferred as input to his/her self-evaluation as shown in Figure 2. The example provided in Figure 2 is not finalized and represents only a few of the shadowing and mentoring learning activities. EDS will develop a formalized and complete list of shadowing and mentoring learning activities.

Knowledge	Skill	Audience/Role
Conduct Facilitated Sessions	Presentation, Business Process Reengineering	DOS Business Analyst, DOS Project Manager
Upload Functional Requirements	Rational RequisitePro	DOS Business Analyst

Figure 2 – Example of Shadowing / Mentoring Learning Activities

3.3 Learning Strategies for Phased Implementation

As the BAM Phase 3 project progresses through its phased implementation, the System Support Transition will be refined to provide what is required for the four to six DIT staff members and six to ten DOS staff members to execute and successfully support the new business processes after implementation.

4.0 Staffing Plan

The staffing plan will represent the number of DIT and DOS full time equivalents (FTE), by role, required to provide System Support of the BAM System upon contract completion. The example provided in Figure 3 is not finalized and represents a draft staffing plan. EDS will work with the State to develop a formalized staffing plan.

Role	Full Time Equivalents (FTE)
DIT – Application Manager	.5
DIT – Configuration Manager	.5
DIT - Sr. Developer	1
DIT - Jr. Developer	2
DIT - Database Administrator	1
DIT – Repository Updater	1
DOS – Project Director	1
DOS – Business Analyst	5
DOS – Project Manager	4

Figure 3 – Example of Staffing Plan

5.0 Training Plan

The training plan will identify training requirements for each DIT and DOS role that will provide System Support for the BAM System. The training plan includes all mandatory and suggested training, as well as the training method. The training for each of the four to six DIT staff members and six to ten DOS staff members should be tracked to this plan. The example provided in Figure 4 is not finalized and represents only a few of the training offerings. EDS will work with the State to develop a formalized training plan.

Role	Training Required	Training Method	Mandatory/Suggested
DIT – Sr. Developer	Microsoft .NET Programming	Classroom Training	Mandatory
DIT – Sr. Developer	WebSphere MQ: Application Development	Classroom Training	Mandatory
DIT – Repository Updater	Rational Rose	On-the-Job Training and Mentoring	Suggested

Figure 4 – Example of Training Plan

6.0 System Support Transition Documents

The BAM System will have many types of documents that must be kept up-to-date so the documentation is effective and useful as the BAM System evolves. The System Support Transition Documents table will provide a comprehensive list of all documentation that is required to support the BAM System. The example provided in Figure 5 is not finalized and represents only a few of the System Support Transition Documents. EDS will develop a complete list of System Support Transition Documents.

Document	Description	Location
Business Requirements	Business Requirements for the BAM System	Stored in the BAM System Rational database and accessed with Rational

		RequisitePro
Scenario Diagrams	Scenario Diagrams for the BAM System	Stored in the BAM System Rational database and accessed with Rational Rose
Configuration Management Plan	Plan that describes the configuration management process for artifacts requiring version management	Stored in the BAM Project folder within the CM directory

Figure 5 – Example of System Support Transition Documents

7.0 Deployment

The System Support Transition Plan will be deployed through a phased approach that mirrors the BAM project phases (e.g., Phase 3A, 3B, 3C and 3D) and leverages the experience of the EDS team.

8.0 Risks and Mitigation Strategies

The following risks and mitigation strategies have been identified for the System Support Transition Plan:

- Risk: DIT and/or DOS Team members will not take Shadowing / Mentoring seriously and, therefore, will not be adequately prepared for System Support following full implementation of the BAM System.
- Strategy: EDS will be certain to address the increased risk of using certain DIT and DOS staff members if it becomes obvious to EDS that the designated DIT and/or DOS staff is not taking the System Support Transition seriously.
- Risk: EDS determines that System Support Transition is consuming excessive time to the detriment of the BAM Phase 3 implementation and project schedule.
- Strategy: EDS will advise the State of the negative impact to the project implementation timeline and the project delivery schedule.
- Risk: Some of the four to six DIT staff members or six to ten DOS staff members may not have the necessary background skills to appropriately fill and perform System Support roles.
- Strategy: The State will remain responsible for providing the appropriate DIT and DOS staff members for System Support Transition. If a designated DIT or DOS staff member appears to lack the necessary background skill sets to appropriately grasp the System Support concepts, EDS Project Management will coordinate with the State leadership to identify an appropriate staff replacement(s).
- Risk: The four to six DIT staff members or six to ten DOS staff members will not be honest in terms of their comprehension and the quality of the System Support Transition because they feel it is a reflection of their personal abilities.
- Strategy: It will be reinforced with each of the four to six DIT staff members and six to ten DOS staff members that the System Support Transition evaluation is not a measurement of performance, but rather an assessment of how successful EDS was in providing the knowledge transfer required for the DIT and/or DOS staff member to appropriately perform System Support in support of the BAM System.

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Attachment #9, EDS Proposal Work Plan

5. Work Plan

The overall project plan will encompass the following elements, many of which have been provided in draft form with EDS' proposal:

- Project Scope
- High-level Requirements
- Schedule
- Assumptions and Risks
- Communication Plan
- Staffing Plan

EDS will manage each BAM phase (3A, 3B, 3C, 3D) as a "project," with its unique scope, schedule, risks, assumptions, costs, and issues controlled through the PCO. EDS will use its PM2 methodology to apply effective project management to plan, execute, and control each project to achieve the desired outcome. EDS' role in each phase will be to provide the business and system knowledge and experience to develop and complete an aggressive, yet attainable, plan. EDS will take full responsibility to execute and control the entire BAM project in cooperation with the State of Michigan, including each phase from initiation to closeout, and the requisite tasks associated with startup, planning, execution, and controlling the BAM project.

5.1 Project Plan/Timeline

The development of every project plan includes the identification of included tasks, assumptions, constraints, and risks. The EDS team will analyze the scope of work, applying our expertise to develop an estimate that subsequently can be translated into a final schedule with task durations and specified dependencies. EDS will employ a robust estimating process and procedures that accurately predict needed development effort. This estimating process includes the following major components:

- Metrics repository containing historical metrics from all EDS projects
- Easily quantifiable size component
- Estimating algorithms for all platforms based on historical metrics
- Automated estimating worksheets to be completed for a bottom-up estimate
- Estimate reviews

To gain a complete representation of the time required to deliver project work, the EDS team will perform individual task estimation, considering resource-leveling techniques, task interdependency, and other constraint information.

Please refer to Activity 1 Appendix A – Project Plans for a detailed draft project plan for each BAM phase (3A, 3B, 3C, 3D).

5.2 Reports

EDS will provide status reporting according to the ITB Work and Deliverables requirements. A monthly status report that tracks project performance will be used to show the current status of the BAM project. A weekly status report containing all the major accomplishments, major upcoming work, significant issues and concerns for the overall project, as well as maintaining updates to risks and other project documentation will also be produced. Please refer to section 4.4.1 Activity 1, Task 1.2 for more detail on the weekly project status reports.

EDS will estimate time for the creation of all reports as defined in the Requirements document. EDS will also provide in the estimate for each phase, time for the development of 30 reports outside the current defined reports in the requirements. EDS will provide time to gather requirements, analyze, design, produce, test, and implement the reports. EDS will develop the reports using Report Designer in Visual

Studio. The developed reports will be delivered in the Report Definition Language (RDL) format. The RDL gives the ability to deliver the output in HTML, XML, Microsoft Excel, PDF and more formats. After we create the various reports for the BAM application we will deploy them to the report server. During deployment, the report definition is uploaded to the server and stored in the Report Server database. The Report Server database will be a separate database from the BAM System database but will reside on the same physical server. Using the Microsoft Reporting Services Web Services interface, the BAM System will not only render reports, but do it asynchronously, allowing users to save them as local files, and then view them in a number of ways (including using a Web browser control). Using the Microsoft Reporting Services will allow the BAM project to use an integrated tool in Microsoft SQL 2005 and does not rely on a third party tool.

Attachment #10, EDS Proposal Knowledge Transfer Plan

Knowledge Transfer Plan

The Knowledge Transfer process provides the creation and communication of knowledge materials necessary to support the BAM System portfolio, enables rapid and comprehensive understanding of the operational and technical environment with a phased approach, and reduces transition risks through the use of standard processes.

The Knowledge Transfer process will provide the State with a proven process to transition support of the BAM System to the State.

The Knowledge Transfer process is organized into four major activities:

- Identification and Collection
- Knowledge Collateral Generation
- Knowledge Transfer
- Ongoing Knowledge Maintenance

The purpose of the Knowledge Transfer process is to enable the rapid assimilation of application knowledge from EDS to the State.

Identification and Collection

The Identification and Collection activity involves validating the BAM System portfolio and identifying artifacts and documents that must be included in the Knowledge Repository.

Procedure

- **Determine Application Portfolio Scope** – Identify the high-level scope for the BAM System portfolio to be transferred. Knowledge Transfer activities should be tailored based on the scope of the portfolio.
- **Create Initial Knowledge Transfer Plan and Schedule** – Draft the initial Knowledge Transfer Plan. Tailor the Knowledge Transfer Plan to align with the scope of the project.
- **Determine Knowledge Repository Infrastructure Requirements** – Identify infrastructure requirements related to maintaining the project knowledge repository. Make sure appropriate servers and communications are in place for storage and access to the knowledge transfer information.
- **Identify Current Documentation** – Collect all existing documentation and artifacts and store in the knowledge repository. Attempt to establish electronic versions of each piece of documentation as appropriate.
- **Populate Knowledge Repository** – Collect all existing documentation and store in the knowledge transfer repository. Attempt to establish electronic versions of each piece of documentation as appropriate.
- **Perform Gap Analysis** – This report will detail the information that is missing and must be generated as a part of the Knowledge Collateral Generation Phase. Based on the initial analysis of missing documentation, create a risk management plan containing details for documentation that may be too difficult or time consuming to generate. The business criticality of each application should be considered as a part of the risk analysis.

Knowledge Collateral Generation

The Knowledge Collateral Generation activity focuses on obtaining missing information from the Gap Analysis performed during the Identification and Collection activity. After the Knowledge Collateral Generation Plan is completed, EDS will review the plan with the State to verify the knowledge transfer materials meet predefined criteria.

Procedure

- **Plan Collateral Generation** – Develop a collateral generation plan based on the gap analysis report and risk analysis.
- **Execute Manual Documentation Generation** – Use identified methods to manually acquire required documentation. The objective is to capture the intellectual capital, possibly through Subject Matter Expert (SME) interviews or by an SME electronically documenting information from questionnaires.
- **Update Knowledge Transfer Plan and Schedule** – Update the Knowledge Transfer Plan to include roles & responsibilities, schedule, and training that will be required.
- **Identify and Develop Required Training Materials** – Based on the requirement and availability of training collateral, determine if application specific materials need to be created. If required, develop any specific training materials needed to complete the knowledge transition.
- **Certify Knowledge Transfer Collateral** – EDS will review the Knowledge Transfer Plan with the State to confirm that the minimum requirements for exiting the Knowledge Collateral Generation Phase have been met.

Knowledge Transfer

During the Knowledge Transfer activity, EDS will provide training to the State as well as on-the-job transition of tasks. After the Knowledge Transfer is completed, the State will certify that the Knowledge Transfer meets performance measures.

Procedure

- **Tailor Knowledge Transfer Plan** – Update the Knowledge Transfer Plan based on the scope of information to be transferred and the training required.
- **Execute Self-Paced Training** – Using the training materials created and stored in the knowledge repository, complete the self-paced training required. Capture the status and progress of individual training in the Knowledge Transfer Training Log.
- **Perform On-the-Job Transition** – For an identified period of time, provide for "shadow" support as the new team assumes additional responsibilities. Experienced EDS SMEs will mentor the new team and be available for consultation during this period.
- **Complete Transition and Certify Acceptance** – Evaluate the knowledge transfer with the previously defined exit criteria (system support turnover checklist and any documented performance requirements) required for a successful transition. EDS and the State will document acceptance of the system support transition. EDS will develop a transition summary presentation for review and acceptance by the State. This step represents the final turnover of application management activities.

Ongoing Knowledge Maintenance

After Knowledge Transfer, the State will perform ongoing production support. The procedure described below, recommends the tasks that the State should perform to maintain the Knowledge Repository as the BAM System evolves.

Procedure

- **Maintain Knowledge Repository** – Update the Knowledge Repository as enhancements are implemented or processes change

- **Maintain Knowledge Transfer Training Plan** – Maintain the Knowledge Transfer Training Plans based on evaluations of initial training and any changes in the applications and processes.
- **Expand and Evolve Client Business Knowledge** – Continue to refine knowledge of business processes with a changing environment and proactively apply that knowledge to the associated application portfolio. Through experience, robust processes, and detailed documentation, the business value contributed by the support team will increase over time.

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Attachment #11, EDS Proposal Key Personnel

Staffing Appendix A – Key Personnel Resumes

EDS' Michigan BAM Phase 3 key personnel resumes are presented as follows:

- EDS Project Manager – John Dullock, PMP
- Enterprise Integration Architect - Noel Clark
- Business Requirements Manager - Geoffrey McFather
- Data Architect - Mike Rogers
- Development Manager – Bill Howland
- Conversion Coordinator – Steven Sinicki
- Testing Coordinator – Jim Wieber
- Implementation and Production Support Coordinator – John Cally
- Training and Documentation Coordinator – Donald Lambert
- Technical Support Engineer – Dean Wheeler

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John Dullock, PMP

EDS Project Manager

Professional Experience Summary

Certified Project Management Professional (PMP) with more than 20 years of experience in the information technology (IT) field including program and project management and program management implementation; design, development, and implementation of custom business applications; IT-related business needs analysis; development of methodology to build custom applications using Capability Maturity Model (CMM) Level-5 processes; business and technical detail design requirements gathering; design; implementation, and management of complex enterprise solutions; business process improvement; and, project and staffing coordination. Considered a CMM Implementation (CMMI) Level-5 expert whose key role in the Lansing Solution Center is to perform Software Engineering Institute (SEI) CMMI Level-3, -4, and -5 assessments.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Ten years experience in managing large application development and implementation projects.	10 Years	12 months - Business Application Modernization 24 months - Crash Process Redesign 30 months - MDOT SafeStat/TSUIS 16 months - LSC Program Office 40 months - DNR Automated Licensing System
Two years experience in utilizing project management software, preferably Microsoft Project.	2 years	12 months - Business Application Modernization 24 months - Crash Process Redesign 30 months - MDOT SafeStat/TSUIS 16 months - LSC Program Office 40 months - DNR Automated Licensing System
Five years experience with phased migration of Legacy Systems.	5 years	12 months - Business Application Modernization 24 months - Crash Process Redesign 30 months - MDOT SafeStat/TSUIS 40 months - DNR Automated Licensing System
Preferred candidate (not mandatory) will have driver and/or motor vehicle agency experience.		12 months - Business Application Modernization 24 months - Crash Process Redesign

Project Management Skills

MS Project, Niku Project Management Suite including Schedule and Maintenance Tools
Support Tools: MS Office Professional, MS Visio, MS Outlook

Project Experience Detail

EDS

Senior Project Management Specialist, State of Michigan, Department of State,

07/04 - Present

Business Application Modernization (BAM)

Contact: Rose Jarois 517-335-6576

Responsible for managing Phase 2 of the multiagency Business Application Modernization (BAM) Business Process Reengineering project for the Michigan Department of State (MDOS), a project consisting of developing business processes, technical solutions, and change management estimated at \$1.5 million. BAM Phase 2 was implemented on time and within budget. Phase 2 integrated methodologies to align the people, process, and technology included Project Management (PM2), BPR – Target, Understand, Innovate, Transform (TUIT), Integrated Change Management (ICM), and Systems Life Cycle methodology (version 3) (SLC3). Responsibilities for the BAM project span the Michigan Department of State (MDOS), Michigan Department of Information Technology, as well as many other state agencies and external organizations that interface with MDOS. The redesign of MDOS provided the State with a radical redesign of the enterprise's business processes, enterprise technology direction, technical requirements, and an integrated change management plan that altogether will result in a legacy mainframe replacement. Served as the senior project manager in leading a team of 16 industry consultants and analysts under a fixed-price contract and a short deadline. The end result was an executive summary presented to the BAM Executive Committee that consisted of a BAM Phase 3 Implementation Strategy and Budget Impact that will drive MDOS into the future. The BAM project has received positive feedback from the BAM Phase 2 Executive Committee and BAM Core Team.

*Senior Project Management Specialist, State of Michigan, Department of Transportation, 07/02 - 07/04
Crash Process Redesign (CPR)*

Contact: Doug Couto-517-241-2899

Managed Phase 3 start up of the multiagency Crash Process Redesign (CPR) data collection project for the State of Michigan, a three-phase project estimated at \$3.5 million. All three phases of CPR were implemented on time and within budget. Phase 3 technologies include IBM WebSphere® and JAVA front end, PowerBuilder 8, and Oracle 9. Responsibilities for the CPR project span the Michigan Department of State (MDOS), Michigan State Police (MSP), and the Michigan Department of Transportation (MDOT), as well as other state agencies and external organizations. The redesign will provide law enforcement, engineers, researchers, and other users of crash data with a system that is both flexible and efficient in meeting their needs while taking into account the business needs of the primary funding agencies. Project resulted in a legacy mainframe replacement. Served as the senior project manager in leading a team of 14 application developers and programmers under a fixed-price contract. The CPR project received positive feedback from the first three implementations. Published documents include anticipated efficiencies gained due to the effort and ultimate implementation of the CPR project and a white paper for the State executive audience on the subject of "How to Implement a Successful Multiple Agency Project." CPR was a finalist for the 2004 ComputerWorld Laureates award for outstanding projects.

*Senior Project Management Specialist, State of Michigan,
Department of Transportation, SafeStat
Contact: Jack Benac 517-335-2975*

01/00 - 07/02,

Responsible for state and local government and General Motors accounts for the Lansing Solution Center. Assumed lead project management responsibility for the SafeStat Phase 1 project, the first of three traffic and safety systems successfully implemented for MDOT. System was migrated from an existing IBM mainframe and brought to client/server technology.

Application tools used included PowerBuilder 6, Oracle 7, and NIKU Project Management Tool Suite. Served as the senior project manager leading a team of eight application developers and programmers under a fixed-price contract and a short deadline tied to federal grants. The successful implementation of SafeStat Phase I and II led to the next safety project, TSUIS, which EDS built and implemented using the same tools. SafeStat Phase I, SafeStat Phase II, and TSUIS were each million dollar MDOT projects implemented on a fixed-price basis, on schedule and within budget. At the conclusion of the TSUIS project, the client won a national award in recognition of the project management processes applied by the EDS Solution Center for the TSUIS project.

Project management responsibilities include planning, directing, and controlling all project resources; creating and maintaining detailed project plans using Microsoft Project; defining customer service level agreements; facilitating customer issues meetings; timely resolution of all customer issues; tracking of actual effort versus estimated effort; creating and maintaining risk handling plans; defining, scheduling, and adjusting all project-related tasks; scope management; overall quality of the application; software configuration management; status reporting to EDS and customer management; and metric collection. Responsible for complete customer satisfaction and managing customer relationships from management to user levels. Included developing and delivering project-related presentations addressing project plans, project deliverables, budgets, and customer concerns. Mentored new EDS project manager employees, including training new personnel in the use of life-cycle development techniques, problem resolution, project management, career development planning, and project management tools and processes.

Project Manager, EDS Lansing Solution Center, CMM Level 3
Contact: Terry Sanders 517-272-5274

09/98 - 12/99

Responsible for managing the program office for the 50 subject-matter experts in the process of obtaining CMM Level-3 compliance in the SEI CMMI and becoming the largest Level-3 organization in EDS to obtain such a ranking. As site coordinator, served as member and facilitator to the Project Management Guidance Council of 360 people including directing and overseeing all projects in the Lansing Solution Center and making sure the project's leadership team followed common processes and procedures set forth by the project office.

Project Manager, State of Michigan, Department of Natural Resources,
Retail Sales System
Contact: Terry Sanders 517-272-5274

08/95 - 09/98

As project manager for the state and local government account, led the systems development effort for the State of Michigan Department of Natural Resources (MDNR) Retail Sales System and State of North Carolina Wildlife Resources Center (WRC) Customer Support System. Involved in developing and rolling out processes to the Lansing site that enabled the Solution Center to become SEI CMMI Level-2 compliant. This application is considered a core business at the MDNR.

Various Roles

04/85 - 09/98

Past IT experiences include managing many similar projects and serving in other project-oriented roles for EDS such as Source Code Manager enforcing the use of these concepts using PVCS tools.

Education and Training

Associate in Applied Arts and Science, Major in Data Processing, Jackson Community College,
1984

Member, Project Management Institute, Michigan Capital Area Chapter

Noel Clark

Enterprise Integration Architect

Professional Experience Summary

Nearly 24 years of experience in architectural design, solution implementation, and technical leadership. Supported analysis and design activities for object-oriented systems analysis task of BAM Phase 2 including modeling for Customer, Driver, Vehicle, and Financial processes in the Department of State. Architected a .NET Framework to provide high system availability in a production state.

Systems architect, infrastructure engineer, database designer, and programmer on a wide variety of application development projects exhibiting exceptional technical leadership. Managed large development projects with revenues exceeding \$50 million and teams of up to 40 professionals. Developed, maintained, and monitored detailed project plans and provided leadership skills in the overall project and technical architecture. Member of EDS' Lead Technologist Virtual Community.

Patent pending for Computer Systems Architecture Transformation methods. The patent defines a process and system for analysis of high-volume application systems As Is and To Be states through static (code) and dynamic (user interaction) analysis. This information is then used to drive a service oriented architecture partitioning application responsibilities along well defined systems boundaries. The result is a flexible architecture that meets today's business needs and tomorrow's change requirements.

Skilled in business process reengineering, joint application development, data warehousing, Visual Basic, SQL, JCL, DB2, SQL Server, Access, MQ-Series, SQL*Net, data modeling and schema design, Internet information server (IIS), WebSphere® Application Server, TCP/IP, SNA, Unix, Windows 95/98/NT/2000/XP/2003, .NET, XML, Object-oriented design and development, Fonix, and Temic, Rational Rose, and Active Directory.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Experience designing, developing, and implementing MQ Series enterprise solutions	5 years	6 months - Created Service-oriented Architecture for Materials Global Optimization Transformation 48 months - Created a method and system providing interfaces to a plurality of devices to connect to a terrestrial server with cellular digital networks. Siemens Automotive, DCX, BMW, Nextel 6 months - Architected Oracle 11i interface utilizing MQ Series 6 months - Defined BAM interface utilizing Service Oriented Architecture Concepts
Experience designing, developing, and implementing Message-orientated Middleware in a Microsoft environment	2 years	48 months - BMW
State of Michigan experience		14 months - BAM

Project Experience Detail

EDS, Mid-Michigan Solution Center (MMSC)

05/04 - Present

Chief Technical Architect, Business Application Modernization (BAM) project

Contact: Rose Jarois 517-335-6576

Supported analysis and design activities for object-oriented systems analysis task of BAM including modeling for Customer, Driver, Vehicle, and Financial processes in the Department of State. Architected a .NET Framework to provide high availability of the system in a production state.

Architect, DOW Operations Readiness Team

09/03 - 05/04

Created voice over internet protocol (VoIP) solutions. Crafted solutions and operating models for enterprise remote access, IP television, and VoIP order, provision, and service activation tools.

BMW iDrive Telematics System, Germany

05/99 - 09/03

Systems Architect

Patented (US 6,871,067) a wireless vehicle communications technology and provided follow up through delivery for 2005 model year vehicles. Supported sales and consulting work with wireless and locations-based information solutions for GM, Honda, DCX, SeaKey, and others. In conjunction with another EDS Fellow delivered service-oriented architecture model that played a key role for GM legacy renewal of the Materials Global Operations (MGO) system. This technology later yielded a patent pending for EDS.

Lead Technologist, Michigan Solution Center

02/97 - 05/99

Contact: Ben Patel 248-370-1756

Established network of lead technologists in Lansing, Southfield, Troy, and Flint of more than 900 developers, leveraged infrastructure, project resources, and technical experience resulting in improved business performance and continuity. Managed procurement cycles and approvals of capital expense at Center level. Provided application launch team and design review for multiple projects. Implemented NT and EDS COE integration at MMSC.

Established a technical job family promotion process for the MMSC. Participated in review and classification of more than 50 advanced classification candidates. Provided consulting support on GM Relational Database Portfolio Management Review Board. Represented Delphi Automotive in selection of Oracle as the RDBMS for UNIX. Provided technical consulting support for Saginaw Chamber of Commerce, Technical Engineering, Solution Centers, Delphi Automotive, and EDS Europe on multiple projects and initiatives.

Lead Technologist, Mid-Michigan Resource Center

01/94 - 02/97

Contact: Ann Naeger 989-249-5614

Worked with leadership to develop an integrated business and technical plan. Coordinated procurement and deployment of client server tools and infrastructure. Proposed, evaluated, and defined a standard Application Development Environment (IEF Composer, Visual Basic, HP UX, OSF DCE, Oracle). Created Delphi Sector Global Statement of Technical Direction documents including coordinating with global subject matter experts from Delphi Accounts. Created three-tier client/server architecture design to be used with GM infrastructure portfolio as part of GM Global Infrastructure Concurrence Process.

Designed and evaluated a preliminary SAP/R3 Global Infrastructure Plan. Designed and proposed client/server architectures and infrastructure for Powertrain, Midland Cogeneration Venture, Morley Travel, and others. Provided technical consulting to MMRC and Delphi designs for its customers. Led Mid-Michigan Advanced System Engineering (ASE) Review boards including career mentoring and recommendations for ASE promotions.

Technical Team Leader, Saginaw Division

09/93 - 02/97

Identified business opportunity to create client/server application with Saginaw Divisions Skilled Trades Dispatching System. This project used joint requirements planning, joint application design, and rapid application development techniques to complete the GM Systems Development Process phase 0 activities. As a result, the cost of ownership and systems capabilities were greatly improved.

Technical Consultant

06/93 - 09/93

Completed EDS Technical Consulting Program (TCP) training. This program creates advanced technology change agents within EDS and covers ICASE, object-oriented systems development, business information planning, multimedia, client/server, and rapid application design concepts.

Study Team Leader, Joint Commission on the Accreditation of Health Care Organizations Indicator Monitoring Systems

03/93 - 06/93

Developed client/server solution to provide graphical and statistical reporting of quality of service indicators to North American health care organizations.

Technical Supervisor, Buick Materials Management, Saginaw Division Optimized Production Technology

10/86 - 03/93

Developed "Finite Forward Scheduling Systems" for factory floor repetitive manufacturing operations at Buick Engine and Saginaw Division. Supervised and led technical projects and production support for a team of 35 Systems Engineers.

Systems Engineer, Saginaw Division Optimized Production Technology

10/86 - 03/93

Designed and developed Fortran code to implement linear math models of factory floor operations. These systems scheduled and supported more than 9,000 parts and scheduled over 40,000 operations in eight Saginaw Division plants. Scheduling software created daily demands for assembly to order completed machine scheduling all the way through the manufacturing process to generate raw materials orders. Software became the Optimized Production Technology system written about in Eliyahu M. Goldratt's book *Then Goal*.

Education and Training

B.S., Computer Information Systems; Saginaw Valley State University, MI
Completed EDS Technical Consulting Program
Member of the Strategic Air Command KI Sawyer AFB in Michigan

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Geoffrey McFather

Business Requirements Manager

Professional Experience Summary

Over 25 years of significant experience that includes leadership, administration, project management, technical training, contract litigation, and organizational, operational and process review, documentation and analysis, and remediation efforts. Ability to use skills as a professional business process reengineer and former attorney to bring MDOS value to their current business processes.

Extensive experience in all areas related to business process reengineering and management. Routinely conduct Joint Application Development (JAD) sessions with business and technical subject matter experts at all levels to elicit both business and technical functional, non-functional, and business rule requirements. Exercise knowledge of the five phases of Software Development Life Cycle (SDLC) to enable proper liaison and feedback from impacted parties consistently resulting in necessary, informative, and appropriate deliverables focused on employment of Unified Modeling Language (UML) and Software System Analysis and Design (SSAD) methodologies.

Organizational and business process consultant experiences have encompassed federal agencies and private corporate organizations alike. Expertise includes assessment of existing policies and procedures, development of business process models, quantifying complex business process rules, workflows and methodologies, and the generation of strategies and solutions designed to streamline, modify, expedite, and strengthen organizational operations to achieve the desired “to be” objective.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Shall be comfortable working with all levels of business and technical subject-matter experts in the elicitation of business and system requirements	N/A	16 months - Department of State BAM 36 months - Health Care Insurance Portability and Accountability Act (HIPAA) Privacy Assessment
Possess a degree in Computer Science, Business, Engineering or equivalent experience	N/A	MBA in Finance - Golden Gate University
Possess excellent knowledge of the Software Development Life Cycle and specifically Software Engineering and Structured Systems Analysis and Design methodologies.	N/A	16 months - Department of State BAM
Know and utilize best practices for enterprise architecture development and have experience facilitating JAD-like end-user requirements sessions	N/A	16 months - Department of State BAM
Communicate (written and verbally) clearly and effectively with end-users, senior business managers and other team members	N/A	16 months - Department of State BAM 36 months - Health Care Insurance Portability and Accountability Act (HIPAA) Privacy Assessment
Prior work in a variety of industries on many different type of systems and have above average proficiency	N/A	16 months - Department of State BAM

Skill/Knowledge	RFP Skill Required	Candidate Experience
in data modeling		36 months - Health Care Insurance Portability and Accountability Act (HIPAA) Privacy Assessment

Project Experience Detail

EDS, Herndon, VA

01/04 – Present

Lead Business Process Reengineering Manager, State of Michigan, Department of State, Business Application Modernization (BAM) Phase 2 and Transition Projects
Contact: David S. Williams (770) 325-5864

Interface with Project Managers assigned to each of the 15 ongoing Chartered Projects to provide assistance, guidance, and support in identifying each of the Chartered Project *touch points* with the enterprisewide BAM System solution developed during BAM Phase 2. Develop and enhance Project Manager skills in functional requirements gathering methodology, facilitated session conduct, *touch point* identification and documentation, and the development of software application skills (such as Rational RequisitePro, Rational Rose). Assist Project Managers and their functional requirement gathering teams in capturing functional requirements that will easily integrate with the BAM solution.

Conduct Joint Application Development (JAD) sessions with business and technical subject matter experts at all levels to elicit business and technical functional, nonfunctional and business rule requirements. Exercise knowledge of the five phases of Software Development Life Cycle (SDLC) to ensure proper liaison and feedback from impacted parties. SDLC efforts consistently result in necessary, informative and appropriate deliverables focused on employment of Unified Modeling Language (UML) and Software System Analysis and Design (SSAD) methodologies. Apply analytical skills to critically evaluate information gathered from multiple sources, reconcile conflicts, decompose high-level information into details, abstract up from low-level information to a more general understanding, distinguish user-presented requests from underlying true needs, and distinguish solution ideas from requirements. Use observational skills to validate data obtained through other techniques and expose new areas for elicitation. Consistently superior written and verbal communication skills facilitate effective exchange of information between senior leadership, customers, managers, technical staff, and team members. Prioritization and organizational skills permit working with vast array of information gathered during elicitation and facilitation and analysis, thereby enabling teams to cope with rapidly changing information. Employ advanced modeling skills to present requirements information in several graphical forms created to seamlessly augment textual representations in natural language including the use of modeling languages already established and employed by the development organization.

Senior Consultant, Health Care Insurance Portability and Accountability Act (HIPAA) Privacy Assessment
Contact: Paul Mrochinski (703) 742-2585

Managed teams that provided HIPAA Privacy Assessment review and gap analysis for nationally-renowned health care organizations, provider organizations, third-party administrators, and Medicaid organizations. Read, interpreted, and summarized current regulation and legislation published in the *Federal Register*. Created tailored interview questions, data banks, and interview analysis tools designed to assess organizational privacy

impacts. Developed Privacy Impact Assessments (PIA) for online computer software activity and Privacy Gap Analysis Assessment protocols. Performed individual and group-facilitated session client interviews, privacy assessments, and client reporting. Designed and produced creative and informative deliverables. Recommended policy development and implementation strategies, solution recommendations, and tailored remediation strategies. Generated organizational process documentation, review and analysis. Designed and produced Privacy Consultant training materials and proctored Privacy Training Course. Requested and retained by a client to deliver a HIPAA Privacy speech to audiences of several hundred healthcare providers each day over a two-week period at differing locations across the state.

Sinnott, Nuckols & Logan – Midlothian, VA

11/00 - 01/01

Associate Attorney

Defense trial preparation relative to multimillion dollar Exterior Insulation and Finish System (EIFS) (synthetic stucco) civil litigation. Developed and designed expert witness deposition outlines and reviewed deposition transcripts. Created, executed and processed expert witness affidavit documents. Reviewed, evaluated and prioritized plaintiff's production documentation.

Wright, Robinson, Osthimer & Tatum – Richmond, VA

10/99 - 11/00

Lead Contract Attorney

Assisted a prominent Richmond law firm in providing legal advice to a major international pharmaceutical corporation during discovery phase of complex corporate litigation. Immediate Assistant to Lead Attorney and supervisory direction of 24 Contract Attorneys.

Smithkline Beecham Pharmaceuticals – Philadelphia, PA

10/87 - 02/94

Senior Federal Military Specialist

Promotion and sale of corporate line of prescription pharmaceuticals throughout Norfolk, VA area. Clients included 500 doctors, military hospitals, clinics, pharmacies, and US Navy and Coast Guard ships. Attained total territory sales growth of 25 percent over final three years. Doubled corporate priority product sales achieving 113 percent growth to \$1.145 million.

Baxter Hospital Supply – Edison, NJ

06/86 - 10/87

Financial Services Manager

Directed activity of four departmental managers. Total work force consisted of 45 personnel. Managed Audit Control functions for a \$130 million inventory and cash application of \$1 million per day. Designed Capital Improvement projects and negotiated all service and facility maintenance contracts. Instrumental in annual budget preparation and subsequent earning statement review.

United States Navy

05/79 - 06/86

Pilot and Squadron Supply/Material Control Officer

Antisubmarine warfare helicopter pilot and helicopter simulator instructor. As a fixed-wing flight instructor, trained new naval aviators in principles of basic flight. Direct manager for aviation detachment of 15 flight and maintenance personnel. Redesigned and coordinated \$14.2 million aviation test equipment program for the SH-2F helicopter.

Education

Regent University, School of Law, Juris Doctor, 1998

Regent University, School of Government, M.A. in Public Policy, 1998

Golden Gate University, School of Banking and Finance, MBA in Finance, 1990
United States Naval Academy at Annapolis, B.S. in Physical Science, 1979

Mike Rogers

Data Architect

Professional Experience Summary

Technical and data architect consistently demonstrating success in developing enterprise-level information technology solutions within web, distributed computing and legacy environments. Currently involved in a legacy system transformation project consisting of more than 600 data tables and involving 27 automotive plants throughout the United States and Mexico. Data transformation architecture is based on .NET and SQL Server.

Project roles include lead architect, database architect, technical leadership, design and development, consulting, proposal development, project management, employee management, systems analysis, modeling, integration, and system support.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Ten years experience developing enterprise databases	10 years	7 months - Delphi Olympic Conversion 32.5 months - Digital Workflow 2.5 months - GM North America Produce Product (NAPP) 12 months - Delphi Steering PPAP (12 months) 14 months - Delphi Sales Force 15.5 months Johnson & Johnson Surgical Services System 45 months - Mid-Michigan Resource Center – Saginaw 13 months Delphi Global Part Data Warehouse
Five years experience developing enterprise class models	5 years	32.5 months - Digital Workflow 2.5 months - GM North America Produce Product (NAPP) 12 months - Delphi Steering PPAP 14 months - Delphi Sales Force Automation 15.5 months - Johnson & Johnson Surgical Services System 45 months - Mid-Michigan Resource Centre – Saginaw 13 months - Delphi Global Part Data Warehouse
Five years experience utilizing MS SQL Server Enterprise edition	5 years	7 months - Delphi Olympic Conversion 32.5 months - Digital Workflow 45 months - Mid-Michigan Resource Centre – Saginaw

Project Experience Detail

EDS

11/04 - Present

Technical Lead / Data Architect, Delphi Olympic SAP Conversion

Contact: Mike Denno 989-249-5634

Technical and data architect of a legacy system transformation project consisting of more than 600 data tables, involving 27 automotive plants throughout the United States and Mexico. The data transformation architecture is based on .Net and SQL Server.

Data Architect / Application Architecture Team , Digital Workflow Project

03/02 - 11/04

Key member of the Design and Architecture team of a global CRM application suite consisting of 1,500 physical tables with application and data servers in five geographical regions.

Responsible for technical lead and management of six-member Data Management team.

Project Leader / Developer, Delphi-S Escalated Metals Project, and Delphi-E EMS Project

11/01 - 02/02

Contact: Mike Denno 989-249-5634

Led technical design, development, and implementation of new IMS/DB2 Cobol and Visual Basic based application. Adhered to all Level-3 GSMS project management processes. Developed several new Active Server Page and HTML components for the Delphi E&C EMS Area Specific System Enhancement Project. Developed logical and physical data model using ERwin 4.0. Generated all DDL via ERwin 4.0. Created Oracle 8.1.6 tables in development and production environments.

Senior Sales Consultant, EDS Bluesphere

08/01 - 10/01

Supported new customer engagements, providing technical assistance and sales proposal support. Interacted with customer IT management, developing proposals in support of potential business opportunities

Developer, GM, GMID Project

06/01 - 07/01

Developed Java Server Pages and Java Servlets for Feedback and Frequently Asked Questions processing. Developed logical and physical data model via ERwin 4.0. Generated all DDL using ERwin 4.0. Created Oracle 8.1.6 tables in development, stress testing, and production environments.

Data/System Architect, GM North America Produce Product (NAPP)

04/01 - 06/01

Real-time Production Measuring (RPM) Migration

Led initial customer engagements. Analyzed customer requirements. Developed logical and physical data model using ERwin 4.0 (83 tables and associated objects). Generated all DDL using ERwin 4.0. Developed technical architecture and led creation of development environment (IBM WebSphere, DB2 v5.1).

A few key Real-time Production Measuring (RPM) tables contain 100 million to 500 million rows. Benchmarked primary application data access response time to establish system performance metrics for customer acceptance. Created test DB2 tables, developed load program, and executed queries to benchmark data access response time.

EDS Senior Sales Consultant, EDS Bluesphere

11/00 - 04/01

Supported new customer engagements, providing technical assistance and sales proposal support. Interacted with customer IT management, developing proposals in support of potential

business opportunities. Specifically, developed detailed estimates, proposal, and General Motors Systems Development Process (SDP-21). Defined phase documents in support of the RPM system migration from the current legacy Cobol/CICS environment to a relational database Web (Java) environment.

Team Member, GM Global Interactive Solutions – eFast, Hermes 2.0

08/00 - 11/00

Developed Credit Card Error processing Applogic and PERL script batch process for extracting eFast financial transactions from Oracle database and transmitting to Billing and Accounts Receivable (BARS) system for processing. eFast is based on GM's Buypower Web site and utilized JAVA, Applogics, HTML, ORACLE, and Netscape Application Server 4.0. Created technical designs in support of assigned Hermes 2.0 Web functionality.

Consultant/Project Manager/Java Developer, Delphi-S PPAP, Sales Force Automation

06/98 - 07/00

Contact: Mike Denno 989-249-5634

Designed, sold, and managed the first Delphi-S S/390 Web based application utilizing IBM's WebSphere server with real-time access to Delphi-S DB2 transactional data. Developed server-based data access components in Java using IBM's Visual Age for Java 3.02. Developed presentation Java Server Page components in Java, Java Script, and HTML using NetObjects ScriptBuilder 3.0.1.

Consulted Delphi-S Information Systems and Services (IS&S) and functional staff leaders in defining the key processes and data elements related to the Delphi-S Production Part Approval Process (PPAP) with specific focus on the detailed functions which initially capture and maintain customer program and PPAP data. Developed and managed implementation of numerous recommendations leading to positive changes in Delphi business practices and existing systems supporting the PPAP process. Led all customer engagements. Consistently represented project activities during Delphi-S CIO and executive staff briefings.

Project Manager / Technical Specialist, Delphi-S Sales Force Automation,

03/98 - 08/99

Database Rehost

Contact: Mike Denno 989-249-5634

Led initial customer engagements. Analyzed customer requirements. Evaluated and discounted third-party Sales Force Automation and Part Configuration software and business processes (Aurum/Baan). Developed technical architecture (DB2, IMS DB/DC, FTP, NT4, Oracle 8, Visual Basic 6, ADO/OLE DB, Crystal Reports, MS Access 97). Developed logical data model using ERwin. Developed Technical Design. Managed hardware procurement and install. Implemented Oracle 8.05 on Windows NT4. Designed and implemented all physical database objects (tables, triggers, stored procedures, sequences, views, security). Performed all Oracle database administrative tasks. Developed program specifications. Developed VB 6 application code and Oracle application objects. Tested and successfully installed complete application. Managed all project deliverables and resources.

Analyzed customer requirements. Designed, procured, installed, and configured WinFrame terminal server technical environment within Delphi-S intranet. Modified and piloted Business Plan Database application within WinFrame. Led proposal, design, testing, and implementation of WinFrame terminal server, providing global access to Delphi-S Business Plan system for users in France, China, Mexico, and the United States.

Technical Leader/Project Manager, Johnson & Johnson Surgical Services System

11/96 - 03/98

Led initial engagements with customer management. Responsible for sale of business, initial analysis and staffing required resources. Assisted in initial development and ongoing complexities of data model using ERwin tool. Led technical architecture activities, defining both production and development hardware and software environments. Responsible for coordinating install of development environment hardware and software (NT/Oracle). Prototyped new development software components (Oracle stored procedures, triggers, synonyms), VB5 (RDO 2.0, collection class objects, Active X components). Developed class object to support all connection and data access methods to Windows NT/Oracle database server, updated existing class object for common error handling and trained development staff on use of new development tools. Responsible for development of login forms and collection classes for static data as well as technical design and development of various other application forms.

Systems Engineer Supervisor, Mid Michigan Resource Center

11/96 - 01/97

Provided leadership for the Innovative Solutions Team. Managed workload priorities and aggressively pursued and signed new business within desired advanced technologies. Pursued and led new engagements resulting in signing of two new MMRC customers (J&J D.J. Sullivan subsidiary (DJS), National Amusement Network Inc. (NANI). D.J. Sullivan resulted in largest development project within MMRC during 1997-1998.

Technical Leader/Member of Executive Staff, Mid-Michigan Resource Center (MMRC)

04/95 - 11/96

Provided leadership for technical operation and direction of Mid-Michigan Resource Center Saginaw site (approximately 100 systems engineers). Responsible for development and execution of MMRC Information Technology Plan. Represented MMRC at customer executive-level staff meetings and technical concurrence reviews. Assisted projects in determining and applying correct technological components based upon corporate and local processes of EDS and each respective customer. Managed all hardware and software appropriations and internal resources to consistently improve MMRC performance and service delivery capabilities. Member of Delphi Renaissance team, providing materials management and technical consulting to assist Delphi in establishing future direction of Delphi enterprise-level business systems (SAP vs. Oracle/Baan).

Core Team Member, Delphi Automotive Global Part Data Warehouse (GPDW)

02/94 - 04/95

Developed Delphi-A GPDW COOLgen (TI CASE tool formerly called IEF) data model. Responsible for developing the GPDW enterprise-level data repository to include business requirements of Delphi-Chassis and Delphi-Europe operations. Responsible for Business Design of Delphi-Canada CANFAB system interface, GPDW Data Resource Management Step One deliverables, and GPDW application GUI designs and prototype generated using COOLgen CASE tool.

Project Manager, Delphi-S Shared Scheduling Project (SSP)

02/93 - 02/94

Provided subject-matter expertise of Delphi-S systems and business processes at SSP Implementation Work Group-level. Benchmarked SSP system functionality, mapping Delphi-S current and planned system capabilities to determine SSP implementation issues. Led Delphi-S/SSP project meetings. Delivered Delphi-S executive-level presentations of project status and issue resolution. Active in promoting implementation of pull signal processing and synchronous manufacturing methods within Delphi-S. Designed and developed prototype that led to final construction and implementation of external pull system implementation measurement process.

Systems Engineer Supervisor, Mid Michigan Resource Center

08/89 - 02/93

Awarded EDS Solution Center Quality award for state of Michigan. Manufacturing Business Systems (MBS) team supervisor. Responsible for mentoring and developing well skilled Systems Engineers possessing significant Materials Management business expertise, IMS/DB2 Cobol knowledge, project management skills, and effective written and verbal communication capabilities. MBS team consisted of 10 to 15 engineers developing new mainframe-based systems using IMS/DB2, as well as maintaining and enhancing the majority of GM Delphi Saginaw and Powertrain Casting Operations Manufacturing and Materials Management Business systems (17 systems, 1,500 programs, 900 job stacks). Responsible for overall success of more than 1,000 projects totaling more than 40,000 hours of effort. Significantly reduced system support costs through runtime enhancements and ongoing quality improvements.

Project Leader, GM Delphi Saginaw and Powertrain Casting

06/87 - 08/89

Responsible for developing large- and moderate-sized IMS/DB2 based Materials Management and Financial systems for both GM Delphi Saginaw and Powertrain Casting Operations. Responsible for development of Business Definition, Business Design, Technical Design, Construction and support of each new project. Typical project consisted of three to six engineers during Construction, Testing, and Implementation activities. Project development required extensive project management skills, and the ability to design and produce critical database systems without assistance. Responsible for design, development and implementation of more than 200 online and batch programs, more than 50 relational tables, and more than 100 batch jobs. Considered a partner in customer's decision-making process.

Systems Engineer, Mid Michigan Resource Center

10/84 - 06/87

Responsible for supporting and enhancing Materials Management and Plant IMS Cobol systems for GM Saginaw Division. Responsible for gathering customer requirements and developing Cobol IMS DC/DB solutions that meet customer business needs.

Education and Training

B.S. – Computer Science, DeVry Institute of Technology

Continuous training in new technologies, tools, and business practices

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Bill Howland

Development Manager

Professional Experience Summary

More than 15 years of experience in IT including project management; design, development, and implementation of custom business applications; IT-related business needs analysis; development of methodology to build custom applications using Capability Maturity Model (CMM) Level-5 processes; business and technical detail design requirements gathering; design; implementation, and management of complex enterprise solutions; and project and staffing coordination. Expert in CMM implementation (CMMi) Level 5. Key role in Applications Delivery is to perform Software Engineering Institute (SEI) CMMi Level-3, -4, and -5 assessments.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Ten years experience in all aspects of application development	10 years	42 months – Application Delivery Project Control Office 6 months – OnStar 8 months – National Steel 5 months – Global BuyPower 22 months – Global Quality Tracking System (GQTS) 26 months – Global Purchasing System 9 months – Sprint 4 months – Retail Sales System 9 months – Airbag Traceability System 9 months – Motorola
Five years experience managing projects using the development and methodologies proposed by the contractor	5 years	42 months – Application Delivery Project Control Office 26 months – Global Purchasing System
Seven years experience in application development management	7 years	42 months – Application Delivery Project Control Office 11 months – MDOT 8 months – National Steel 5 months – Global BuyPower 22 months – GQTS 26 months – Global Purchasing System
Five years experience in leadership roles overall	5 years	42 months – Application Delivery Project Control Office 6 months – Onstar 8 months – National Steel 5 months – Global BuyPower 22 months – GQTS
Two years experience in managing .NET projects	2 years	24 months – MyCOE
CMM experience		8 months - National Steel

Skill/Knowledge	RFP Skill Required	Candidate Experience
		9 months - OnStar 41 months - Applications Delivery PCO
State of Michigan experience		4 months - DNR Retail Sales System 3 months - MDOT 16 months – End User Computing and Network (EUCN)

Project Experience Detail

EDS

02/02 – Present

Project Manager Subject Matter Expert, Applications Delivery Project Control Office
Contact: Terry Sanders 517-272-5274

Defined and deployed project management standards and procedures including Schedule Management, Resource Management, Cost Management, and Senior Management Reviews for more than 800 projects and 7500 employees. Defined and deployed tools such as earned value analysis, project dashboard, and MS Project configuration and analysis to analyze metrics and support and improve project delivery quality. All standards and procedures were based on EDS' Project Management methodology (PM2). Defined and established project guidelines to evaluate and manage vendor performance. Mentored project managers and assisted them with deployment of SEI CMMI Level-5 compliant templates and processes.

Delivery Leader, MyCOE (Common Operating Environment)

07/02 - 06/04

Provided management oversight to development and preparation for production deployment of a Web-enabled software procurement and provisioning application for client EDS. Technologies included MS Sharepoint portals, .NET architecture, and SQL Server for database management. Application provided desktop users to request on-demand use or installation of software, facilitation request approval by management, and once approved, user installation package. Application also managed billing associated with software use and procurement.

Delivery Leader, State of Michigan, End User Computing and Network
Contact: Suzanna King 517-272-6756

05/01 - 08/02

Defined and established standards and procedures for management of vendor contract labor within the State of Michigan End User Computing and Network master contract with EDS. Managed more than 70 contractors from various vendors supporting the contract. Responsible for all aspects of contract labor management including rate negotiation, business justification, performance management, and contract cost savings initiatives.

Delivery Leader, State of Michigan, Michigan Department of Transportation (MDOT)
Contact: Darrell Swartz 517-336-1042

03/02 - 05/02

Defined and established standards, procedures, and templates for the gathering, documenting, and approval of business and technical requirements of all MDOT information technology projects. Worked with vendor to define work breakdown structure and assisted with creation of vendor effort and duration estimation algorithm to support project requirements gathering.

Project Manager, General Motors, OnStar
Contact: Jeff Haskell 517-272-3727

09/00 - 05/01

Responsible for establishing and managing an environment to support General Motors' OnStar advisor application. Endeavor was managed as a project using EDS' PM2 methodology. During project startup, a project plan consisting of application development and support processes and procedures was created, development and integration environments were established, and a technical support team was deployed. Project startup was completed on time and ready for initial application deployment. Once application was deployed to production, provided project management for a support team consisting of 25 EDS resources and multiple vendors at multiple locations under a fixed-price contract. EDS' SLC was used to perform application development activities. Project oversight included participation in change request prioritization with client, impact analysis of estimated change requests, issue, risk, staff, and cost management, assignment of work tasks, analysis of workload and progress to project commitments, delivery status reporting to client and EDS leadership. Establishment and management of application production support environment received positive client feedback .

Project Manager, National Steel Corporation
Contact: Terry Sanders 517-272-5274

01/00 - 08/00

Established information technology and application development and support services for the National Steel Corporation as a project using EDS' PM2 methodology. Scope included definition and implementation of problem, change and asset management solutions at four steel plants and corporate headquarters. Solution tracked all information technology hardware and software assets and a single user interface for problem and change management activities. Deployed SEI CMM Level-2 compliant processes using EDS' SLC application development life cycle for application development and support services. Project team included more than 100 EDS resources under a fixed price contract. Project management included creation of a project plan during startup, impact analysis of estimated change controls, issue, risk, staff, and cost management, assignment of work tasks, analysis of workload and progress to project commitments, delivery status reporting to client and EDS leadership. Project was completed on time and within budget and received positive client feedback.

Release Manager, General Motors, Global BuyPower
Contact: Kevin Walker 517-272-5322

08/99 - 12/99

Managed a global release of General Motors' BuyPower application using EDS' PM2 methodology. Updates to the existing web-enabled BuyPower application included a new server-end architecture constructed in Java to allow for application business rule configuration to support a global user base. Project included more than 50 EDS resources under a fixed price contract. EDS' SLC was used to perform application development activities. Project management included creation of a project plan during startup, impact analysis of estimated change controls, issue, risk, staff, and cost management, assignment of work tasks, analysis of workload and progress to project commitments, delivery status reporting to client and EDS leadership. Project was completed on time and within budget and received positive client feedback.

Release Manager, General Motors, Global Quality Tracking System (GQTS)
Contact: Doug Crenshaw 313-230-2711

12/97 - 08/99

Managed development of a Web-enabled, global automobile part quality tracking application for General Motors. The application replaced a set of disconnected legacy systems with a

centralized application built using Java and Oracle. Team focus was on integration of disconnected legacy functionality into a single application that met client needs around the globe. Project was managed using EDS' PM2 methodology and included 20 EDS resources under a fixed-price contract. EDS' SLC was used to perform application development activities. Project management included creation of a project plan during startup, impact analysis of estimated change controls, issue, risk, staff, and cost management, management of vendor providing application security solution, assignment of work tasks, analysis of workload and progress to project commitments, delivery status reporting to client and EDS leadership. Project was completed on time and within budget, receiving positive client feedback, resulting in award of two additional application release projects.

Project Manager, General Motors, Global Purchasing System (GPS)

11/95 - 12/97

Contact: Tom Schultz-248-754-7464

Managed production support and enhancement releases of a client/server global purchasing application for General Motors. The application replaced a set of disconnected legacy systems with a centralized application built using C++ (client) and C and DB2 (server). Project was managed using EDS' PM2 methodology and included 15 globally-dispersed EDS resources under a fixed-price contract. EDS' SLC was used to perform application development activities. Project oversight included participation in change request prioritization with client, impact analysis of estimated change requests, issue, risk, staff, and cost management, assignment of work tasks, analysis of workload and progress to project commitments, coordination of system environment upgrades, maintenance and execution of disaster recovery plan, delivery status reporting to client and EDS leadership. Management of application production support was performed within budget and received positive client feedback.

Project Manager, Sprint, Subscriber Information Exchange System

03/95 - 11/95

Contact: Randy Simon 517-272-5361

Managed production support and enhancement releases of a client/server cellular phone call routing application for Sprint. The application gathered cellular phone data from each Motorola switch and provided X.25 and TCP/IP routing of data to various client billing destinations. The application was built within the Tandem "non-stop" environment using the C programming language. Project was managed using EDS' PM2 methodology and included ten EDS resources under a fixed-price contract. EDS' SLC was used to perform application development activities. Project oversight included participation in change request prioritization with client, impact analysis of estimated change requests, issue, risk, staff, and cost management, assignment of work tasks, analysis of workload and progress to project commitments, coordination of system environment upgrades, maintenance and execution of disaster recovery plan, delivery status reporting to client and EDS leadership. Management of application production support was performed within budget and received positive client feedback.

Technical Lead / Lead Developer

08/91 - 02/95

Lead developer on many application development projects utilizing EDS' SLC to perform application development. Responsibilities consisted of requirements gathering and analysis, definition of technical architecture, creation of software technical specifications, construction of software modules, testing and integration of application components, and application deployment. Clients included State of MI (Retail Sales System development), General Motors (Supplemental Inflatable Restraint Traceability System), and Motorola and Sprint (Cellular Billing Systems).

Education and Training

B.S – Computer Systems Engineering, Western Michigan University, Kalamazoo, Michigan

Numerous Project Management Courses including Startup and Planning, Requirements

Determination Process Execution and Closedown, Advanced Project Management, and Earned Value Analysis

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Steven J. Sinicki

Conversion Coordinator

Professional Experience Summary

Seventeen months of state government experience as the technical lead for the Encounter claims conversion area on the Pennsylvania Medicaid project. Led the technical design and construction efforts for this conversion.

More than 20 years of varied experience in all phases of business application projects and many development and operating environments. Ability to demonstrate commitment to personal development by keeping current with emerging technologies. Full life-cycle application development experience from sales to delivery of these technologies.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Five years experience in data conversion activities, specifically data from Legacy Systems including mainframes	5 years	18 months – Pennsylvania Medicaid 14 months – Global Purchasing System 12 months – Warranty Tracking System 18 months – Inventory and Scheduling Project

Accomplishments: In conjunction with another colleague, designed, developed, and tested a Telematics Client/Server application with a patent pending. Application uses Wireless TCP/IP connectivity, Bluetooth Handsfree capabilities and client Side Voice Recognition. Application interfaced with Wireless Technology, Off Board Navigation, Vehicle systems and Human Interaction.

Hardware Platforms: Motorola MPC 823e (Purple Box) Embedded Processor, Strong Arm Embedded Processors, HP 9000/800 G Series, Sun, IBM PC and compatibles, IBM System/38, IBM AS/400, IBM 3090, IBM Series/1

Programming Languages: Embedded C/C++/Java, C#, 'C', Microsoft Visual C/C++, Java, Microsoft Visual Basic 3.0, COBOL, RPG III, Assembly, PL/1

Operating Systems: Redhat Linux, Embedded Linux, Microsoft Windows CE/3.1/95/98/NT Server 3.51/NT Server 4.0/2000, HP-UX 9.04, 10.01 and 10.20, Sun Solaris, IBM MVS/ESA, IBM OS/38, IBM OS/400, MS/DOS

Database/File Systems: Oracle 9i, Oracle 8i, Oracle 7.2, Oracle 7.3, Microsoft Access 2.0, Sybase 10.0, IBM DB/2, IBM IMS, XDB, CA Ingres 6.4.05

Other Skills: Unified Modeling Language (UML), Embedded Linux Driver Modifications, Vehicle Protocols (J1850, Can), J2ME Development Environment, Jrun Setup and configuration, LDAP, Oracle Pro*C, HP-UX 9.04, 10.01 and 10.20 System Administrator, Oracle 7.2.3 Installation and Administration for HP-UX 10.01/10.20, HP Distributed Computing Environment (DCE) 1.4 (OSF 1.1 compliant) Installation and Administration, ISPF, JCL, SP/PC, TCP/IP, Oracle SQLNET, SQLPLus, SQLLoader, CA Ingres/Net, Distributed Computing Environment

Remote Procedure Calls (RPC), Microsoft OLE Component Object Model, Microsoft OLE Automation, Microsoft Open Database Connectivity, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Novell LAN WorkPlace 4.12, Citrix Winframe Server for Microsoft NT Server 3.51

Project Experience Detail

EDS, Saginaw, MI

06/04 - Present

Information Specialist, Infrastructure and Assembly/Integration

Integration of Store Specific Items with Corporate Items into Order Processing, Inventory, and Web-based Vendor Interface subsystems for a retail customer. Project provided consistent interfaces and processing requirements of items that stores may stock individually versus items that are maintained at a corporate level. Technologies used included 'C', Oracle, UNIX scripting, PL/SQL, C#, Microsoft .NET, and Oracle Pro*C.

Technical Lead, Pennsylvania Medicaid

12/02 – 05/04

Contact: Jim Stiff 804-965-7126

For Encounter Claims conversion completed Data Analysis, Technical Design, Construction, Unit Testing, System Testing, Implementation and Conversion of Pennsylvania Medicaid Encounter claims. Converted seven years of health claims data to EDS-developed claims processing format. Provided mentoring to other team members of the Encounter Claims conversion team in technologies used in conversion process. Designed and developed modules to convert customer-specific file formats to standard format based on claim types that were used in conversion of Pennsylvania-specific Identifiers (such as Procedure Codes and Diagnosis Codes), into PN-XIX InterChange format. Technologies used included 'C', Oracle, UNIX scripting and Oracle Pro*C.

Information Specialist, Nextel

06/02 – 11/02

Developed Off-board Navigation prototype for Nextel Wireless handset for presentation to senior leadership of EDS and Nextel. Used J2ME environment and Nextel iDEN wireless access through TCP/IP.

Information Specialist, European Automobile Manufacturer

09/01 – 05/02

Worked with major European automobile manufacturer in Requirements Gathering, Analysis, Design, and prototype development of embedded system to be used as a Gateway from Proprietary Bus components to Standard Can Bus components and facilitation of communication between these physical architectures and components. Used Unified Modeling Language (UML) to develop Analysis and Design deliverables. Prototype application used Embedded C++ and Embedded Linux.

Lead Developer, Telematics Application

09/00 – 08/01

Lead developer on sales effort to design a functional prototype for in-vehicle Telematics application that required Embedded Processor, Bluetooth Hands-free capabilities, Wireless communication to Data Center Servers, integration into Vehicle Bus technologies and off-board Navigation. Sales opportunity lead to application for Patent Pending of the Telematics application. Technologies used included: Embedded Linux, Embedded C++, Embedded C, Embedded Java, Voice Recognition software (embedded and server-based), Bluetooth HCI stack, and Wireless CDPD.

Information Specialist, Microsoft Conversion

05/00 – 08/00

Developed module to convert Microsoft Word-based Business and Process Models to Proforma Pro Vision Workbench Business and Process Modeling tool. Developed module with C++ using Microsoft Foundation Classes, Microsoft Component Object Model technology for Pro Vision Workbench, and Microsoft OLE Automation technology for extraction of Microsoft Word documents.

Lead Developer, Customer Management Data Warehouse

09/98 – 04/00

Designed and led development effort of Initial Load process and Reporting process of a Customer Management Data Warehouse on a Silicon Graphics Unix system. Developed and tested Load and Reporting modules in ANSI 'C' and ANSI SQL using Microsoft Developer Studio 6.0 and Oracle Embedded SQL with modules being ported and executed in a Unix environment.

Developer, Global Purchasing System

07/97 – 08/98

Team member in development and testing of Global Contract subsystem used in Global Purchasing System. Developed and tested Batch and Remote Procedure Modules in ANSI 'C' and ANSI SQL using Microsoft Developer Studio 5.0 and XDB. Participated in porting application and data conversions to IBM 3090 Mainframe using DB/2.

Lead Developer, Proof-of-Concept

04/97 – 06/97

Led Proof-of-Concept Project to verify that a Microsoft Access single-user application could be ported to a Microsoft NT 3.51/Citrix Winframe server allowing multiuser access, server-based processing of the application and client access through Web-based interface. Documented requirements and procedures necessary for successful implementation that were then used in actual installation of production applications in this environment.

Developer, DCE File Transfer Application

01/97 – 03/97

Constructed a Distributed Computing Environment (DCE) Pipe (File Transfer Application) for divisional group of a large manufacturer. Developed a Microsoft Windows 3.1 Visual 'C' Graphical User Interface client module incorporating Gradient Technologies DCE for Windows 3.1. Also constructed a MVS 5.1 DCE 'C' server module on an IBM 3090 Mainframe to transfer files from the Mainframe to a user's client system. Application incorporated DCE security and directory services.

Project Lead, Vehicle Tracking Data Warehouse

07/96 – 12/96

Project Leader and Oracle Database Administrator for development of vehicle tracking data warehouse for large manufacturer. Developed Oracle processes to load and update tables on a Hewlett Packard 9000/800 G Series computer. Participated in Analysis, Design, Construction, Testing, and Implementation.

Project Lead, Consistent Application Environment

09/95 – 06/96

Project Leader and HP-UX System Administrator for development of a consistent Application Development Environment that crossed multiple hardware platforms. Configured HP 9000/800 G Series using HP-UX 9.04. Installed and configured HP Distributed Computing Environment 1.4 and Oracle RDBMS including Oracle SQLNET on a HP 9000/800 and IBM compatible PCs. Upgraded operating system from HP-UX 9.04 to 10.01 to 10.20.

Project Lead, Warranty Tracking System

09/94 – 08/95

Participated in conversion of Warranty Tracking System from IBM mainframe to Pyramid Unix system. Developed 'C' applications to move IMS data to Oracle and applications providing dealers online inquire and update ability using Oracle RDBMS. Created templates for design documents and 'C' applications used by development team.

Developer, Insurance Provider

06/94 – 08/94

Participated in construction of claim edit system for large insurance provider using 'C' on a Sun Workstation.

Developer, Medical Laboratory Services

09/93 – 05/94

Participated in Analysis, Design, Construction, Testing, and Implementation of clinical data warehouse system for provider of medical laboratory services. Development on a HP 9000/800 system using Sybase 10.0, Visual Basic 3.0, HP-UX 9.04 and 'C'.

Team Member, Video Sales RFP

03/93 – 03/93

Team member in Request For Proposal for a large video distributor to upgrade processing capabilities in video sales.

Project Lead, Divisional Budget Cost System, General Motors

07/92 – 08/93

Project Leader of Divisional Budget Cost System for large manufacturer. Developed on IBM AS/400 using COBOL and OS/400. Involved in Definition, Analysis, Design, Construction, Test, Implement and Production Support.

Project Lead, Inventory and Scheduling Project, General Motors

01/91 – 06/92

Participated as project developer on Inventory and Scheduling Project used in Final Assembly plants for major manufacturer. Developed and integrated inventory system into overall project on IBM 3090 mainframe using PL/1 and IMS database. Tasks included Design, Construction, Testing, and Implementation.

Information Analyst, Non-Budget Project Tracking, General Motors

08/88 – 12/90

Production Support of application used in tracking Non-budgeted Projects for division of large manufacturer. Development on an IBM System/38 using RPG III and OS/38. Upgraded application to IBM AS/400 using RPG/400 and OS/400.

Ventech Inc., Flint, MI

03/88 - 08/88

Programmer/Analyst

Participated in development of Financial, Point of Sale, and Inventory systems targeted at Wholesale and Retail Hardware and Lumber industry.

Kmart Corporation, Troy, MI

11/84 - 03/88

Programmer/Analyst

Participated in development of Point of Sale system for use in retail stores nationwide. Systems were developed on IBM PC/AT using 'C', MS-DOS and IBM Token Ring network. Rewrote retail stores back office applications using IBM Series/1 and Assembly language.

Education

B.S. in Data Processing, Saginaw Valley State College, University Center, MI, 12/83

A.A. in Data Processing, Delta College, University Center, MI, 12/81

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Jim Wieber

Testing Coordinator

Professional Experience Summary

Current Business Application Modernization (BAM) team member with more than four years of experience on several State of Michigan projects including BAM, Department of State; Michigan Education Assessment Program (MEAP), Department of Education; Statewide Warranty Administration Database (SWAD) and SafeStat, Department of Transportation, and Michigan Child Support Enforcement Services (MiCSES), Department of Human Services. Extensive experience in a variety of roles including implementing Web-based applications, database administration, designing, coding, and testing programs written in Visual Basic, Oracle, JAVA, HTML, JavaScript and JSP, system administration for Sun Solaris servers, and PowerBuilder Developer. Technical leader experienced with Java, JSP, Visual Basic, Oracle SQL Loader, Oracle Import/Export, UNIX Korn Shell Scripts, C, and IBM Mainframe JCL.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Five years experience in quality assurance testing of enterprise applications	5 years	12 months - MEAP 8 months - SWAD 12 months - SafeStat 38 months - Global Quality Tracking System (GQTS)
Two years experience in the tools and testing methodologies proposed by the Contractor	2 years	38 months - GQTS (JUnit for Automated Unit testing and LoadRunner for Performance Testing) 12 months - SWAD (JUnit for Automated Unit testing, StrutsUnit for Integration Testing)
Two years experience in managing testing teams for enterprise application projects	2 years	38 months - GQTS 12 months - MEAP

Project Experience Detail

EDS

11/04 – Present

*Application Support, State of Michigan, Department of State,
Business Application Modernization (BAM) Project
Contact: Rose Jarois 517-335-6576*

Member of BAM team for Michigan Department of State (MDOS). BAM project team is responsible for reengineering processes used by MDOS and developing a technical solution to support these processes. Team used Unified Modeling Language (UML) to capture requirements, build Use Case Scenarios, Sequence Diagrams, and a Logical Object Model. Designed and estimated technical architecture to be used by new BAM System as well as reviewed and created Sequence Diagrams including estimating and giving recommendations for

hardware, software, and development tools. Coordinated and organized writing for final deliverable documents given to MDOS.

*Technical Leader, State of Michigan, Department of Education,
Michigan Educational Assessment Program (MEAP)
Contact: Marilyn Roberts 517-335-0567*

11/03 - 11/04

MEAP application was written using Microsoft ASP, COM objects, and SQL Server. Developed an infrastructure environment to support an application development project, investigated data issues, fixed application bugs, developed and implemented solution to host and display MEAP test results using static PDFs, source code management using Microsoft Source Safe, and implemented fixes into production. As test lead, created a development and test environment to allow developers to code and test program fixes as well as data fixes before going into production. Developed source code promotion procedures for Development team to follow. Current application generates reports dynamically from the database in a PDF format. Created and implemented solution to display these reports using static PDFs generated by a different company. As Quality Assurance and User Acceptance Coordinator, assigned test cases and issues to developers, tracked status of testing, interacted with customer to resolve issues, and reported status of testing phases. As Implementation Coordinator, created implementation schedule, interfaced with external companies to coordinate implementation, implemented MEAP Application to Quality Assurance Testing, and User Acceptance Testing and Production.

*System Administrator, State of Michigan, Department of Transportation, Statewide
Warranty Administration Database (SWAD) Project
Contact: Mark Grazioli 517-483-5164*

04/03 - 11/03

Designed, coded, and tested programs written in Java, HTML, JavaScript, and JSP using the Struts framework according to customer requirements. Part of the System Testing team created system test cases, tested the system and fixed system testing problems. SCM for the SWAD team. Duties included normal SCM activities as well as writing build scripts to build the application for System Testing, Formal Acceptance Testing, and final delivery to customer using Apache Ant build software. System Administrator for two Sun Solaris servers that the Oracle database and WebSphere Application servers were installed on. Performed backups on the database and installed WebSphere Application. Created jobs to use Nessy Lines of Code Counter to automate our counting of lines, a requirement for all Work Product Reviews. Created jobs to validate JavaDoc was correct in the Java code to reduce number of defects found in Work Product Reviews. Investigated and introduced use of JUnit and Struts Test Case to automate testing of all Java code in the application to allow the project to test all Java code and produce a report of any errors in 30 minutes.

*System Database Infrastructure Team, State of Michigan,
Department of Human Services, Michigan Child Support Enforcement System Project (MiCSES)
Contact: Marilyn Stephen (517) 335-4032*

05/02 - 04/03

Maintained production Oracle database, consulted on solutions for performance improvement, implemented processes and standards for change requests, and monitored production database. Created processes and standards for team to follow to improve support and predictability of the system. Wrote Internet application for tracking System DBA requests; Web reports for application developers to reduce number of requests for System DBAs, Internet interfaces for developers that replace functionality through other applications to reduce amount of security

access to the databases, and Internet interfaces for System DBA team to perform daily tasks in a more consistent manner.

Information Analyst, State of Michigan, Department of Transportation, Safestat Project 05/01 - 04/02
Contact: Jack Benac (517) 335-2975

Designed, coded, and tested programs according to customer requirements and followed standards and processes for a SEI CMM Level-3 organization. Created system test cases, tested the system, and fixed system testing problems. Mentored other team members in PowerBuilder and developing common methods to improve team's performance. Put on the project as an experienced PowerBuilder developer to complete any complicated tasks and to assist team member's by completing tasks that they could not complete on time.

Technical Leader, General Motors Global Quality Tracking System (GQTS) 03/98 - 05/01

GQTS is an Internet application GM uses globally to track quality issues. The GQTS application supports five different languages. The platform is Sun Solaris running Oracle database, Netscape Enterprise Server Web server, and Bluestone's Sapphire application server. The application also has a batch environment that uses Oracle Stored Procedures, Oracle SQL Loader, Oracle Import/Export, Unix Korn Shell Scripts, C, and IBM Mainframe JCL to load and unload data to and from GM legacy systems. GQTS was transformed from a legacy IBM Mainframe to a Web-enabled application requiring a large data conversion from the IBM DB2 database to an Oracle 8 database.

Set technical direction, developed technical solutions, attended all conformance reviews, implemented the system, managed source code, maintained all test environments including hardware and software administration, enforced and developed standards and processes for a SEI CMM Level-3 organization. Integration, system, and user acceptance testing coordinator, application performance testing coordinator using Load Runner, requirements tracking. Estimated effort and time for changes and enhancements to the system. Also implemented strategy for automating build of the GQTS Web application and unit testing of the system using JUnit and Ant to help reduce the number of defects in integration testing and allow us to test the entire application in half an hour.

Process Owner and Technical Leader, General Motors Contact Worksheets 03/97 - 03/98

Technical direction, SCM, System and Database design, gathering business requirements, status reporting to the customer, managing change, and implementation. Contact Worksheets is a PowerBuilder Application using an Oracle Database. Contact Worksheets application was a three-tier application consisting of a client, server, and database.

Design and Coding Team, Subscribers Information Exchange System 05/94 - 03/97

Designed and coded programs, supported daily jobs, gathered requirements from customer, tested system. The SIXS application was written in C.

Education

B.S., Computer Science, Central Michigan University, Mt. Pleasant, MI

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John Cally

Implementation and Production Support Coordinator

Experience Summary

More than 24 years experience in the data processing industry including 15 years with Unisys Government Services directing computer hardware and software technical staff. Achieved revenue and order number targets every year. Extremely knowledgeable about the business processes of the Michigan State government departments and agencies and the use of information technology. Designed, developed, documented, implemented, and managed the development of financial systems for internal use within the Unisys Corporation for U.S. and international divisions.

Specializes in large system implementations, project and resource management, facilitation sessions, State government operations, JAD and RAD Projects, State government systems, business reengineering and requirements, financial systems, and business strategic planning.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Experience in enterprise application implementations	3 years	32 months - Unisys (Burroughs) general ledger, accounts payable, accounts receivable, budget application, custom personnel system, and customer and vendor information system 24 months - Adult Services Comprehensive Assessment Program (ASCAP), FIA 18 months - City of Detroit, Police, Fire and EMS month period4.
Experience in managing implementation teams for enterprise application projects	3 years	152 months - Department of Treasury Tax Amnesty, City of Detroit Public Safety System, Department of Social Services Social Services Licensing System, Department of Treasury and State of Ohio Technical Services Support
Experience in data conversion activities	2 years	36 months - converted customized applications from the Unisys mainframe and migrated data of Burroughs subsidiaries to standardized DMSII database
Experience with Client Service Center and site support services	1 year	24 months - Unisys SEIBEL implementation for CRM activities and developed and implemented 900 number set-up for Michigan State Police in their criminal history search operation for clients 3 months - State of Illinois Remedy help desk consolidation
State of Michigan experience		9 months - Business Application Modernization (BAM) 16 months - State and Local Government professional services manager 3 months - Department of Human Services, Michigan Child Support Enforcement System (MiCSES) 32 months - Department of Management and Budget GATEWAY Project, State Police and Department of Corrections Y2K services, State Police CRASH database, Department of Civil Service, Department of State, Department of Transportation 152 months - Department of Treasury Tax Amnesty, Department of Social Services, Department of Treasury

Employment History

Lansing Community College, Lansing, Michigan
Instructor

January 2002 to Present

Provide instruction in mathematics and computer science including algebra, trigonometry, business applications, Microsoft Office suite and differential equations.

State of Michigan, Department of State
Business Analyst

July 2004 to March 2005

Responsible for support of the BAM Phase 2 project for EDS within the Michigan Department of State. This project was managed in a CMMi Level-5 environment. Used Rational Rose and RequisitePro to gather Use Case and Process Flow requirements. Specific responsibilities included conducting facilitated sessions involving State subject-matter experts from the driver, vehicle, financial, and voter environment. Activity flows, use cases, and scenario diagrams with elaborations were part of this phased deliverable. Design activities for the To-Be environment included populating within Rose the attributes and methods along with sequencing for the eventual generation of .NET or Java code in a .NET or ORACLE environment. Environment will operate using an Active Directory environment for security and role-based access. Responsibilities also included vendor product evaluation in the financial, inventory control, and case management areas along with cost/benefit impact analysis of proposed changes during a phased implementation.

Accenture/AT&T
Help Desk Consultant, State of Illinois, Black Pearl Project

October 2004 to January 2005

Worked through Accenture and AT&T through DIVA LLC. Responsible for the requirements gathering and analysis for the IT Consolidated Help Desk for the State of Illinois Black Pearl Project. Specific responsibilities included gathering all category, type, and item information used by current help desk personnel to define the consolidated help desk migrating to the Remedy environment. Specific duties included process flow and requirements gathering for the Level-one (TIER 1) environment.

AT&T Professional Services, Lansing, Michigan
Professional Services Manager, State and Local Government

September 2002 to December 2003

Responsible for the support of the services activities in the state and local government areas for AT&T.

Acquired necessary resources to provide customers with assistance in the areas of development, implementation, conversions and consulting. Provided overall coordination of marketing support staff responsible for systems design, development, and implementation within Central Region of the U.S.

RCM Technologies, Lansing, Michigan
Systems Implementation Specialist/ Site Support Analyst, State of Michigan, Department of Human Services, Michigan Child Support Enforcement System (MiCSES)

July 2002 to September 2002

Responsible for the support of the Legal Module of the Michigan Child Support Enforcement System (MiCSES) in various county prosecuting attorney locations within Michigan. Work included training, problem reporting and resolution, and migration assistance for the county personnel using the Legal Module of the IV-D system. Provided support and interface to the hotline area in problem and issue-related areas. Assistance provided to administrators, intake personnel, paralegals, attorneys, and process servers.

Information Services Group, Public Sector Unisys Corporation
Western Region Project Director

January 1999 to December 2001

Responsible for monitoring all Unisys services activities within Michigan, Ohio, Indiana, and Illinois. Acquired necessary resources to provide customers with assistance in development, implementation, conversions, and consulting. Project sites included the Michigan Department of State, Michigan Department of Corrections, Ohio Attorney General, and Indiana Bureau of Motor Vehicles (BMV). Provided overall coordination of the marketing support staff responsible for systems design, development, and implementation within Michigan, Indiana, Illinois, and Ohio. Major projects during this period included the GATEWAY project for Michigan Department of Management and Budget, Indiana BMV IT Strategic Plan, Indiana BMV requirements project, and Y2K services at Michigan State Police and Michigan Corrections. Design, development, and implementation of Daily System and CRASH database for Michigan State Police Motor Carrier Division.

Technical Services Unisys Corporation

May 1986 to December 1998

District Professional Services Manager, Michigan Government District

Unisys Project Management Certification. Responsible for monitoring all Unisys technical services activities within Michigan. Managed technical staff supporting the Public Sector Line of Business. Used Unisys TeamMethod Methodology for development methodology. Business Requirements and Analysis. Documentation, training, and implementation. Acquired necessary resources to provide customers with assistance in development, implementation, conversions, and consulting. Project sites included Michigan Department of Social Services (MSA), Michigan Department of Civil Service, Michigan Department of State, City of Detroit Public Safety, City of Detroit Department of Transportation and the Michigan Department of Social Services for Licensing and Service Workers. Activities included JAD and RAD sessions with participants, facilitating design and development activities and discussions. Critical support for problem resolution. Local training for state agencies including the Department of Transportation, the State Lottery, and the State Police. Coordinated data communications assistance to the State Lottery link with a non-Unisys mainframe. Managed development of customer PC software and integration with existing data transfer system software for the State Police. Designed, developed, documented, and implemented SNET system at Michigan State Police interfacing with the criminal record system and the NATMS and AFIS system. Used 4GL products such as Unisys LINC. Reported information for criminal statistics on the Web for Michigan State Police.

Provided overall coordination of marketing support staff responsible for systems design, development, and implementation within Michigan and Ohio. Major projects during this period included Tax Amnesty, Michigan Department of Treasury; Public Safety System, City of Detroit; Social Services Licensing System, Michigan Department of Social Services; and Technical Services Support, Michigan Department of Treasury and the State of Ohio.

Worldwide Information Systems, MIS Unisys Corporation
Manager, MIS Strategic Planning

June 1985 to June 1986

Management of MIS Strategic Planning Department and development of all MIS Strategic Plans for internal MIS departments. Resource planning included prioritization of development and maintenance of all major systems and support projects for all domestic and international MIS departments. Financial Planning and budget allocation for all domestic and international MIS

departments for future development and support efforts and how they relate to research, development, and maintenance activities.

Financial Systems Development, MIS Unisys Corporation, Detroit, Michigan *June 1983 to June 1985*
Project Manager, International Financial Systems

Managed all international financial systems used internally by company subsidiaries including the design, development, and implementation of every financial system outside the U.S. Designed accounts receivable system to accommodate many different subsidiaries. Coordination effort during the design phase was extensive; the system was designed to facilitate future modifications and to meet the needs of many users. Added requirement of handling multiple currencies. Tax laws required design capabilities to report many different taxes and associate them with specific invoices. Implementations were accomplished in Sydney, Stockholm, London, Brussels, Paris, Buenos Aires, Zurich, and Bogota.

System Analyst

June 1980 to June 1983

Developed Unisys internal financial information systems. Participated in design of internally-developed accounts receivable system currently used by all company subsidiaries worldwide. System runs on all Unisys B5/6/7000/A Series machines as well as on all Unisys B1000 Series machines. System used GEMCOS for online processing and was written in COBOL 74. Designed system to handle customer accounts receivable as well as internal accounts receivable (current accounts) for various subunits within the corporation. Piloted system in Detroit and Toronto.

Education and Training

M.S., Applied Math, Michigan State University, East Lansing, Michigan, 1980

M.B.A., Business Administration, University of Oregon, Eugene Oregon, 1977

B.S., Chemistry, Purdue University, West Lafayette, Indiana, 1975

Donald Lambert

Training and Documentation Coordinator

Professional Experience Summary

Current Customer Service Coordinator for the Michigan Master Information Technology Training (MMITT) process that includes training coordination, contract management, IT consulting and multilevel reporting to the client. MMITT provides for the delivery of desktop and technical training and the oversight of providing Technical Learning paths for all State of Michigan employees.

More than ten years of experience and demonstrated superior knowledge, skills, and abilities in the IT field. Four years of experience as Training Coordinator. Areas of specialty include project supervision, process oversight, systems analysis, personnel supervision, documentation, IT media development, and technical support. Specific areas of knowledge include project oversight and management, requirements gathering, client skills assessment, training plan development, training course development (to include documentation such as manuals and online help, exercise development, and media aids), training data management, training assessment, and classroom training and mentoring. Project management experience includes coordination, oversight (including quality oversight) and supervision, experience with employee mentoring and train-the-trainer activities, evaluation of people and processes, management and coordination of projects (to include reporting requirements, workflow, facilitation, and liaison activities as well as detailed plan implementation). Documentation experience includes implementation of online user aids and high-level, multimedia presentations to clients. Help desk knowledge includes implementation of proprietary systems, as well as off-the-shelf software and hardware support.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Experience in coordinating training services	2 years	53 months - State of Michigan, City of Lansing, federal government
Training		15 months - Michigan Master Information Technology Training (MMITT) 53 months - Lead Media Specialist and Senior Trainer
State of Michigan experience		29 months - Training Coordinator, State of Michigan 15 months - MMITT

Project Experience Detail

PTD Technology

02/01 – Present

Training Coordinator, State of Michigan, City of Lansing, federal government.

Contact: Andy Esch 517-335-3004

Responsible for technical oversight, project planning, and management of training plans, exercise development, data reporting, and resources for PTD Technology corporate for training projects. Four years of experience as a training coordinator. Oversee curriculum development

for desktop, hybrid and technical training standard and customized classes. When developing custom course curriculum, responsible for client needs analysis, both from the user and developer perspective. Course development also performed by dynamically developing curriculum based on learning the application. Curriculum development for many clients is a dynamic process, as the custom training may be revised as part of the training process as new needs are ascertained. PTD's Training model used to deliver, evaluate, and revise training courses and training plans. Coordinate and develop layout and graphic design for training content. Responsible for content outlining, compilation, and construction of all training material. Well-demonstrated ability to quickly learn spectrum of technical applications and skills to quickly and effectively develop curriculum and training for highly-evaluated delivery.

Project management, coordination, oversight (including quality oversight), and supervision. Includes experience with employee mentoring and train-the-trainer activities, evaluation of people and processes, and management and coordination of projects (including reporting requirements, workflow, facilitation, liaison activities and detailed plan implementation). As training coordinator, manage development and mentoring of information technology-based training staff. Management includes employee performance reviews, counseling and oversight of class training evaluations. Manage and coordinate development of instructional aids and professional development, training observation and mentoring of instructors. Conduct and assist in coordinating orientation and instructor training development.

Customer Service Coordinator and Training Coordinator, MMITT
Contact: Terry Horton 517-241-8258

04/04 – Present

PTD is the contract holder and prime for MMITT, the technical training contract for the state of Michigan. PTD assembled a training team of three additional training vendors to supplement their training and project management of the MMITT. PTD is responsible for all aspects of managing the MMITT from training development, training delivery, documentation, evaluation, subcontractor management, liaison with State of Michigan Training Coordinators, and customer service to contract management. Prior to the MMITT, PTD was a provider of desktop training services and technical services under the End User Computing and Network (EUCN) contract since its inception in 1995. As the lone provider of desktop training services, PTD met the challenges of the training needs of thousands of state employees, involving tens of thousands of classroom seats during the first few years of the EUCN contract. Under the EUCN contract, PTD trained state employees in virtually every Microsoft, Corel, and Adobe productivity package. In addition to desktop commodity training, they also created many customized specialized training programs for its EUCN customers including training programs for many technical topics.

As customer support coordinator, acts as liaison with state training coordinators, state liaisons, subcontractors, PTD administrative staff, PTD training staff, and PTD project management. Liaison activities include regularly communicating issues, needs, status, and quality control. Provide customer follow-up and support to clients by telephone, e-mail, and face-to-face meetings statewide. Monitor deadlines and inform project managers of impending deadlines and required corrective action. Provide contractual guidance and interpretation to project managers for conformance to original proposal and maintain continual review to make sure all terms and conditions are being met.

Lead Media Specialist and Senior Trainer

02/01 - Present

Lead Media Specialist in charge of development of e-Learning integrated digital video instruction, a fully-interactive, computer-based training module using navigation in the educational content. Emulation of application software used to provide an enhanced learning experience. Assessment exams incorporated to allow users to evaluate their learning experience. One particular example was the development of a learning module (Using UI Acronyms) for the Unemployment Agency. This learning module and a sample constructed for the Department of Corrections combined a video instructor, audio narration, animation, and user interaction to form a well-rounded learning experience.

Additional consulting involvement includes project work as a Web designer and developer using graphic design, site construction, Java forms, Java menus, Flash content, and informational and instructional content.

Adecco

01/99 - 01/01

Help Desk

Responsible for fielding computer technical calls for General Motors (GM Online systems) including LAN connectivity problems, Microsoft Office applications, Lotus Notes, Netscape Navigator, and Internet connectivity. Case information for calls kept in Vantive Database System.

Lambert Enterprises

01/95 - 12/98

Technical Consultant

Developed multimedia, interactive CD-ROMs (Macromedia Authorware), assisted in desktop publishing (PageMaker), and produced nonlinear video (Adobe Premier). Also performed technical consulting of clients and Web page design (FrontPage).

PTD Technology

01/95 - 12/95

Trainer

Contact: Sue Westerlund 517-322-5195

Trained a broad spectrum of application software such as Microsoft Office Suite and Corel Office Suite. Instructed courses in evening vocational school focusing on long-term presentation of curriculum such as computer hardware basics and Basic programming.

Education and Training

B.A., Pastoral Studies, magna cum laude, Northland Baptist Bible College
Oracle – Introduction to SQL PL/SQL

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Dean Wheeler

Technical Support Engineer

Experience Summary

IT Project+ Certified Professional; Certified Novell Engineer Network 6; Microsoft Certified Systems Engineer with more than nine years experience as a LAN and WAN engineer and hardware technician. Expertise in configuring 64-bit, Intel-based server hardware and Microsoft Enterprise Products. Top technical Windows 2000 and Windows NT resource with excellent communication skills. Significant involvement in technical planning meetings to discuss implementation strategies, hardware and software upgrades, software patches, and hardware maintenance specific to each client. Primary point of contact for several accounts including providing status planning and support reports. Basic knowledge of infrastructure troubleshooting and support. Excellent communication skills.

Skills Matrix

Skill/Knowledge	RFP Skill Required	Candidate Experience
Three years experience in providing technical planning and support services.	3 years	44 months -McCartney & Company Portland Public Schools Public Policy Associates Free Methodist Foundation Great Lakes Energy 64 months - Department of Corrections
Three years experience configuring 64-bit Intel servers and Microsoft enterprise products.	3 years	44 months -McCartney & Company Portland Public Schools Public Policy Associates Free Methodist Foundation Great Lakes Energy
Ability to coordinate and communicate with DIT Infrastructure Services.		64 months - Department of Corrections
State of Michigan experience		64 months - Department of Corrections

Employment History

Analysts International

November 2001 to Present

Network Engineer/Support Engineer

Network support engineer for several major accounts. Involved in customer technical planning meetings. Helped develop implementation strategies and recommended the best products for each environment. Provided status planning and support reports for the larger accounts. Installation and upgrades of 64-bit, Intel-based server platforms.

Primary point of contact for McCartney & Company. Network administration, server maintenance, server upgrades (Micron to HP DL380), and printer maintenance. Workstation rollout for Windows XP servers on Windows 2000 platform at Portland Public Schools.

Migration from Netware V5 to V6 and GroupWise V6 to V6.5 at Public Policy Associates. Primary point of contact for all HP server needs for Free Methodist Foundation. Performed server troubleshooting for Great Lakes Energy.

Major issues for all the accounts included workstation software issues, workstation connectivity issues, printing issues, login issues, server hardware troubleshooting and repair, backup and restore troubleshooting and repair, tape restore issues, server OS restore issues, server rebuilds, server moves, and WAN connectivity troubleshooting and repair. Provide network administration and support for Microsoft Enterprise Products, including Windows 2000 environments with NT 4.0 servers, Exchange servers, Exchange 2000 server, and Windows XP clients. Responsibilities include, patching servers, adding and deleting users, troubleshooting backup issues and upgrading server Microsoft operating systems. Reallocate resources to balance workload and provide general support for users.

TekInsight Services

August 1995 to November 2001

Network Engineer, State of Michigan, Department of Corrections

Designed NW 4 to 5 upgrade. Documented and created media to upgrade 130 MDOC servers including upgrading, reconnecting to the WAN, re-establishing communication, installing SLP NDPS, applying Netware SP, repairing replica rings, verifying GroupWise, creating and verifying DHCP objects for each site, and health checking NDS. Supported MDOC's Netware 4 Environment. Ran support calls throughout Michigan on implemented Netware 4 environment. Issues included workstation software issues, workstation connectivity issues, printing and login issues, server hardware troubleshooting and repair, server software troubleshooting and repair, server ABEND troubleshooting and resolution, backup and restore troubleshooting and repair, tape restore issues, server OS restore issues, server rebuilds, server moves, GroupWise connectivity issues, and WAN connectivity troubleshooting and repair.

Upgraded and configured workstations to be connected to LANs that were being installed. Installed software, troubleshoot connectivity, loaded drivers on the Netware 3 servers being installed. Ran hardware support calls to replace network interface cards, hard drives, memory, video cards, motherboards, SCSI cards, tape drives, CD-ROM's, and SCSI backplanes in servers. Provided general hardware and software support to several other state agencies.

Education

B.A. Business/Computer Information Systems, Cornerstone University, Grand Rapids, MI, 1995

Certifications

IT Project+ Certified Professional, 2003 (MCNE updated)

Certified Novell Engineer Netware 6 (CNE), 2003

Certified Novell Administrator Netware 6 (CNA), 2003

Microsoft Certified Systems Engineer (MCSE), 1999

Microsoft Certified Professional (MCP), 1999

Master Certified Novell Engineer, Intranetware and Windows NT Integration (MCNE), 1997

Attachment #12, EDS Proposal Representative Resumes

Staffing Appendix B, Representative Resumes

Activity 1

Title	Representative Resume Name
Process Owner	Doug Cook
Project Scheduler	Diane Price

Activity 2

Title	Representative Resume Name
Hardware/Software Engineer	Jason Todd

Activity 3

Title	Representative Resume Name
Legacy Coordinator	Francisco Torres
DBA	Srinivas Rao
Technical SME	Jeff Bowles
Senior Developer	Bruce Hair
Senior Developer	Scott Zeiter
Junior Developer	Clayton Shivers
Interface Developer	Nimet Patel
Enhancement Developer	Aijaz Ahmed
Enhancement Developer	Diana Chattulani

Activity 4

Title	Representative Resume Name
Conversion Database Administrator (DBA)	Sue Williams

Activity 5

Title	Representative Resume Name
Legacy Coordinator	Francisco Torres
DBA	Srinivas Rao
Technical SME/Leads	Jeff Bowles
Senior Developer	Bruce Hair
Senior Developer	Scott Zeiter
Junior Developer	Clayton Shivers
Interface Developer	Nimet Patel
Enhancement Developer	Aijaz Ahmed
Enhancement Developer	Diana Chattulani

Title	Representative Resume Name
Tester	Beth Naeger

Activity 6

Title	Representative Resume Name
Technical Writer	Keith Bollwahn

Activity 7

Title	Representative Resume Name
Senior Developer	Scott Zeiter
Junior Developer	Clayton Shivers
Production Support DBA	Srinivas Rao

Doug Cook

Process Owner

Experience Summary

More than 20 years of IT experience at EDS developing and supporting applications on Web, client/server, and midrange platforms. Currently on the Michigan Department of State Business Application Modernization (BAM) project that will reengineer business processes and accompanying business application support systems to meet current and future business demands.

Extensive experience in Web and client/server applications; Oracle, Microsoft SQL Server, and Microsoft Access systems and environments; and Unified Modeling Language (UML), Java Server Pages, Java, HTML, JavaScript, Active Server Pages, SQL, PowerBuilder, Microsoft Office products, WebSphere Application Developer Studio, Macromedia UltraDev, Microsoft Visual InterDev languages, access methods, and compilers, tools

Project Experience Detail

*Information Analyst, State of Michigan,
Department of State, Business Application Modernization (BAM)*

07/04 - Present

The vision of the Business Application Modernization (BAM) project is to optimize service delivery in four focus areas: fiscal resource optimization, customer satisfaction enhancement, employee satisfaction and fulfillment, and election administration optimization. Support EDS lead business process reengineering manager by documenting functional requirements, non-functional requirement, and business rules, and by producing process flows for current business processes (As-Is) as well as future processes (To-Be). Apply analytical skills to create Use Case Scenario Diagrams and descriptive text for these diagrams. Develop procedures used by EDS to support MDOS customer. Coordinate deliverable documents presented to MDOS.

*Information Analyst, State of Michigan,
Department of Transportation, Crash Process Redesign*

03/03 - 06/04

The mission of the Crash Process Redesign project was to improve the accuracy and timeliness of Crash data collection to enable Crash data stakeholders to make timely decisions while improving traffic safety. Worked with Joint Application Development (JAD) team to define scope and requirements for the Traffic Crash Reporting System (TCRS) Web application including development of a prototype Web application for the JAD team to review. Upon finalization of scope and requirements, developed TCRS Web application using WebSphere Application Developer Studio, Java Server Pages, Java Servlets, Java Helper Classes, Java Beans, HTML, JavaScript. Assisted in developing client/server portion of TCRS using PowerBuilder and PL/SQL.

Information Analyst, State of Michigan, Department of Natural Resources (DNR)

02/03 - 03/03

Upgraded the Michigan DNR Licensing system to operate on kiosks. Performed work with team to develop an interface for printing licenses and receipts from a kiosk using Active Server Pages, HTML, and VBScript.

*Web Consultant, State of Michigan,
Office of Financial and Insurance Services (OFIS)*

10/00 - 02/03

Executive Order 2000-4 created OFIS on April 3, 2000, by combining the Division of Financial Institutions, Division of Insurance, and the Securities Division. The three division's Web sites were consolidated into one with special attention given to standardization, appearance, and accessibility of the desired content. In addition, OFIS wanted to provide interactive pages for many of the licensing and consumer areas to reduce phone calls the agency receives and allow staff members to work on other agency projects.

Worked on a variety of OFIS Web development projects ranging from daily content updates on the Internet and intranet Web sites to the creation of interactive pages. Used Web development tools such as HTML, JavaScript, SQL, Active Server Pages, and a Content Management Application to maintain State of Michigan Web sites. Responsible for migrating content from the old OFIS Web site to Vignette. Worked with many divisions within OFIS to define requirements for Web content to place on the Web site.

*Technical Liaison and Application Developer,
Student Loan Origination Subsystem (LOS)*

09/00 - 10/00

Technical liaison between the EDS development staff in Birmingham, AL, and Lansing, MI, for LOS. Required participation in daily conference calls with technical leadership team in Birmingham to communicate status, identify issues, and resolve problems. As application developer, modified COBOL reports for the LOS.

Web Developer, State of Michigan, Department of Agriculture

07/00 - 08/00

Converted 12 training manuals for sanitarians from Microsoft Word to HTML and PDF format. These manuals were posted on the Department of Agriculture Web site in September 2000.

*Web Developer, State of Michigan,
Department of Information Technology, e-Michigan*

06/00 - 07/00

Assisted in creation of a prototype Web design for the e-Michigan initiative in the State of Michigan that allowed for focus group feedback prior to technical development. This prototype envisioned using Web and database technology to manage relationships with customers on a highly individualized basis.

*Proposal Writer, State of Michigan, Michigan Department of Transportation,
and Michigan Department of Agriculture; General Motors*

01/00 - 06/00

Participated on a team to develop a proposal to market the State of Michigan's Retail Sales System (RSS) to New York and Texas. Worked with an additional proposal team on requirements to reengineer legacy systems for the Michigan Department of Transportation to PowerBuilder with an Oracle database. For the General Motors Vehicle Transportation Information Management System (VTIMS), worked on a proposal team writing requirements to develop and reengineer the VTIMS Sun application from dBase IV to a Web-based application. For the Michigan Department of Agriculture, assisted proposal team on a bid to build a Web-based application that allows the public to enter selection criteria about food-borne illnesses.

Study Team Member, State of Michigan, Department of Agriculture

07/99 - 12/99

Member of study team that evaluated how improved information technology could benefit food inspectors in the Michigan Department of Agriculture. Team proposed ways a Web-based

solution would benefit the Department, and the solution was implemented during the summer of 2002. Responsibilities included interviewing staff from the Department to identify requirements and researching various hardware and software vendors to recommend a solution to meet requirements.

Application Developer and Technical Leader, General Motors Contact Worksheets 09/97 - 06/99

Created client/server application using PowerBuilder and Oracle 7.3 database allowing district managers to collect and store dealer information and share it with the divisions in General Motors.

Application Developer, State of Michigan, Department of Natural Resources, Retail Sales System (RSS) and State of North Carolina Customer Support System (CSS) 02/96 - 08/97

Assisted in the development and maintenance of the State of Michigan's Retail Sales System (RSS) and the State of North Carolina's Customer Support System (CSS). Maintained and developed online environment written in PowerBuilder Release coordinator for the RSS and assisted customer in testing each enhancement prior to implementation. Led EDS team to implement release to production after all modules were tested.

Application Developer, General Motors 06/85 - 01/96

Worked on a variety of projects for General Motors. Development languages used: PowerBuilder, SQL, COBOL, and Paradox.

Education and Training

B.S., Business Administration, major in management information systems, minor in management,
Central Michigan University, Mt. Pleasant, Michigan
Michigan.gov Site Administrator Course
Michigan.gov Content Entry Course
Introduction to Macromedia UltraDev
Mastering Web Application Development Using Visual InterDev 6
Introduction to PowerBuilder

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Diane Price

Project Scheduler

Experience Summary

More than four years of project management experience including recent support of the Project Control Office (PCO) for the State of Michigan Department of Human Services (DHS). Managed system development projects for the State of Michigan as well as for Xerox Supplies. Project manager and scheduler for the Federal Certification project and the Data Warehouse transition plan. Mentored new project managers and assisted them in maintaining project information and metric data in the tracking tools. Helped implement the templates and processes used at the Lansing Solution Center (a SEI CMMi Level-5 organization).

Employment History

State of Michigan

February 2002 to Present

Project Scheduler

Responsible for PCO support for the State of Michigan DHS. Primary responsibilities include schedule creation and daily schedule updates driven by resources effort. Create several reports and tools to help monitor DHS projects using MS Project and MS Excel macros. Maintain and analyze users and project metric information in tracking tools. MS Project schedules typically encompass 100+ resources. Follow and adhere to all PCO processes leveraged from our local CMMi Level-5 solution center.

Xerox

May 2000 to February 2002

Project Manager, Supplies Team

Managed multiple projects for a large group of resources consisting of information analysts, technical leaders, and business process owners. Assigned and tracked tasks using actual work and remaining hours on MS Project schedules. Responsible for time sheet approval, monitoring team status reports, resolving issues, creating client and management status reports, and all project management documentation using the Lansing Solution Center CMMi Level-5 process set including PM2 and SLC methodologies.

General Motors

June 1996 to May 2000

SME, Global Purchasing System

Global Purchasing System (GPS) is a client/server system for worldwide purchasing that combines the functions of numerous purchasing systems into one corporate common system. Project consisted of 6,000 Windows clients located at 80 sites worldwide connected to an IBM mainframe server by several Sybase gateways. Developed remote server processes using C and SQL. Team leader responsible for functional areas of the system. Wrote business designs, developed high-level technical designs and developed code in C using SQL. Project manager backup and technical leader backup. Implemented Lansing Support Center processes and procedures achieving CMM Level-3 certification.

General Motors

May 1994 to August 1996

Lansing Car Assembly System Engineer

Site support team member at Lansing Car Assembly responsible for supporting GM customers' systems that mostly resided on mainframes and UNIX stations.

Education

B.S., Mathematics and Computer Science, Central Michigan University, Mt. Pleasant, Michigan

EDS Engineering System Development (ESD) Phase Program

Numerous Project Management Courses including:

Startup and Planning

Requirements Determination Process

Execution and Closedown

Advance Project Management

Jason Todd

Hardware and Software Engineer

Experience Summary

Ten years of experience in system and network administration responsible for the administration of more than 400 workstations including system management, licensing and application installation. Includes nine years of building, troubleshooting, and optimizing Novell NetWare, Microsoft Windows NT, and Microsoft Windows 2000/2003 file servers. Troubleshoots problems on all systems and covers integration issues between them. Supports 15 development, model office, and production environments for multiple client systems.

Employment History

EDS

12/92 - Present

Hardware and Software Engineer, Lansing Solution Center

09/95 - Present

Lead administrator for multisite network supporting extended LAN with more than 400 nodes and wide area connectivity using multiple high-speed serial lines. Equipment supported includes CISCO Routers connected by T1 lines; Enterasys switches and CableTron hubs (10/100mb on a gigabit Ethernet backbone using VLANs); Cat 5 and fiber cabling schemes; multiserver development farm using Windows 2000 and Windows 2003 servers; server and network attached backup subsystems; network attached scanners, plotters, printers, and multifunction devices; workstations and laptops.

Providing first-line troubleshooting for all wide area network- (WAN) related problems for the high-speed serial communications lines, routers, and hubs; network administration for development, model office, and production servers along with backups and disaster recovery; and system administration workstations and laptops including configuration, software installation, and problem resolution.

Project leader for multiple sitewide projects including Windows operating system upgrades (95, 98, NT, 2000 and XP), constructing and administering SQL Database and Web servers, and the remote access implementation. Designed and coordinated conversion of Windows NT security and Windows NT operating system to Active Directory and Windows 2003 Server for multiple sites. Aided in construction of Novell Netware and Year 2000 disaster recover project. Nine years of building, troubleshooting and optimizing Novell NetWare, Microsoft Windows NT, and Microsoft Windows 2000/2003 file servers. Maintenance of LAN disaster recovery plan. Daily tape backup operations and virus control. Installation of software on workstations and servers. Assisted in rewiring Lansing campus from token ring to Ethernet. Provide network support for system engineers and business/technical leaders and problem resolution for all LAN/WAN and system-related issues.

EDS

06/94 – 08/95

Coordinated, purchased, and inventoried all computer spare parts for EDS and General Motors Accounts. Performed minor and major repairs to all desktops, laptops, and printers. Inventoried all campus hardware. Rebuilt and donated all out-dated equipment to schools and taxable organizations.

EDS*12/92 – 05/94****Shipping and Receiving Clerk***

Assisted in assigning, directing, and checking the work of six couriers and shipping and receiving personnel. Coordinated receiving, transferring, tracking, and storage of all equipment.

Education

Lansing Community College, Lansing, Michigan

Certified in Course #529 Netware 4.11 to 5.0 Update; A+

Francisco Torres

Legacy Coordinator

Experience Summary

Expert programmer with more than 16 years of programming experience including 13 years hands-on COBOL, 10 years hands-on ALGOL, and four years as supervisor and group leader. Also, 13 years Unisys A-19 experience and three years BTOS operating system experience. Over 23 years of financial IT consulting work including application software development on mainframes (UNISYS and IBM), project management, and system administration. Excellent skills in the analysis and development of information systems. Strong utilization of quality control techniques at every stage of development system. Specializing in the design and development of Unisys applications (online, batch, and interfaces). Provided system users support for environment, application, and system architecture in Citibank.

Applications development with structured programming techniques, advanced programming techniques, structured testing techniques, and code walkthrough.

Proficient in capacity planning, coordinating, and requirements gathering/negotiating with system users, personnel management systems and financial and statistics skills.

Employment History

Society for Worldwide Interbank Financial Telecommunication

01/01 - Present

IT Consultant

Responsible for entire project life cycle from requirements gathering, analysis, and testing of business requirements of the cooperative organization owned by many international financial institutions to the development and maintenance of the SWIFT computer network process that provides convenient and reliable communication services for its subscribers worldwide.

Complex SWIFT network ensures privacy and high security level of information preventing unauthorized system access. Create master test plan, coordinate for user acceptance testing, and include documentation system. Participate in review meetings.

Environment: Algol and COBOL languages, DMSII (Unisys database), Tads, Inquiry, Cande, Unisys Editor, Coms, BNA, and Utilsoft. Batch, On-line, and Libraries Unisys A-series process.

Citibank

08/88 -12/00

IT Consultant, Systems Engineering Mortgage Credit

03/98 - 01/00

Analysis, design, and development of systems BATCH mainframe UNISYS series A-19, DMSII, ALGOL and COBOL languages. COMS, WFL, Client Server, IBM DB2 SQL. Analysis of business requirements, system designs specification, development and maintenance of batch system support. Responsible for entire project life cycle from requirements gathering to testing. Created master test plan and coordinated for user acceptance testing including documentation system. Participated in review meetings. Developed and maintained interfaces to IBM mainframes and to Predictive Dialing "Mosaix" Infrastructure. Coordinated development of Call Center System project to transfer information from Mortgage Credit Data Base in Unisys A-19 to Call Center Data Base in Mosaix Client Server. Predictive Dialing (Implementation Interface).

Coordinated development of Galileo System project to transfer information from Mortgage Credit Data Base in Unisys A-19 to Data Base in IBM.

CitiBank

08/88 - 03/98

IT Consultant, Systems Engineering Retirement Savings Fund

Analysis, design, and development of systems real-time and batch transaction programming in mainframe UNISYS. Coordinated development of databases and Cobol System (ON-LINE) for communicating the Client Server diagrams in the branches with the Mainframe Unisys A-19 for reception of information from the Sole Authorization System. Developed Cobol System (BATCH) for reports and other purposes.

Environment: UNISYS series A-19, DMSII, ALGOL and COBOL languages. COMS, WFL and Client server (UNIX). On-Line, Batch and Interface process.

Citibank

09/94 - 05/97

IT Consultant, Systems Engineering Clients

Analysis, design, and development of systems real-time and batch transaction programming in mainframe UNISYS. Developed prevention of documents (Check) system and developed and maintained interfaces to provide information to other user systems in the Unisys A-19 Infrastructure. Administrator of systems projects of the department. Coordinated development and maintenance of interfaces for accessing information contained in the database of Systems (S016 clients and S127 Document Prevention). Coordinated development of an inline and batch system for prevention of documents (checks) tending to reduce frauds and improve response times to other user systems S127. Development of databases and interfaces for the project of Agricultural, Livestock and Fishing Financing (FINAPE and FOPYME). Development and modification of interface to support transfer from system S001 checks to the new Integral Raising System 500.

Citibank

07/91 - 08/94

IT Systems Engineer, Systems Engineering Data and Security

Analysis, design, development, and maintenance of interface and batch software in mainframe UNISYS Series A-17, DMSII, COBOL and ALGOL languages. COMS, WFL. Development and maintenance of application software (batch and interface) of database of the Systems S041 Security, S080, Structure, and S016 Clients.

Citibank

08/88 - 06/91

IT Systems Engineer, Systems Engineering Electronic Delivery Channels

Analysis, design, development, and maintenance of software for Unisys B28 equipment, BTOS operative System in COBOL, BASIC, and PASCAL languages. Responsible for transmission of payment orders system and automation of accounting in branch offices.

Education:

Administration Computing Systems, Universidad del Valle de Mexico, 1984 – 1988

American Society for Quality (ASQ), Software Testing training, 2001

Unisys de Mexico, Concepts on Series A, Basic Operations, Introduction and Use of DMSII, 1988

Unisys de Mexico Seminar of BTOS software, Forms Editor, Isam (Index Sequential Access),

Bmulti (File transmission); BASIC, COBOL, and PASCAL Compilers, 1988

Srinivas Rao

Database Administrator

Experience Summary

Twelve years of overall software industry experience. Microsoft certified in SQL Server 2000 DBA (MCDBA), Data Warehousing (MCP) and Visual Basic (MCP). Oracle Certified DBA in 9i. Certified by BrainBench in SQL Server 2000 admin (score 4.2 out of 5.0). More than eight years in DBA technologies, primarily as a back-end engineer performing SQL Server and Oracle Database Administration. Experience in data modeling using ERWIN. More than four years of experience in data warehousing and business intelligence. More than three years of software development experience using Visual Basic, .NET (VB and C#).

Employment History

Union Bank of California

01/03 - Present

Database Administrator

Production DBA for the 401k Division. RCoded, tested, and implemented physical database. Designed logical and physical data bases. Mentoring and knowledge transfer to other team members. Production database support. Hardware design and changes for new systems to improve performance of existing systems. Multiple instance creation and maintenance. Security, backups and server maintenance. Responsible for daily data migration jobs using DTS and Informatica. Supporting development team in SP, T-SQL and Connectivity. Executing database change management requests. Performance tuning including tuning queries and Stored Procedures. Set up disaster recovery systems using log shipping. Setting up replication environment.

Data Warehousing and Business Intelligence. This project provides analysis data reporting that provides senior management insight into daily business activities. The modules developed so far include Brokers, Plan Sponsors and Heat. Estimated time and cost required to accomplish project. Schema Design (Star and Snow-flake).

ETL (Informatica 7.1.1) Sources include SQL Server, Oracle 9i, text-based mainframe file, Microsoft Excel and Access.

Building Cubes using Analysis Manager, MDX. Analysis Reporting using Office XP OWC10 and Actuate.

Hardware: Compaq Proliant ML and BL systems. IBM Q series. Operating System: Windows 2000, Linux

RDBMS: MS-SQL Server 2000, Oracle 9i. Software: Microsoft .NET, Visual Studio.NET, XML, Visual Basic.NET and Visual C#. Net, ERwin. Reporting Tools: Crystal Reports, Actuate, Panorama Nova View, Office XP WebComponents. ETL Tools: Informatica 7.1.1, DTS

Hudson Highland*03/99 – 01/03**Data Warehousing DBA/Developer/Consultant, Arizona Department of Transportation*

Reporting and analysis of the data related to Arizona Department of Transportation, specifically advantage data, that includes construction projects, assets, and distances. Also worked on a five-year plan data during this project.

Responsible for understanding specifications requirements, data architecture, building, ER diagram, and building data warehouse databases. Used Star and Snowflake schema approach. Extract, Transform and Load (ETL) using DTS. Developed data transfer methodologies. Created DTS packages using DTS designer using different tasks like ActiveX Script, Transform data, Execute SQL, Data Driven, Copy SQL Server Objects, Bulk Insert, Dynamic Properties, and Analysis Processing task to copy data from SQL Server and Oracle system. Included Stored Procedure to run as Execute SQL task to clean, process, and load data onto Data Warehouse database. Package storage, security, and testing. Scheduling packages included cube-processing tasks.

Created Analysis server Objects (OLAP): cubes, dimensions, virtual dimensions, virtual cubes, and created calculated members. Built OLAP Security. Optimization of Cubes Storage and Usage. Analysis Server wide Settings. Wrote complex MDX statements for Analysis Reports. Used ADOMD, ADO.NET. Metadata design and implementation. Helped generate reports using PivotTable (Excel) with .NET DBA Functionalities including Databases, Objects, Security, Backup/Restore, alerts, Jobs, etc. Performance Tuning using System Monitor, Query Analyzer and Profiler. Index Tuning. Wrote code for reusable Windows DNA Objects (ActiveX) in Visual C#.NET that included Connection Object, Populating List boxes from Dimensions in Cubes, Setting PivotTable properties from Meta Data table. Generating XML Templates and modifying to change format of the data. Main achievement included setting standards, querying multiple cubes, achieving some pivot table functionalities like formatting, and Building C# classes for reusable code using metadata.

Monster.com*03/01 to 03/02**Applicant Tracking Systems SQL Server DBA with Data Warehousing Support*

The applicant tracking system deals with the recruiting side of Monster.com and includes creating and posting jobs, managing applicants and their resumes, and other functionalities like the interview process. Daily administration and maintenance of application tracking system running on SQL Server 2000 and source code. 7x24 support of Production Server running on SQL Server 2000. Tuned T-SQL Queries using Index Tuning Wizard. Adding Indexes and Keys to make the queries faster. Populated Data Mart Databases using DTS Packages. Transformed Production Momentum Data for Decision Support Systems (Data Warehousing). Data marts store aggregates and required base data for analysis and, subsequently, reports were generated from the data marts. Scheduled DTS Packages and created Alerts to notify when DTS package failed. Fixed bugs and developed the system in ASP, Visual Basic, and SQL Server 2000.

Interfaced with Monster.com clients on various project issues. Replicated database tables in SQL Server using Transactional Replication. Performed Tuning and Performance Monitoring of the SQL Server 2000 database. Complex Data Migration using DTS Designer from Momentum to Core using DTS Packages, VB, SP, TSQL, and Cursors together. Wrote a program in Visual Basic using SQL Server for resume extraction. Major achievement in this project included a complex Data Migration (ETL) from Momentum to Core using Stored Procedures and Cursors.

Migration comprised of a program written in Visual Basic and a group of scalable Stored Procedures written in T-SQL using DTS designer Packages (SQL Server 2000).

Microsoft Corporation

01/00 – 03/01

Database Administrator

Project aimed at moving IP addresses for Staples.com and Business Depot. Approximately 20 databases sat on different servers and database called StaplesShopper varying in size from 20 MB to 140 GB. Purpose of the project was to set up new production environment (including Web servers) and data migration (nearly 30 Web servers and 15 Backend SQL Servers).

Developed and implemented backup strategy on standby servers for dynamic databases. Migration of databases from SQL Server 6.5 on Windows NT 4.0 to SQL Server 7.0 on Windows 2000. Database optimization using file groups and Isolating Transaction log files. Tight security and maintenance. Drives standardization. Installation of SQL Server 7.0 on new Compaq 8500/6400 boxes (cable and wireless). Post configuration included setting up service accounts, placing tempdb properly, and setting up configuration options. Drafted new security model and implemented it across the environment. Implemented standby server approach for dynamic databases (log shipping). Created and scheduled jobs and linked various servers into cluster clustering. SQL Mail configuration included installing Outlook and creating profile. Profiler and Windows performance monitor. Database cutover plan using log shipping. Documentation. Major achievements included system tuning, standard configuration, and tight security. Performance gain was 300 percent after moving to new production servers and clustering.

John Hancock Insurance Company

03/99 – 12/99

Traditional Policy Database / Industrial Policy Database

Large financial institution providing its customers with a wide range of financial services like Mutual Funds and 401 (k) plans. Responsible for converting data maintained in COBOL and Oracle systems into MS-SQL SERVER database and providing facilities to update, manage, and ensure quality control of the database. Application also contained functions to transfer and update data back into the source system to perform other functions.

Wrote stored procedures, triggers for the MS-SQL Server database. Optimized queries for faster retrieval of data. Fine-tuned MS-SQL Server database to achieve optimal performance. Data definition language and indexes. Used Transact SQL to write queries that would help in stored procedures and creating jobs. Database recovery and backups through knowledge of export and import utilities. Created reports using Crystal Reports. Active Data Objects (ADO). Contrasting and comparing recovery vs. restoration of backups. Ran batch procedures. Created triggers and stored procedures. Created database tables, indexes, and rules. Wrote an executable program to help users to overcome loopholes of BCP command. Wrote programs in Visual Basic to help users create and print simple reports on their own. Wrote program for preparing manual of database objects. Executable program retrieves information of user objects stored in SQL Server database, allows users to enter additional information about each object, and prints the user manual. Reporting and BCP data transfer were some achieving points in this project.

Applied Computer Sciences, Ltd.

02/93 – 10/99

Project Manager and DBA Support Engineer, Tax Management System

Computer Support Center, Bhutan (01/06/1997 to 01/01/1999). Tax management system was a tax information and management system that automates tax deductions under various heads like

Business Income Tax (BIT), Corporate Income Tax (CIT), Withheld Tax such as Sales Tax on Hotels, Salary Tax, Health Contribution, and so on. Responsible for system analysis, design, and coordination of activities. Daily back-end DBA activities like creation of logins, users, object permissions, backups, creating device and databases, writing stored procedures, coding triggers for master maintenance and for multiple domain updating or deletions, creating database objects like tables, views, user-defined data types, and rules. Wrote programs in Visual Basic 5.0. Used Crystal Reports for generating reports like list of taxpayers, tax payments during given tax year, and tax payments customer wise.

Education

B.S. in Computer Science Engineering, Mysore University, India, 1992 Diploma in C++ with OOPS, CMC Ltd., India, 1994

Microsoft certified in Visual Basic, NIIT, India, 1996

Microsoft certified in SQL Server 2000 DBA, Microsoft, USA, 2002

Microsoft certified in SQL Server Data Warehousing, Microsoft, USA, 2001

Oracle certified professional in Oracle 9i, Oracle, USA, 2004

SQL Server 2000 Administration, BrainBench, USA, 2005

Jeff Bowles

Technical Subject Matter Expert (SME)

Experience Summary

More than twelve years experience in performing system analysis, requirements gathering, designing, developing, debugging, documenting, testing, and deploying complex business computer applications on Web, client/server and midrange platforms. For the past eight years, supported Web development for various clients through extensive use of HTML, Visual Basic, Active Server Pages, PL/SQL, Oracle and SQL Server. Projects include principal designer for the Department of Human Services Contract Tracking/Payments Asp.NET Web application, the State of Michigan Department of Transportation Safestat application, and principle developer of the Department of Agriculture eInspector application. Recent experience includes principal designer and developer for the Department of Human Services Contract Tracking and Payments Web application using UML for analysis and design, ASP.NET, Visual Basic.NET, Oracle procedures, and Crystal Reports for development of the financial application.

Project Experience Detail

EDS

06/04 - Present

Designer and Developer, State of Michigan, Department of Human Services, Contract Tracking and Payments

Participated in the analysis, design, coding, and testing for the conversion of three MS Access financial databases to an MS .NET Web application with an Oracle database. Technologies included UML, MS Access, ASP.NET, Visual Basic .NET, VBScript, JavaScript, Oracle PL/SQL Stored Procedures, and Crystal Reports.

Developer, Digital Workflow Data Migration Tool

02/04 - 05/04

Participated in the design, coding, and testing of modules for transferring data between MS Excel spreadsheets and Sybase databases. Developed user manual and HTML-based help system.

Developer, State of Michigan, Department of Agriculture, eInspector

12/01 - 02/04

Principle developer and primary support of the Michigan Department of Agriculture eInspector Web application. Provided full development life cycle of initial application. Provided trouble shooting and monitoring of interface with License 2000, data exchange interface between central server and 45 field laptops, and deployment of eInspector enhancements and platform security patches. Technologies included Active Server Pages, Visual Basic, SOAP, XML, HTML, VBScript, JavaScript, Oracle PL/SQL, and SQL Server Stored Procedures.

Information Analyst, State of Michigan, Department of Transportation, Safestat

09/01 - 12/01

Participated as a subject-matter expert in the critical analysis, requirement documentation, and development of application specifications for the redesign of a Michigan Department of Transportation Safestat inventory subsystem. Technologies included PowerBuilder, Oracle, and PL/SQL.

Information Analyst, State of Michigan, Department of Environmental Quality 01/01 - 08/01

Participated in the analysis and documentation of requirements for converting a Michigan Department of Environmental Quality Accounts Receivable and Receipt Process financial system written in MS Access to Visual Basic and Active Server Pages with Crystal Reports.

Developer, Business Continuity Web Application 12/98 - 06/99, 05/00 - 01/01

Initial version of and major enhancement to a business continuity Web application.

Responsibilities included full development life cycle using Active Server Pages, Visual Basic, HTML, VBScript, JavaScript, Crystal Reports, Data Dynamics Active Reports, and SQL Server stored procedures.

Developer, State of Michigan, Department of Agriculture, Food Services Division 03/00 - 05/00

Responsibilities included full development life cycle for FPAdvisor, a Web-based intranet application using Active Server Pages, Visual Basic, HTML, VBScript, JavaScript, and Microsoft Access.

*Developer, State of Michigan, Family Independence Agency,
Automated Reporting System for the Inspector General (ARSIG)* 09/99 - 03/00

Responsibilities included full development life cycle using Visual Basic, Crystal Reports, and Oracle SQL stored procedures.

Developer/Project Lead, General Motors, Change Management and Production Readiness 06/99 - 09/99

Responsibilities included full development life cycle using Visual Basic, Crystal Reports, and SQL Server stored procedures.

*Developer, State of Michigan, Family Independence Agency,
Automated Reporting System for the Inspector General (ARSIG)* 01/98 - 12/98

Responsibilities included full development system life cycle using Visual Basic, Crystal Reports, and Oracle SQL and stored procedures.

Education and Training

Master of Science, Zoology/Physiology, Michigan State University, East Lansing, Michigan

Bachelor of Science, Biochemistry, Michigan State University, East Lansing, Michigan

Bruce Hair

Senior Developer

Experience Summary

Senior developer providing Web development and data architect expertise for the Digital Workflow project. Currently lead the Digital Workflow Data Governance Board (DGB) overseeing key data changes to the principle service offerings of asset management and service management. Continually improve and streamline the DGB management by designing and developing Web-based applications with varied Web development tools. Adapted to evolving technologies by progressing from mainframe systems to client/server and Web environments. Designed and developed several Web applications including a document management system for EDS Global Operations and a request tracking system for Digital Workflow. More than 20 years of varied experience in all phases of business application projects and many development and operating environments.

Employment History

EDS

04/85 - Present

Data Architect and Web Designer, Digital Workflow

10/02 - Present

Data architect for the Digital Workflow Data Management team. Use multiple products and tools including Macromedia Dreamweaver. Develop data design and data strategies. Review and approve data change requests. Design and develop team intranet Web sites.

EDS

12/00 – 10/02

Web Designer and Developer, Client Information Catalog

Client Information Catalog (CIC) was an internal EDS application for the Global Operations Solutions Delivery group that manages document access. Application replaced the Integrated Quality Management System Web site. Application Architecture: three-tiered Web application browser client on EDS Windows PC's Java servlets and Java Server Pages (JSP) in Websphere Standard Edition 3.5 for OS/390 DB2 database on mainframe S/390. Used IBM Visual Age for Java, Macromedia Dreamweaver, UltraDev DB2, Macromedia Flash, Macromedia Fireworks, and Adobe Photoshop. Developed data design and data strategies. Client interaction with SMC personnel. Responsible for product release and implementations. Designed Web site graphical user interface, Java Server Pages (JSPs). Developed flash movie to submit database query. Coded and maintained Java servlets. Developed and supported Web site.

EDS

10/00 – 11/00

Web Designer and Developer, Integrated Quality Management System

Developed Web site graphical user interface for the Integrated Qualify Management System, an internal EDS application for the Core US Infrastructure group that manages document access. Application was replaced by the Client Information Catalog Web site. The application architecture is two-tiered: Windows NT-based, Web application browser client on EDS Windows PCs, Active Server Pages (ASP) on NT server, MS Access database on NT server. Used MS FrontPage 98, MS Access 97, and Adobe Photoshop. Responsible for Web site

deployment. Designed Web site graphical user interface (ASPs); developed and supported Web site.

EDS

09/98 – 09/00

Technical Project Leader, Estimator and Data Engineer, Various Projects

Performed a number of roles leveraged across multiple teams including technical project lead leader for Delphi Auto Cyber Mall investigating e-commerce alternative solutions and gathering customer requirements. Metrics reporting lead setting direction for a team of developers. Designed and developed generic metrics reporting database. Designed and developed project team Web site using MS FrontPage 98. Led startup effort for multiple Web-based projects for GM Dealer Network Investment and Development group. As the EDA/SQL Assessment project leader, investigated viability of EDA/SQL middleware use and possible alternatives.

EDS

03/98 – 07/98/

Team Leader, Client/Server Team

Supervised team of 20 client/server developers specializing in Visual Basic.

EDS

07/97 – 02/98

Client/Server Developer, Surgical Services Data System

Visual Basic developer on DJ Sullivan client/server project using Oracle (with stored procedure and triggers).

EDS

03/97- 06/97

Team Lead, Year 2000 Conversion

Led a team of developers on Y2K remediation effort of several materials management systems for Delphi Saginaw Steering Systems. Developed project tools including an analysis database and a team Web page.

EDS

04/85 – 02/97

Project Lead, Other Projects

Project leader and developer for numerous client/server applications and mainframe applications. Involved in many projects in all phases using COBOL II, DB2, IMS batch, and online. Conducted and assisted with function point counting on numerous applications.

Education

M.A., Communications, Saginaw Valley State University

B.B.A, Major: Management, Minor: Data Processing, Saginaw Valley State University

A.A., Major: Data Processing, Delta College, University Center

Scott Zeiter

Senior Developer

Experience Summary

More than 16 years experience in the IT industry. Hands-on project manager and development team leader with extensive experience working and managing client/server and Web-based applications using Visual Studio.NET, Visual Basic, SQL Server, Access, and other Microsoft .NET Technologies. Instrumental in the Internet and intranet development of the First Report of Injury Online System for the state of South Dakota.

Involved in all phases of the software development life cycle from start to finish. Excellent knowledge and experience in the design and development of commerce-based Web applications working with the latest Microsoft technologies including extensive experience in the conversion, enhancement and maintenance of existing projects. Experience in analysis, design, code modification, support, testing and quality control of various software projects. Expert knowledge of Visual Basic languages, SQL Server, IIS, ASP.NET, and Commerce Server.

Employment History

Denso TD Scan (USA), Inc.

09/03 - Present

Technical Development Lead

09/03 - Present

Technical development lead and highest level customer support for new and existing VB.NET and C# handheld bar-coding applications. Design, development, and testing of numerous Windows CE.NET applications. Top-level solution provider support for various proprietary handheld computers and devices. Design, architect, and development of the corporate ASP.NET external portal Web site using multitiered development methodologies. Development and enhancement of Board Support Packages (BSP) for proprietary Windows CE.NET device.

Technologies used: Windows XP Professional, Windows 2000/2003 Servers, SQL Server 2000 and CE, .NET Framework, .NET Compact Framework, Windows CE.NET 4.1, Active Server Pages, ASP.NET, ActiveX, Visual Studio.NET 2003, eMbedded Visual Basic 3.0, eMbedded Visual C++, C#.NET, ActiveSync, Windows CE.NET 4.1 Platform Builder, IBM WebSphere, IBM WebSphere Everyplace Access version 4.3.

Hands-on project management, analysis of existing applications, top-level reseller and solution provider developer support for Windows CE.net devices, design and development of corporate Web site portal, and design, development and enhancement of numerous embedded Visual Basic.NET applications. Design and development of new .NET Architecture in both handheld and Web environments. Redesign and development of corporate Internet and intranet applications using ASP.NET and Visual Basic.NET. Design and development of multiple ASP.NET server controls.

OTS Consulting

04/03 – 08/03

Technical Development Lead

Technical development lead and high-level customer support for new and existing Visual Basic 6 and VB.NET forecasting applications. Lead architecture and development of extensive sales forecasting multitiered applications for large multinational manufacturing company.

Development and upgrade of numerous Visual Basic 6 and Visual Basic.NET applications from Visual Basic 3. Technologies used: Windows XP Professional, Windows 2000 Server, SQL Server 2000, Sybase Adaptive Server 10, AS400 ODBC data access, .NET, Framework, Active Server Pages, ASP.NET, DHTML, ActiveX, COM/DCOM, Visual Studio.NET 2003, Visual Basic 6.0, Visual Basic 3.0, Visual SourceSafe, Visual InterDev, ERwin, and MS Internet Explorer.

Hands-on project management and analysis of existing applications. Define scope of development effort and specifications for development team. Design and development of upgraded Visual Basic 6 applications from Visual Basic 3. Design and implementation of new .NET Framework Architecture. Design, development, and enhancement of numerous Visual Basic.NET applications, controls, and data access layers. Design and development of new ASP.NET intranet applications.

The SoftAd Group, Inc.,

01/03 – 03/03

Integration Project Development Lead, Internet and Intranet Development

Planned short-term project as high-level customer support for XML, XSL-based catalog and content management system. Lead development of extensive presales prototype online catalog for large automobile manufacturer. Worked closely with client and development team in Mill Valley, California, and acted as a development liaison to the client on all issues. Turned client requirements into usable specifications used by both development teams in Mill Valley and Dearborn.

Hands-on project management, analysis of existing applications, define scope of development effort and specifications for development team. Design and development of custom XSL templates and style sheets.

Design, development, and enhancement of numerous XML and XSLT Web sites.

State of South Dakota

08/02 – 01/03

Internet and Intranet Development

Internet and intranet application development of a First Report of Injury Online System for the Department of Labor's Worker's Compensation group project brought current that was approximately three years late and abandoned by two previous consultants. Included complete redesign and enhancement of current state agency intranet Web site, internally used Windows COM applications, and internally used client/server applications. Conversion of existing mainframe system and data to SQL Server-based Web application.

Define scope for completion, redesign, and development of UI operability and screen layout, data entry and site administrative maintenance screens, SQL Server database tables, relationships, and stored procedures, and migration strategy from mainframe to SQL Server. Redesign of application screens incorporating design and coding standards not previously used. Design and development of migration and conversion strategy from mainframe to SQL Server. Design, development, and upgrade of ADO and SQL Server queries to stored procedures. Design and Implementation of Active Directory security model for internal (intranet) and external (Internet) site users. Redesign and development of XML data upload procedures to SQL Server. Design and development of SQLXML and SOAP applications. Extensive JavaScript, DHTML, Active Server Page development. VB6 DCOM MTS Package Development.

JDS Digital Security Systems

01/02 – 08/02

Microsoft .NET Development

Development and enhancement of existing video surveillance and imaging applications to take advantage of latest .NET technologies as well as expanding current functionality to run on a hand-held platform. Hardware and Software: Windows 2000 Servers, Windows .NET Servers, IIS 5 and 6, SQL Server 2000 and 2000 CE, Active Server Pages, ASP.NET, Visual Basic.NET, Visual Studio.NET, ADO.NET, XML Web Services, MS Internet Explorer, Crystal Reports, Mobile Internet Toolkit, Pocket PC 2002, .NET Compact Framework.

Upgrade and enhancement of current Windows form application to Windows CE and .NET Compact Framework in a Pocket PC environment. Development of additional application functionality to run in an ASP.NET Web environment, and VB.NET. Extensive development of XML Web Services components and their integration into VB.NET, ASP.NET and Compact PocketPC environments. Design and development of SQL Server database for customer and account tracking, billing, and application use using Commerce Server 2000. Research and implementation of additional Internet development tools for use by current and future development team.

Organic, Inc.

06/02 – 07/02

Intranet Development

Short-term project including development and enhancement of existing database tracking applications to take advantage of latest SQL Server and .NET technologies including the upgrade and enhancement of existing Microsoft Access 97 database application to Microsoft Access XP/2002 and Visual Basic Front-ends with SQL Server 2000 backend.

Design and development of updated data model using ERWin Data modeling CASE Tools. Upgrade and conversion of existing Microsoft Access data to SQL Server 2000. Development of SQL Server-stored procedures, triggers and views. Upgrade and enhancement of existing Microsoft Access 97 user interface screens to Access XP and ASP user interface, with SQL Server backend. Development of additional application functionality. Design and development of static and dynamic reports using Access XP report writer and Active Server Pages. Design and documentation of new network server architecture using Microsoft Visio.

Pharmacia Corporation

December 2001 to February 2002

Internet and Intranet Development

Internet and intranet application development including redesign, enhancement, and upgrade of current corporate Web sites including the upgrade and enhancement of current ASP and ColdFusion Web sites, SQL Server database design and development including extensive Transact SQL, SQL Server DTS development, and development of additional applications and Web sites for intranet use, development of Web applications for remote sales staff, training staff, and third-party companies to interface with company databases, research and implementation of additional Internet development tools for use by staff in the future.

Upgrade and enhancement of current ASP and ColdFusion Web sites using data located on SQL Server and Oracle database servers. SQL Server and Oracle database design and development including extensive Transact SQL, stored procedures, and triggers. Development of additional applications and Web sites for intranet use.

Development of Web applications for remote sales staff, training staff, and third-party companies to interface with company databases. Research and implementation of additional Internet development

tools for use by future staff.

Family Christian Stores

09/01 – 11/01

E-Commerce and Web Design, Documentation

Design and development of prototype E-Commerce application to replace existing online storefront for large, nationwide retail store. Included development of documentation, development project time line, and migration strategy documents. Defined migration strategy for upgrade of existing Windows NT 4, SQL Server 7, IIS 4 E-Commerce storefront to Windows 2000, .Net, Microsoft Commerce 2000 environment using a SQL Server 2000 database.

Hardware and Software: Multiple Windows NT 2000 Servers, Windows 2000, MS-Internet Information Server, Microsoft Component Services, Microsoft Commerce Server 2000, VBScript, Active Server Pages, DHTML, XML, ActiveX, JavaScript, COM+, Visual InterDev, Visual Basic 6, Visual SourceSafe, SQL Server 2000, ODBC, ADO, MS Internet Explorer, Netscape Navigator, Microsoft Project, Microsoft Visio, Erwin, Adobe FrameMaker.

Analysis of current SQL Server 7, IIS 4 E-Commerce On-line Storefront. Redesign of existing commerce catalog hierarchy to provide added functionality and allow for future growth. Design of updated SQL Server Data Model.

Design and definition of Upgraded Infrastructure. Development of Data Flow and Process Diagrams using Microsoft Visio. Development of Detailed Migration Plan to Microsoft Commerce Server 2000.

Amway Corporation

01/00 – 10/01

E-Commerce, Web Development

North American project manager, Global Internet Solutions Team, Commerce Development Leader, Systems Development: Intranet/Internet, E-Commerce Web application development including design, development, enhancement, and redevelopment of multiple new and existing Web applications for a large, multinational product distribution company. Extensive development of Visual Basic COM and COM+ objects running, SQL Server data model design and development of stored procedures, views, and triggers, and heavy development and use of SQL Server DTS packages.

Managed multiple intranet and Internet Web applications and SQL Server databases. Development, enhancement, and support of Internet application development based in Europe. Coordinated development and implementation of International Internet application across multiple countries and languages. Development of Transact SQL, SQL Server Triggers, Stored Procedures, and Views. Performance Tuning of Multiple Windows NT, and SQL Servers. Performance Tuning and optimization of Multiple SQL Server Database, Transact SQL Database queries, Site Server Commerce Web sites, and Active Server Page applications. Redesign and development of existing ActiveX/DCOM component applications. Numerous application enhancements. Development of Multiple DCOM components used on international Web servers. Windows Development from design through implementation of new international applications. Designed and developed application databases. Performed backup administrative duties to SQL Server, databases, and Windows NT Server.

Corning, Inc.,

07/00 – 06/01

Lead E-Commerce, Web Development

Intranet and Internet, E-Commerce Web application development project involving design, development, enhancement, and redevelopment of multiple new and existing Web applications

for a multinational Fortune 500 company using the Microsoft DNA architecture. Managed and led development of multiple intranet and Internet E-Commerce and Web applications, Commerce 2000 Web Catalogs and SQL Server databases.

Development, enhancement, and support of Internet application development for multinational Fortune 500 Company. Coordinated development and implementation of International Internet application across multiple countries. Design and development of multiple Commerce Server 2000 and Site Server 3 product catalogs.

Development of SQL Server Triggers, Stored Procedures, Views and other Transact SQL used in Active Server Pages and COM components. Performance Tuning of Multiple SQL Server Database, Site Server and Commerce Server 2000 Websites and Active Server Page applications. Redesign and development of Existing ActiveX / DCOM component applications using SQL Server and Oracle back-end databases. Numerous application and Web enhancements. Extensive JavaScript development. Windows Development from design through implementation of new International Web applications. Designed and developed application databases.

Cyberdyne Business Solutions

01/98 – 01/00

Mortgage Banking Application Development

Project manager, development leader, systems developer for extensive client/server, intranet application development including design, development, enhancement, and redevelopment of multiple new and existing bankruptcy, foreclosure and eviction applications

Designed and developed client/server intranet applications and SQL Server databases. Redesign of existing application databases to normalized structure. Conversion of existing Microsoft Access databases to normalized SQL Server 6.5 databases. Extensive development of Transact SQL, SQL Server Triggers, Stored Procedures, and Views. Redesign and development of existing Microsoft Access database applications to Access applications with SQL Server back-ends. Numerous application enhancements. Upgrade of multiple SQL Server 6.5, Access, and FoxPro databases to SQL Server 7. Windows Development from design through implementation of new applications involving full System Development Life Cycle (SDLC). Designed and developed application databases using ERWin data modeling CASE tools. Performed administrative duties to SQL Server, databases, and Windows NT Server. Extensive performance tuning and optimization of SQL Server databases, queries, stored procedures, triggers and views. Developed ODBC, OLEDB, ADO and COM links to SQL Server databases and other various data source files. Developed DCOM/ActiveX packages in Transaction Server for use in Active Server Web pages. ActiveX Control and Document Development. Crystal Reports design and development.

Cyberdyne Business Solutions

10/97 – 02/98

Internet and Intranet Development

Internet and intranet application development including redesign and enhancement of current corporate Web Sites, internally used Windows form applications, and internally used client/server applications. Developed additional applications for intranet use. Developed Web application for corporate employees working off-site to interface with company databases. Researched additional iInternet development tools for use by future staff.

Designed and developed Internet and intranet applications and SQL Server databases. Upgrade of numerous application components and forms to current VB versions. Performed administrative duties for SQL Server and Windows NT Server. Researched new Internet development tools for use by programming staff. HTML and Active Server Page Development.

ActiveX Control and Document Development. VB6 DCOM MTS Package Development. Development and Administration of Microsoft Transaction Server (MTS) components.

Ford Motor Company

12/94 – 10/97

Project Manager, Development Leader

Windows- and laptop-based application used by Customer Satisfaction Representative for a large automotive manufacturer to audit or review dealership claims. Application to track and gather data later distributed by use of Crystal Reports and Microsoft Word Documents created through OLE. Windows development from design through implementation. Designed and developed application databases.

Performed DBA duties to SQL Server and Windows NT Server. Developed ODBC and DB-Library links to SQL Server databases and other various data source files. Healthsource - State of Indiana, Indianapolis, Indiana.

Development team leader, database administrator: Applications to gather, convert, and distribute data for a HMO Healthcare provider in Indiana in a variety of formats including ASCII Text files, MS-Access, ASCII Delimited, RedBrick Data Warehouse, Microsoft SQL Server, Sybase SQL Server, Oracle, MS Excel, Lotus, EBCDIC. Hardware and software: Client/Server Compaq Proliant SMP Pentium File Servers: Windows NT Server, Novell Netware, SQL Server NT, Visual Basic, Visual SourceSafe, SQL DB-Library, MS-Access, Crystal Reports, RedBrick Data Warehouse, Sybase SQL Server, Microsoft SQL Server, RDO, OLEDB, VBSQL, ODBC, ASCII Text Files, Microsoft Remote Access Service.

Upgrade of original application written in Microsoft Access and Visual Basic 3.0 to Visual Basic 4.0, then later 5.0. Developed routines to import various data types and programs and routines to export data to multiple formats. Client/server development from design through implementation. Designed and developed SQL Server databases. Performed DBA duties to SQL Server and Windows NT Server. Developed ODBC and DB-Library links to SQL Server databases and other various data source files. Bridgestone-Firestone, Nashville, Tennessee,

Client/server team leader and developer, database administrator and developer: Designed program to track and report on tire usage for large trucking fleets throughout the United States. System analyzes usage trends and cost comparisons between tire manufactures and type. Data is then replicated from hundreds of field representative laptops to a corporate SQL Server database to be used for managerial reporting.

Performed initial design and prototype development. SQL database designer and administrator: Designed and developed server components and client-to-server replication components.

City of Detroit, Michigan Municipal Parking System

12/92 to 12/94

Project Manager, Development Team Leader, and Systems Development

System tracked and monitored parking records at hundreds of city parking garages and facilities by internal accounting department. Data was replicated to central database server for managerial reporting, tracking, and reconciliation against bank deposits, and for discrepancy reporting.

Project manager, development team leader, and systems developer for City of Detroit, Michigan Municipal Contract Tracking System. System tracked and monitored contracts in local city government to various outside contractors. Also tracked progress of contracts and payments made and provides executive reporting used by department heads.

Led application development from design through implementation. Designed and developed MS Access databases. Coordinated development with multiple programming team members.

Project manager, development team leader, and systems developer for City of Detroit, Michigan, Mayor's Office Municipal Voter Tracking System. System tracked and monitored registered voters in local city and analyzed voting position on various issues. System then reported to users local districts to concentrate campaigning efforts. Hardware and software: i486 Microsoft Windows Network: Windows/Workgroups, Visual Basic, Visual SourceSafe, MS-Access. Led application development from design through implementation. Designed and developed MS Access databases. Coordinated development with multiple programming team members.

Lead developer, City of Detroit, Michigan, Mayor's Office, Human Resource Information System. System tracked and maintained applicants of large, local city government. System tracked all communications to applicants and acted as Human Resources Information System once applicant was employed or assigned a cabinet position. Hardware/Software: i486 Novell Network: Netware, Windows/Workgroups, Visual Basic, Visual SourceSafe, MS-Access, VBA, MS-Office, DDE, OLE. Led application development from design through implementation. Designed and developed MS Access databases. Coordinated development with multiple programming team members.

Blue Cross and Blue Shield of Michigan

12/90 to 12/92

Lead Programmer and Analyst - Health Care Billing Audit

Program to import multiple text billing files from DB2 Mainframe and from 3480 cartridges into one Microsoft Access database. Data is then used for discrepancy tracking and exception reporting.

Design and development from concept to implementation (SDLC) of application. Designed and developed program task lists. Assigned various modules to programmer/analysts. Developed text import module to Paradox and MS-Access databases using Microsoft Visual Basic and Microsoft Access Information Services Work Request Tracking System. Lead programmer and analyst: Program to track, manage, and report on service requests received from the Information Systems Department. Provides accurate reporting back to users on status of requests. Program operates in a multi-user environment on Banyan Vines Network. Hardware and software: Banyan Vines Network, IBM PS/2 Workstations: Windows, MS-Access, Visual Basic.

Windows application development using MS-Access and Visual Basic. Coordinated development with IS Department users.

Education

B.B.A., Computer Information Systems, Davenport University

Clayton Shivers

Junior Developer

Experience Summary

Microsoft Certified Application Developer (MCAD.NET) with more than eight years of experience in software development, enhancements, and support and nearly three years as a software engineer developing and designing with .NET technology. Specialty areas are Visual Studio .NET, VB.NET, ADO.NET, XML, VB6, Visual SourceSafe, and Photoshop.

Employment History

EDS

04/03 - Present

Information Analyst, SELLSTATION Development Team

Consultant and developer for the EDS banking and credit union interface product SELLSTATION. Responsible for realizing .NET solutions through creation and maintenance of .NET controls and services. Converted and integrated COM/COM+/ActiveX components to .NET, and designed and built prototype GUI screens to facilitate business and technical design discussions. Technologies and tools used: Visual Studio .NET, VB.NET, ADO.NET, XML, VB6, Visual SourceSafe, Photoshop.

Banque Edouard Constant

03/01- 03/03

Consultant and developer, Globus International Banking Software Implementation

General responsibilities included customization of the Globus system to fit clients' requirements and creation of data input screens, reports, InfoBasic subroutines, and VB Scripts. Lead programmer on several major developments such as a client portfolio evaluation reporting subsystem with multilingual capability, investment breakdown, cash flow projection, and varying levels of detail; a safety deposit box maintenance application; a suite of subroutines to automate calculation of commissions and fees on security trades; plus various internal reports including foreign exchange contract profit and loss, limit exposure, and management information systems statistical reports.

Railamerica

10/00 – 02/01

Developer and Supervisor, Railroad System Conversion Project

Developed a series of SQL Server 7 DTS packages, stored procedures, and Visual Basic/ActiveX scripts to facilitate and provide portability to the data conversion process.

Dresdner Bank Lateinamerik

10/99 – 09/00

Information Analyst, Globus System

Customized the Globus system to fit clients' requirements and created data input screens, reports, InfoBasic subroutines, and VB Scripts. Major developments included various month-end accounting reports, a monthly data extract prepared for and required by the German government, an online inventory analysis, and a data conversion reconciliation report (Crystal Reports). This multi-implementation account required specialized developments for the home branch of Hamburg as well as the Grand Cayman, Panama, and Miami branches.

Banco Santander International*09/98 – 09/99**Information Analyst, Globus System*

Customized the Globus system to fit clients' requirements and created data input screens, reports, InfoBasic subroutines, and VB Scripts. Major developments included an online credit limits report as well as reports of overdrawn accounts. Monitored certain data interfaces and maintained an SQL Server database used for Cognos Impromptu reports.

Pettit 7 Company, P.C.*06/97- 08/98**Staff Developer, Carillon Financials*

Developed and enhanced various modules of the firm's main product, Carillon Financials, a real-time accounting and financial management system. Used a combination of PowerBuilder objects and embedded SQL (database management systems: Microsoft SQL Server, Oracle, and Sybase Adaptive Server).

Silicon Materials Service (SMS)*05/96 – 08/96**Internship*

Developed and implemented a quality and training database to maintain records of training history and certification tracking for each employee at SMS. Created a Visual Basic interface application to users to perform data entry functions, execute online queries, and produce reports.

Education:

B.B.A., Information Systems and International Business, Baylor University, Waco, Texas
Microsoft Certified Application Developer (MCAD.NET)

Nimit Patel

Interface Developer

Experience Summary

More than seven years experience in software design, development, integration, documentation, testing, and support. Experience with IBM MQSeries 5.1, 5.2, IBM WebSphere MQSeries 5.3 (WMQ 5.3), IBM WebSphere MQ Business Integration Message Broker V5.0, IBM MQSeries Integrator 2.0 (MQSI 2.0), IBM WebSphere MQSeries Integrator 2.1 (WMQI 2.1) administration and development. Worked in several environments including Windows (NT, 2000 and XP), Linux, AIX, Solaris, HP-UX, AS/400 and OS/390. Experience in developing Web, client/server and multitier applications. Proficient in programming with Java (Swing, JDBC, JSP, Servlets), C, VB, SQL, ASP and FORTRAN. Experience with application servers like IBM WebSphere, BEA WebLogic and JRun. Experience with developing applications using Oracle, MS SQL Server, DB2, and MySQL RDBMS. Strong knowledge of all phases of SDLC. Experience in analysis, design, and modeling (UML, ERD, DFD).

Employment History

EDS

11/03 - Present

Senior Developer, CIGNA Group Insurance

The LTAR (Long Term Acquisition and Renewal) project was implemented to integrate applications running at various CIGNA group companies with those at CIGNA Group Insurance to provide a comprehensive view of existing and prospective customers. The project also supports a large customer relationship management (CRM) implementation to cater to the midmarket segment. Used MQSeries 5.2/5.3 for message transport between applications and MS SQL Server, Oracle, and DB2 databases running on Windows 2000, Solaris, and AIX while MQSeries Integrator 2.1/WBIMB 5.0 was used for message transformation and routing. Participated in the initial planning, specification development, and detail design of the integration components of the system. Responsible for developing high-level design specifications for message transformation. Developed required MQSeries objects and administered them per requirement on multiple environments. Used clustering, which was vital to the system, to achieve high availability and workload balancing. Worked with migration issues of MQSeries environment from MQSeries 5.2 to 5.3 in Windows as well as Solaris. Migrated from MQSeries Integrator 2.1 for Windows to WBIMB 5.0 for Windows. Developed MQSC command scripts to replicate MQ objects in development to test and production environments. Designed and created several complex MQSI message flows for transformation as well as message routing. Developed and debugged the ESQL code for the MQSI nodes. Debugged message flows using trace and error nodes and handled performance issues of the flows. Developed and tested message flows compliant with HIPAA transactions such as 270/271, 835 and 837. Set up the environment for unit, integration, and system testing for all developed workflows as well as regression testing. Provide production support for message flows as well as the MQSeries environment.

Environment: IBM MQSeries 5.3/5.2 for Windows 2000, Solaris and AIX; IBM WebSphere MQSeries Integrator 2.1 (WMQI 2.1) for Windows 2000; IBM WebSphere Business Integration Message Broker (WBIMB 5.0); Java; MS SQL Server, IBM DB2, Oracle; XML; Rational Rose.

State Street Corporation

05/02 – 11/03

MQ Consultant

State Street Corp. implemented MQSeries 5.2 and MQSI 2.0.1 to integrate multiple applications and financial and customer databases running on several platforms to provide accurate and synchronized data and forecasting and increase the return on investment (ROI) by maximizing productivity of existing applications. Installed, configured, and tuned MQ Series on Solaris, AS/400, and Windows NT. Created clusters of queue managers on Solaris to simplify overall administration process and achieve workload balancing. Administered MQSeries Objects like Queue Manager, Queues, Channels and Process Definitions. Administered different components of MQSI like Control Center, Configuration Manager and Broker. Configured Oracle as the database for MQSI Broker runtime environment. Designed and developed Message flows and Message sets. Assigned Message flows to appropriate Execution Groups in Broker Runtime Environment. Developed message flow nodes for transforming the messages. Designed and Created Message sets using MRM import techniques and Message flows using ESQL to interface various systems. Developed and debugged ESQL for message flow nodes. Performed troubleshooting and debugging MQSI messages flows using Trace nodes and error handling nodes. Transformed messages to and from COBOL CopyBook and XML formats. Audited message flows and conducted unit testing and system testing. Provided post-production support for developed flows and administrative support for MQSeries Queue Managers and Queues.

Environment: MQ Series 5.2 for Solaris and AS/400, MQ Series Integrator (MQSI 2.0.1) for NT, Oracle, Solaris, AIX and Windows NT, Qpasa.

Georgia State Bank

09/01 – 05/02

MQ Series/MQSI Consultant

Georgia State Bank transformed its customer contact capabilities by adding different services to the Web that had previously been on the mainframe. Used MQSeries as the underlying messaging-oriented middleware for communicating with the back-end system. Installed and configured the MQSeries, MQSI products on Solaris, OS/390 and Win NT. Configured databases for Configuration Manager and Broker. Designed and developed MQSI Message flows to process request data and transform and route it to back-end applications. Coded ESQL for MQSI message flow nodes. Used Tivoli for monitoring messages in MQSeries system. Troubleshooting and debugging MQSI messages flows using Trace nodes and error handling nodes. Used JDBC to connect to database and servlets for presenting the data. Created XML messages; validated using schema. Assigned Message flows to appropriate Execution Groups in Broker Runtime Environment. Developed Java Clients for MQSeries using MQ base Java.

Environment: MQSeries 5.1, MQSI, OS/390, Windows NT/2000, JDBC, EJB, JSP

Vanguard Pharmacy

01/01- 09/01

MQ Series/MQSI Consultant

Vanguard Pharmacy stores data to a centralized database on DB2 and OS/390 by using MQSeries messaging. Each branch uses MQSeries to retrieve information from different vendors and load into the MQSeries queue. The data is saved to a DB2 database on the intermittent server. This data is transformed to XML format and updates the OS/390 database. Analyzed and

Designed Requirements (Architecture Scenarios and Case Studies). Coded ESQL for MQSI message flow nodes. Designed MQSI-Message Sets and Message Flows for Data Routing. Development and deployment of Enterprise Java Beans (EJB). Support for XML for the business automation. Integration using interfaces with databases. Developed Web pages required for the application using JSP and HTML. Coded for the creation of XML documents dynamically within the JSP pages. Connection of Oracle Database using JDBC. Writing document type definitions (DTDs) for the XML documents and performed validation of XML documents. Presentation of Data in XML documents using XSL and HTML. Deployment of JSP pages in Weblogic application server.

Environment: MQSeries, MQSI, OS/390, Windows NT/2000, JDBC, EJB, JSP

Xchange21 Inc

02/00 – 11/00

Developer

Project developed a graphical user interface (GUI) for users to connect and query and for management of different databases within a single package. Package helped users write SQL queries to handle and maintain databases. GUI was developed using JFC swing components, and the database connectivity is handled with JDBC.

Environment: JFC, JDBC, Java beans, Oracle, MS-Access, DB2

Semaphore Software Services

03/99 – 02/00

Java Developer, Bug Reporting and Tracking System (BRTS)

BRTS application aided project developers in fixing errors in various projects encountered by users in in-house testing or on the Web. Provided users with a GUI to explain encountered errors tracked by project developers, making it easy to fix the errors. Used HTML for designing screen. Client-side validations being carried through Java Script. Back end is Oracle. Middle layer is coded in Java with JDBC and Servlets. Designed GUIs using HTML, client-side validations using JavaScript, and database connectivity using JDBC.

Environment: Java1.1 JSDK, JDBC, Oracle 7.3, HTML, JavaScript, Java Web Server 2.0

National Insurance Company Ltd.,

02/98 – 03/99

Java Developer

Online C-Form Confirmation: Project was based on generating C-Code Numbers for a vehicle from the insurance company at the dealer side. Details entered by the dealer were validated and checked at the server side, and C-Code was generated automatically to send the C-Form to the dealer. All dealers and the insurance company can check the status of the policy codes generated for customers. Involved in design and development. Designed page layouts and selected Server-side Technology. Developed high-level design schema. Developed Functional Diagrams and Class Diagrams. Led a seven-member team.

Environment: Java 1.2, JSP1.1, EJB1.0, Web logic 4.5.1, Oracle 8.0.5, XML, WinNT 4.0 and Jbuilder4.0

Education

Bachelor of Engineering (Electrical), MS University of Baroda, India
Post Graduate Diploma in Business Management, SLIMS, India

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Aijaz Ahmed

Enhancement Developer

Experience Summary

More than 15 years of experience in the IT industry including nine years performing consultant specialist, systems engineer, project management, and technical lead roles. Facilitate design and architecture reviews for both in-house and third-party applications and eBusiness projects, ensuring compliance with client and healthcare industry architecture, policies, and standards. Evaluate eBusiness solutions and application tools for recommendation to Technical Governance Group. Use and actively support project management and development methodologies as defined in client architecture, policies, and standards. Help leverage EDS competencies and capabilities to the advantage of client. Manage demands of multiple projects. Assist in definition of the application integration standards for client. Stay abreast of eBusiness industry trends, standards, and new technologies, bringing proposals to EDS and client to leverage. Support definition of reuse strategies, guidelines, and methods. Provide architectural support to the implementation of the standard development environment, with relation to eBusiness.

Project Experience Detail

EDS

09/00 – Present

Consultant Specialist, Wellmark-Blue Cross Blue Shield

Responsible for architecting eBusiness applications and designing Web-based integrated solutions for legacy systems. Provide thought leadership in the eBusiness area. Help enterprise architect set client's strategic direction using RightStep framework in particular strategies relating to eBusiness. Set technology standards and direction for eBusiness solutions for the enterprise within context of client architecture, policies, and standards.

As an architect involved with many projects including Electronic Sales and Marketing Internet Leveraged Enrollment (eSMILE), Web Applications Security (Directory Smart and Netscape LDAP Server) implementation, Pre-Certification and Prior Approval (Claims), Websizing and Standardizing CostPlus Reports, Eligibility Verification and Benefit Inquiry, Member Enrollment and Maintenance and Group Enrollment and Maintenance. Use multiple skills throughout these projects including ASP, IIS, Legacy Integration, LDAP, Microsoft SQL Server, Process reengineering, VB Script, Visual Basic 6.0, Web Page Development, and XML.

Information Specialist, Wellmark-Blue Cross Blue Shield

06/97 - 09/00

Designed, developed, and maintained Web-based (Internet and intranet) applications to support the Real Time Membership and Claims System for Health Care (insurance) business.

Worked on multiple Web sites design and development projects using Windows DNA Technology. Designed COM/DCOM and COM+ objects using tools like Microsoft Visual Studio. Also, designed, developed, administered, and maintained SQL Databases for applications. Proficiently used XML, IIS 4.0, NT 4.0, Windows 2000, Visual Basic, Microsoft FrontPage, ActiveX controls, Visual Studio 6.0 and other tools. Mainly responsible for design of end-to-end solutions using Microsoft technologies. Designed and developed legacy host

integration solution using CICS Socket connections to the IMS databases. Some of these projects are: Claims Status Inquiry, Agents Notification and Tracking System, Member Maintenance, Client Index, Eligibility Verification, Benefit Inquiry, and Order ID Cards.

Systems Engineer, Wellmark-Blue Cross Blue Shield

05/95 - 06/97

Developed and maintained databases and software and supported customer for the Real Time Membership System for Health Care (insurance) business. Worked on two- and three-tier distributed data warehouse project using Oracle7 Workgroup servers on Windows NT and Unix plate forms. Connected data warehouse using batch automated FTP process to IMS databases on an IBM mainframe plate form. Mainly responsible for data modeling, process design, database development, maintenance, and the integration of data warehouse with different software. Also responsible for SQL*Net and ODBC connectivity to produce customer financial reports.

Worked on Web site design and development project using Microsoft FrontPage, Hotdog, Java, and ActiveX controls. Mainly responsible for Web design standards, site maintenance, and Intranet Database Connectivity (IDC) using Web ODBC and CGI scripts.

Project technical leader on a rewrite of online Primary Care Physician (PCP) Subsystem. Redesigned database structures, mainframe screen, and batch process associated with PCP.

Graduate Teaching Assistant, Wichita State University

08/93 - 05/95

Taught and evaluated performances for undergraduate courses.

Graduate Research Assistant, Wichita State University

08/92 - 08/93

Designed, implemented, and tested object-oriented database environment.

Consultant Analyst, Expert Systems Designers, Ltd., Karachi, Pakistan

08/92 - 08/93

Supervised team of UNIX-based application programmers and data entry operators.

Education and Training

M.S., Computer Science, Wichita State University, Wichita, Kansas

Master of Computer Science, Computer Science, University of Karachi, Karachi, Pakistan

B.S., Mathematics, University of Karachi, Karachi, Pakistan

Diana Chattulani

Enhancement Developer

Experience Summary

Sixteen years experience in Unisys A-Series mainframe support consisting of trouble-shooting, sales and customer support, and training. Technical proficiency in programming, debugging, dump analysis, benchmarks, conversions, and system performance and capacity analysis. Expertise in training, customer relations, and problem identification and resolution. Thirteen years as an independent consultant. Four years in management consulting for state highway agencies.

Hold certifications in Oracle SQL and Linux/Unix operating systems, and most recently attained Java Programming certification. Currently pursuing other professional certifications.

Employment History

Analysts International

03/97 - 05/02

Technical Advisor, Michigan Department of State, Y2K Resolution Team

Provided technical assistance at the Michigan Department of State in application maintenance and development. Served as technical advisor to the department's Y2K resolution team.

Principal activities included the design, implementation, and conversion to DMSII database of a large update application, the technical design and implementation of Y2K testing procedures for several major subsystems, and maintenance and update of applications in Cobol, Algol, WFL, Xgen, and BISched.

Consultant, State of California, Social Services Management System

07/96 - 03/97

Participated in the development of customer documentation including a Business Case Analysis of available human resource packages on the market and a proposal to the State of California for a statewide Social Services Management system.

Consultant, Michigan Department of Corrections

04/95 - 07/96

Provided technical support services in a consultant capacity at the Michigan Department of Corrections. Principal responsibilities included A-Series network support for a 2000-station, statewide BNA and TCP/IP network, system software maintenance, procedure development, documentation for several user PC interfaces, and participation in the migration of the entire system to the State's new central data center.

Roy Jorgensen Associates, Inc.

10/91 - 04/95

Consultant, Michigan Department of Transportation, Project Management System

Oversaw design and implementation of a department-wide Project Management System at the Michigan Department of Transportation. Significant involvement in all phases of the project, including the development of the Conceptual Design Document on which the system was modeled, the development of the Request For Proposal that was the basis for selecting the vendor to implement the system, the design of the algorithm used to generate project networks unique to the MDOT environment, the development and implementation of the form, the manual, and the procedures used for data collection, and the review and evaluation of the proposed Detailed Design document.

Melange Computer Services, Inc.

01/91 – 10/91

Consultant

Provided technical support and training services to a large insurance agency. Training was custom designed for agents to assist them in the use of the agency's proprietary software.

City of Lansing

10/89 - 10/90

Trainer

Designed and presented a program to train approximately 100 city employees on the use of a new automated accounting package. Program included custom-written curriculum and accompanying user's manual as well as visual aids and exercises. Also designed procedures and wrote programs used to implement conversion to the new package.

Danceart Dance Studio

10/89 - 05/95

Consultant

Served in a consultant capacity to a small business running their first MS-DOS computer. Designed and installed a dual format billing system to track receivables for each of their two main departments.

Unisys/Burroughs Corporation

09/84 - 10/89

Product Support Specialist

Responsibilities included second-level customer software support, marketing support, telephone support through a national telephone network, installation support, and seminar presentations. Organized and participated in the conversion of a remote online system from a Burroughs B1000 series Gemcos environment to a Unisys A-Series Coms environment. Successfully completed a performance analysis at a growing site that led to the purchase of a larger, more powerful processor. Designed and presented a successful customer seminar on interprogram communications options. Created and presented workshops on system monitoring with the Unisys Site Management Facility II and on the Communications Management System (COMS) for company hardware support personnel.

Senior Product Support Representative/Systems Representative

09/78 - 09/84

Primary customer support, marketing support, seminar presentations, benchmarks, and conversions. Directed a benchmark team whose efforts lead to the sale of a large computer to a customer who had been running on a competitor system. Directed a team responsible for the conversion and redesign of a large fiscal package.

Education and Training

M.S., Computer Science, Michigan State University

M.S. Mathematics Michigan State University

M.S. Mathematics/Education, Queens College, City University of New York

B.S. Mathematics/Education, Queens College, City University of New York

Susan Williams

Conversion DBA

Experience Summary

Twenty years of experience in the information technology industry with major emphasis as a solution provider and developer in a team environment. Skills developed encompass the entire systems life cycle from analysis through production support for various platforms, ranging from mainframe to client/server to intranet Web applications. Experience with the State of Michigan includes acting as a MS/SQL server database administrator for the Department of Education, and as Oracle database administrator and data modeler for the Department of Transportation and Department of Agriculture. Certifications include Microsoft Certified Professional and Oracle Certified Database Administrator.

Employment History

EDS

07/04 - Present

Data Modeler, State of Michigan, Department of State, Business Application Modernization (BAM)

Data modeling based on use of class models using object component engineering. Work with business requirement facilitators and customer teams to create and maintain the overall BAM data model. Outputs included data dictionary, entity relationship diagrams, and the logical data view. Rational Rose and Rational Requisite Pro were the project tools.

OnStar

03/04 – 06/04

Developer

Created database loads for testing and data conversion. Analysis and resolution of application problems. Wrote UNIX scripts, SQL scripts, PL/SQL stored procedures and C programs. OnStar databases are Oracle version 9i.

State of Michigan, Department of Education

09/01- 03/04

MS/SQL Server Database Administrator MEAP Project

11/03 - 03/04

Provided analysis of application problems and writing DDL scripts, SQL scripts, and stored procedures. Provided performance tuning for long-running procedures created by other vendors. Supported multiple test cycles of the MEAP application, created testing subset, and verified accuracy of the data exchanges.

State of Michigan, Department of Transportation

10/02 – 11/03

Oracle Database Administrator, SWAD Project

Duties included requirements gathering, analysis, data modeling using ERWin tool, and development of a system test plan, test cases, formal acceptance test plan, and an implementation plan. Database responsibilities included creating scripts to create all database objects including links and views to interact with three other MDOT databases. Created Oracle stored procedures and functions called by Java and Crystal reports.

State of Michigan, Department of Agriculture

09/01 -10/02

Oracle DBA/MSSQL DBA, Technical Lead, and Software Configuration Manager, eInspector

Duties included requirements gathering, data modeling using ERWin tool, creating and modifying database objects, creating formal acceptance test plan and implementation plan, and providing post-production support. Also responsible for creating over 100 stored procedures and functions.

State of Michigan, Department of Agriculture*Oracle Application Database Administrator*

06/01 – 09/01

Created database objects (users, tablespaces, tables, indexes) for the Retail Planning Calendar application in development. Monitored production jobs for Retail.Com, loading weekly data via SQL loader and UNIX scripts. Wrote Unix scripts for US BuyPower Convergence.

OnStar

10/00 – 06/00

Oracle Database Administrator

Used SQL Plus, PL/SQL, Unix scripting, Enterprise Manager, and SQL Navigator to monitor and perform maintenance during normal DBA tasks for development, model office, and production databases primarily for data warehousing applications for the OnStar application.

DBA, Eunetcom

10/98 – 11/00

Billing Application Project

Successfully migrated existing billing application from Shelton, Connecticut, to Data Center in Reston, Virginia. Application was comprised of a 3-tier client/server using Visual Basic 5.0 as the Graphical User Interface (GUI) front-end, Microsoft Transaction Server as the middle tier, and SQL Server 6.5 as the database engine. Application ran on NT 4.0 operating system on Data General servers. Reports and invoices are generated through Crystal Reports 6.0.

Responsibilities included NT 4.0 domain administration, database administration, and creating test data and testing of application in the new environment. Support responsibilities included problem resolution, monitoring daily, weekly and monthly jobs, and designing, coding and testing customer service requests for modifications and enhancements to the system. The application supports collection of network traffic data as well as the billing and invoicing process of customers using the Eunetcom international communications network.

General Motors

06/97 – 10/98

Vehicle Order Management Systems Project Developer

Designed, coded, and tested DB2 SQL scripts. Modified and tested several PowerBuilder objects. Programs access Oracle and Access databases. Served as Software Configuration Management (SCM) Administrator for applications. Coordinated system testing. Involved in change control process improvements. Applications supported dealer contact and sales planning processes for General Motors' marketing departments.

State of Michigan and State of North Carolina

01/95 – 06/97

Developer, Automated Licensing System Project

Application supported the collection and utilization of customer, sales agent, sales processing, and statistical data for the sale of hunting and fishing licenses in two states. Participated in customer requirements meetings, created analysis documents, and designed, coded, tested, and implemented C and PowerBuilder programs. Functional process owner for Customer and Special Selection Hunt functional areas of the application. Involved in user acceptance testing,

creating sample test cases, and supporting the production system. Programs access Microsoft SQL Server databases using embedded SQL.

Oldsmobile

11/91 – 01/95

System Administrator

Performed System Administrator functions for an 180+ node IBM Token Ring Local Area Network (LAN). The network was comprised of eight LAN servers, seven database and file servers and more than 165 client workstations. The operating system software used was IBM's OS/2, LAN Server, Communications Manager, and Data Base Manager. Responsibilities included installing, modifying, and upgrading server and client operating system software; controlling user access to applications and files; creating procedures for backup and restoration of files; and maintaining efficient system operation by monitoring and tuning the network and client/server operating systems.

Designed, coded, tested, and implemented a client/server Customer Assistance Survey System for the Pontiac division. Customer records were downloaded from the mainframe system to an IBM Data Base Manager relational database. Programs were coded using C, embedded SQL statements, API, and IBM's Presentation Manager as the graphical user interface. Customers were contacted by divisional agents, survey response data was collected, and the data was uploaded to the mainframe system for use in statistical analysis. The application was delivered in an aggressive time frame and subsequently demonstrated to the Buick division who also contracted to use the system.

Education

B.S., Computer Information Systems, Ferris State University, Big Rapids, Michigan

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Beth Naeger

Tester

Experience Summary

More than five years of experience as an enterprise quality assurance (QA) testing analyst. Most recently involved with quality assurance testing on enterprise applications using WinRunner, QuickTest Pro, and TestDirector applications for test case development, testing, analyzing, and reporting. More than five years of experience maintaining data integrity with SAP including the creation of process documentation and training material. Also two years of experience testing software upgrades including creation and coordination of test cases, leading test teams, and compiling results.

Experience Detail

EDS

01/96 - Present

Integration Testing Team Leader, Enterprise System US HR/Payroll

11/04 - Present

Responsibilities include managing ESS support team, developing team schedules, gathering requirements, and writing and executing test cases. Perform regression and stress testing, create and run Load Runner scenarios for stress testing, perform various on-call duties, and run daily defect reports.

Integration Testing Team Leader, Telecom Poland

05/04 – 10/04

Responsible for managing and supporting team and individual member progress. Developed team schedules based on high-level project requirements. Monitored and verified all baselines, identified and communicated project risks, supported team integration testing, and handled testing issues. Organized and supported system regression testing, and prepared regression test plans and procedures.

Data Analyst, Lansing Solution Centre Business Continuity

01/04 – 04/04

Investigated current project data for accuracy, and collected additional project data and validate. Updated existing data and incorporated new data within the Business Continuity Web site.

Testing Administrator, Global Testing Organization (GTO)

10/03 - 12/03

Developed automated WinRunner scripts to test application functionality. Assisted in the development of main script module to run individual application scripts based upon specified requirements. Maintained communication with client to gather test cases for script automation development. Assisted with system upgrade testing. Communicated issues and defects using defects tracking function using TestDirector. Performed test case updates.

Tester, Enterprise System US HR/Payroll, Quality Assurance Testing Team

04/03 – 09/03

Supported Human Resource and Payroll System Areas. Independently gained knowledge of global template HR environment to aid in system testing. Assisted with payroll data entry to verify correct processing of payroll cycles. Developed QuickTest scripts to test system capabilities and assisted in stress testing problem analysis and resolution. Scheduled and facilitated status check point meetings. Responsible for technical support and maintenance of TestDirector application, developing and running standard daily reports, building test plans, creating test sets, modifying TestDirector fields, and importing test cases.

Tester, Enterprise System US Time Recording

07/00 – 03/03

Responsible for support of SAP HR Enterprise System. Verified data integrity of SAP HR information used with SAP System. Develop innovated methods to increase and maintain data integrity with the SAP HR system using WinRunner scripting skills. Developed WinRunner scripts for automation of frequently

used SAP procedures. Supported US Time Recording System users. Researched and resolved Time Recording issues. Process owner for ES Lansing Technical Support Team responsible for training and mentoring team members. Coordinated test plans, test cases, and scheduling of test assignments to testing team.

*Developer, NAO Disbursements, Disbursement Analysis Control On-Line
Reporting System*

01/96 – 06/00

Supported and maintained CMMi Level-2 system for General Motor's Accounts Payable. Documented marketing process developed by GM for EDS financial system use. Created Web site to provide valuable information to the EDS/DACOR team about new marketing process. Assisted in the implementation of the new Delphi Canada Oracle financial system facility. Assisted in extensive testing and implementation of GMS's accounts payable system's Y2K process. Assisted in several interface implementation into DACOR.

Education

B.S, Industrial Business, Kettering University, Flint, Michigan

B.S., Industrial Business, Baden-Wurttemberg, Germany

Keith Bollwahn

Technical Writer

Experience Summary

Expert technical writer with more than 12 years of State of Michigan experience specializing in electronic delivery of user-support documentation. Training experience includes statewide projects such as the proprietary Michigan Bridge Card, Michigan Child Support Enforcement System (MiCSES), and off-the-shelf user training such as Palm Pilot. In addition, while on the MiCSES project, coordinated technical activities between multiple client areas and geographically-dispersed training, implementation, and user support teams.

More than ten years of extensive experience in IT ranging from technical and standards writing and analysis to training, training management, integration testing, and implementation. Online help includes experience with numerous HTML and help authoring tools including RoboHelp, DocToHelp, DreamWeaver, FrontPage, and Acrobat. As a technical writer for the MiCSES, coordinated closely with analysts, developers, subject area experts, and customer support personnel to develop and produce both hardcopy and electronic user documentation and online help for this statewide application. Extensive experience in using Enterprise Architect, a UML modeling tool, as well as Computer Added Software Engineering (CASE) tool. Expansive background in writing succinct, complete documentation for large, complex information systems including the updating of table of contents and indexing for Michigan Department of Transportation and Michigan Department of Human Services. Also experienced with updating documentation to coincide with frequent system upgrades and new processes that result from upgrades. Attended WinWriters Online Help Conference advance Online Help Tools skill set. Wrote documentation for training and implementation teams and implemented page and section numbering procedures to improve locating critical information for users. Training skills include development of materials and training of wide variety of skill sets and students.

Employment History

PTD Technology

12/92 - Present

Senior Analyst and Technical Writer, State of Michigan, Department of Transportation (MDOT),

Project Accounting and Billing (PAB)

02/01 – Present

Responsible for providing project support documentation, materials, and services. Deliverables include user support materials such as operation and application manuals, user reference materials, online help systems, test plan and results documents, and usability test plan and results documents. Assist in implementation and support of the CASE tool. Provide on-site support for CASE and training for all project personnel. Develop procedures and templates to use CASE as a repository for business process analysis, window, data table, program design specifications, and implementation plan checklist information. Develop templates and procedures for generating meeting packages for analysts, design specifications for developers, and formally format deliverable documents for the client and Web-based application help for the user. Integrate links to MDOT standards (located on several different intranet sites) and local

procedures from within CASE and develop special queries in MS Access to provide reports from the repository that could not be generated from CASE.

Developed CD ROM-based product that provides project management and key stakeholders with a complete monthly snapshot of the project, thereby improving communication and status reporting. Product includes a complete copy of the project Enterprise Architect design repository with a read-only version of the CASE tool that also serves as an off-site backup for disaster recovery. CD ROM also provides a browser-based report from the repository that includes analysis, design, and implementation models and printable copies in Adobe Acrobat format. Product also includes complete set of test scripts from Mercury Test Director for the application (as of the CD production date), a complete reporting of all open and closed issues from the project's PVCS Tracker issue tracking system, and a complete set of local procedures being used on the project.

Trainer, Michigan Bridge Card, Electronics Benefit Transfer

08/00 - 02/01

PTD partnered with Citicorp in an extremely successful development and statewide rollout of the Michigan Bridge Card, a magnetic strip ATM type card that has replaced coupons and checks in the State's welfare system. PTD's role was to develop a curriculum for the recipients and another for State administrators, develop all printed material, and manage the training program and project management following a closely-coordinated, statewide roll-out plan. This was all accomplished working closely with the State, Citicorp, and the State's Quality Control contractor. This training was designed for as many as 300,000 recipients, and 8,700 administrators and took place at more than 60 training sites including nine sites running concurrently in Wayne County. Classroom training consisted of an instructor-led introductory video, hands-on demonstrations and practice, and individual coaching. Bridge Card project was one of the largest training projects for IT clients that the State of Michigan has ever sponsored.

*Senior Technical Writer/Analyst, State of Michigan, Department of Human Services,
Michigan Child Support Enforcement System (MiCSES)*

06/97 - 08/00

Documented financial functionality of the MiCSES application. Worked closely with development team to document addition of electronic funds transfer functionality. Revised and clarified documentation of daily financial reconciliation functions. Developed user documentation and training materials to support major revisions to funds allocation and distribution process. Produced highly-successful, Web-based presentation for federal program review drawing together documentation from all project areas.

*Integration Testing Analyst/Trainer, State of Michigan, Department of Human Services,
Michigan Child Support Enforcement System (MiCSES)*

08/96 - 06/97

Produced extensive test plans and user and system documentation covering major portions of MiCSES. Used and adapted project management tools, software, and techniques to ensure timely delivery of information products. Authored regression test plans for major core sections of application.

*Training Coordinator, State of Michigan, Department of Human Services,
Michigan Child Support Enforcement System (MiCSES)*

12/92 - 05/94

Coordinated efforts to install MiCSES software in Michigan's largest counties. Conducted organizational analysis to provide a smooth transition. Authored specialized training materials and user documentation. Collected and processed user needs information to facilitate application development.

United States Air Force
Intelligence Officer

01/79 - 02/92

Supervised handling of top secret and sensitive information and personnel security clearances. Insured physical and data security of sensitive national security information. Coordinated systems analysis team efforts to maintain national intelligence database on eastern European airfields to support NATO military planning.

Education and Training

B.A., Education, history and museum studies, Michigan State University
WinWriters Online Help Conference (completed the LaunchPad Certification Program)

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Attachment# 13, BAM RFP Attachments

The attachments listed on this table are hereby incorporated by reference into this Contract.

BAM ATTACHMENT REFERENCE OVERVIEW State of Michigan

Note: For purposes of the BAM Contract (07115200236), the attachments referenced below are part of the contract. Information is not physically attached to the contract to conserve paper, etc., but all attachments below from the original ITB for this contract are relevant and to be utilized as part of the contract.

Ref. No.²	Attachment Title	Description of Attachment	Contract Section³	Contract Use/Requirement
1	BAM Vision and Focus Areas	A pictorial representation of the DOS Vision and focus areas that BAM aligns under. This document was completed during Phase 1 of BAM.	Section 1.002 - Background	Contractor should have a clear understanding of the BAM vision. The State utilizes the vision and objectives from Phase 1 to measure success.
2	Business Objectives	A listing of the finalized BAM objectives ranked in priority and designated as mandatory, desirable, or optional.	Section 1.002 - Background	Contractors should have a clear understanding of the BAM objectives.
3	Business Processes by Phase	A deliverable from Phase 2 of BAM that lists the BAM phase (A-D) and all the DOS business processes included in each phase. Changes to this listing may occur during BAM – Phase 3 with the consent of the State. This document is also an attachment in the Implementation Strategy listed above.	Section 1.101 – In Scope	Scope of BAM.
4	COBIT Audit Form	A form required by DIT Office of Information Security to be completed and updated to describe and detail security features of technical architecture.	Section 1.104, Activity 2, Task 2.6	Contractor will be required to complete full OES security form.
7	Implementation Strategy	A deliverable from Phase 2 of BAM that outlines the phasing (which shouldn't be deviated from), a sample project plan (which can be modified), risks, and other pertinent information related to the designing and implementing BAM, including key drawings of the interfaces required to be built in order to phase BAM successfully.	Section 1.101 – In Scope	Contractor reference information.
8	IT Systems Overview	A Visio document that details the DOS/DIT current technical architecture.	Section 1.103 Technical Environment	Contractor reference information.
9	Logical Data View (Folder)	This is also a very large and SIGNIFICANT grouping of attachments that include: <ul style="list-style-type: none">• BAM Class Model• Data Dictionary Cross Reference• ERD for Phase 3A, 3B, 3C and 3D• Logical Data View Document These are all deliverables from Phase 2 of BAM.	Section 1.104 – Work and Deliverables (Logical Data View Document)	Contractor reference information.

² Numbering for discussion purposes only – attachments are not numbered.

³ Indicates first section in document attachment is referenced. Attachments are referenced throughout document thereafter.

Ref. No. ²	Attachment Title	Description of Attachment	Contract Section ³	Contract Use/Requirement
10	Project Organization Chart	A Visio diagram depicting the State project team including reporting structure.	Section 1.104, Activity 1	Contractor reference information.
11	Requirements Documentation (found in the Business Requirements Folder)	<p>This is actually a very large and SIGNIFICANT grouping of attachments that include:</p> <ul style="list-style-type: none"> • Business Requirements Document • AS-IS Visios • TO-BE Visios • Sequences • Use Cases • Traceability Matrix (by Phase) <p>These are all deliverables from Phase 2 of BAM.</p>	Section 1.104 – Work and Deliverables (Requirements)	Contractor reference information.
12	Security Template	A document that Contractors will complete within each phase of BAM to detail for the Office of Security, how the BAM technical build meets security requirements.	Section 1.104, Activity 3, Task 3.3	Contractor reference information.
13	State Project Team Description	A table that details State project team roles and responsibilities in BAM.	Section 1.104, Activity 1	Contractor reference information..
14	Technical Architecture Specification	A deliverable from Phase 2, that describes in great detail the technical architecture recommended and approved by DIT for building BAM.	Section 1.103 – Technical Environment	Contractor reference information.
15	Technical Requirements	A listing of the technical requirements that must be met as part of the BAM project.	Section 1.104, Activity 2, also reference earlier in brief description of Activity 2	Contractor reference information.

Attachment #14, Resource Requirments

1.0Resources Required to Support Technologies

The following section describes the different types of resources that will be required to support the BAM application during development and implementation.

In support of the BAM systems and infrastructure during development and deployment the following services will need to be provided. The State of Michigan Data Centre Operations team along with the Department of Information Technology Application Support team will coordinate with the BAM development Vendor to provide these services.

Backup Recover and Monitoring Team (BRMT): A team responsible to create data backups and monitor the execution of the jobs responsible for this will need to be in place. Activities provided by this teams work group instructions will be:

Work Group Instruction and Processes
BRMT Backup Jobs Operational Process
BRMT File Restore Process
BRMT Server Monitoring Operational Process

Firewall Management Team: A team responsible for granting revoking and monitoring ports and protocols at the firewalls will need to be in place. Activities provide by this teams work group instruction will be:

Work Group Instruction and Processes
Request Flow for Ports and Protocols
Problem Resolution Flow
Log Analysis
Monitoring
Rule Adds/Updates
Problem Resolution Flow
Web-site Filter Update Process

Systems Operation Centre: A team responsible for resolving infrastructure related problems for the BAM sever environment will need to be in place. Activities provided by this teams work group instruction will be:

Work Group Instruction and Processes
Implementing Workarounds and Resolving Technical Problems
Event Monitoring Server Operations
Patch and Upgrade Standard Operating Procedures
Server Profile Review
Traffic Analysis
Correlation Analysis
Event Severity Determination
Escalation Process
Receive Alerts
Alert Criteria Matching
Security Event Report Generation
Technical Team Preliminary Escalation Matrix Procedure

Network Operations: A team responsible for resolving infrastructure related problems for the BAM sever environment will need to be in place. Activities provided by this teams work group instruction will be:

Work Group Instruction and Processes
Network Fault Recovery
Back-up Network Configurations
Vendor Support
Break/Fix
VLAN Management Process
Network Appliance Version Upgrade Process

Situation Management team: A team responsible for resolving infrastructure related problems for the BAM sever environment will need to be in place. Activities provided by this teams work group instruction will be:

Work Group Instruction and Processes
Create a situation records
Problem Escalation
Corrective Action Team Request Process
Communicate Situation Manage Notification - Meet Me Lines
Establish SMT Timeline
Incident Review Request Process
Emergency Mass Voice Mail Distribution
Emergency Power Shutdown Communication & Escalation Process
Phone Assistance
Creation of Situation Case
Life Cycle of a Situation Case
Managing a Service Interruption
Power Shutdown Communication Incidents & Emergencies
Classification of Outages
Records and Resolution Phases and Responsibilities
Association with DIT Application Support Teams
SMT SIMS Process
Vendor Contacts for Hardware Replacements

Third Level Engineering: A team responsible for resolving infrastructure related problems for the BAM sever environment will need to be in place. Activities provided by this teams work group instruction will be:

Work Group Instruction and Processes
Vendor Support Process
Assess issues
Assign issues
Build Release of OS and Related Components
Design Release
Distribute Release
Model Office Certification
Model Office Certify Release
Perform Proactive Research
Prioritize issues
R & D Test
R & D Test Release
Report Metrics
Resolve issues
Update Issue

Database Management: A team responsible for maintaining and fixing related database problems for the BAM SQL servers will need to be in place. Activities provided by this teams work group instruction will be:

Work Group Instruction and Processes
Operate SQL Server Management Studio
Monitor and tune performance

Perform recovery process
Review Database Event log
Provide Database Security Reports for Audit
Resolve issues Support Developers in creation of relationships, tables, and attributes.
Maintain Event Channel Distribution for database alerts

Application Support: A team responsible for providing minor enhancement and break fix applications support will need to be in place. This team will need to provide support for interfaces and .Net code and be first line support for applications related problems.

Work Group Instruction and Processes
Monitor application performance issues
Respond to reported application problems
Perform systems analysis functions
Maintain Application Models in UML tool
Propose system enhancements
Resolve issues Support Server and Network Teams Maintain Configuration Management System for BAM