Form No. DMB 234 (Rev. 1/96)
AUTHORITY: Act 431 of 1984
COMPLETION: Required
PENALTY: Contract will not be executed unless form is filed

STATE OF MICHIGAN
DEPARTMENT OF MANAGEMENT AND BUDGET **October 26, 2005**
ACQUISITION SERVICES
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

NOTICE
TO
CONTRACT NO. 071B6200023
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF VENDOR **Electronic Data Systems** **905 Southland – Mail Stop 1014** **Lansing, MI 48910** **gary.anthony@eds.com**	TELEPHONE **Gary Anthony** **(517) 272-5678** VENDOR NUMBER/MAIL CODE BUYER/CA (517) 241-7233 **Joann Klasko**
Contract Compliance Inspector: **Patty Bogard** **BRIDGES Project Control Office/DIT/DHS/DCH**	
CONTRACT PERIOD From: **October 1, 2005**	To: **September 30,2009**
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	

The terms and conditions of this Contract are enclosed. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the vendor, those of the State take precedence.

Estimated Contract Value: $22,000,000.00

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Electronic Data Systems **905 Southland – Mail Stop 1014** **Lansing, MI 48910** **gary.anthony@eds.com**	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-7233 **Joann Klasko**
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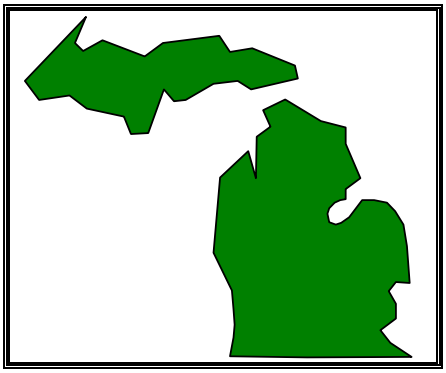
MISCELLANEOUS INFORMATION: **The terms and conditions of this Contract are enclosed. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the vendor, those of the State take precedence.** **Estimated Contract Value: $22,000,000.00**	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the Req. No. 084R5201075.

FOR THE VENDOR:	**FOR THE STATE:**
Electronic Data Systems Firm Name	Signature
Authorized Agent Signature	**Sean Carlson, Director** Name
Authorized Agent (Print or Type)	**Acquisition Services** Title
Date	Date



STATE OF MICHIGAN
Department of Management and Budget
Acquisition Services

Contract No. 071B6200023
BRIDGES Project
Project Control Office

Buyer Name Joann Klasko
Telephone Number: 517-241-7233
E-Mail Address: klaskoj@michigan.gov

BRIDGES
Project Control Office

APPENDICES

Article 1 – Statement of Work (SOW)

1.0 Project Identification

1.001 PROJECT REQUEST

This Contract is to obtain services to provide project management control/support and technical control/support to the BRIDGES Program Management Office (PMO) organization. This is a four-year contract beginning October 1, 2005 through September 30, 2009. The Department of Human Services (DHS) in cooperation with the Department of Community Health (DCH), and the Department of Information Technology (DIT) (hereunto, "the State") wish to implement a "BRIDGES" system. The State issued an RFP for development and implementation of a new eligibility system June 30, 2005. With a target first implementation (release) by June 2007, this project requires minimal slippage of schedule dates and aggressive scope control. In order to meet this aggressive schedule and minimize risk to the State, it is important to establish project control that closely monitors progress and allows for quick identification and resolution of issues.

Under the direction of the State, a Program Management Office (PMO) has been established for the BRIDGES project. The PMO is responsible for the governance of this project, including development of the overall strategy and plan to meet the goals and objectives outlined in the charter, gaining stakeholder agreement to the plan, establishing a budget, and obtaining funding for the project.

As part of the PMO, a Project Control Office (PCO) will be established. The PCO will be a critical component of the overall BRIDGES Program Management structure and provide the State with detailed project control and oversight independent of the application development and implementation vendor. This will serve as a quality assurance mechanism for the State of Michigan.

Given the monitoring and quality assurance functions provided by the PCO, the contractor, as well as their associated subcontractors, will be precluded from bidding on the BRIDGES Development and Implementation RFP. This is necessary to ensure that the PCO remains independent for its monitoring and quality assurance functions outlined in this contract.

1.002 BACKGROUND

The Department of Human Services (DHS) in cooperation with the Department of Community Health (DCH), and the Department of Information Technology (DIT) (hereunto, "the State") will implement an eligibility system. This "BRIDGES" effort is anticipated to be one the State's largest information technology initiatives over the next 5 years, with a projected budget over $100M. The State recognizes that this will be a large, complex information technology project and expects the initiative will cycle through a very aggressive software design, development and deployment schedule. The aggressive schedule is necessary in order to provide field worker relief to case workers and administrative support personnel in local DHS offices as quickly as possible. To accomplish this, the State anticipates awarding a contract in early FY06 for application development and implementation of a new system.

1.1 Scope of Work and Deliverables

1.101 IN SCOPE

The following table shows the primary services to be provided by the PCO:

PROJECT CONTROL OFFICE	
SCOPE/SCHEDULE CONTROL	**TECHNICAL CONTROL**
Develop and manage project schedules and plans that are logic and resource driven.	Provide oversight for system architecture.
Maintain project schedules to manage releases and scope.	Manage database and application environments.
Manage resource pool.	Support application and desktop connectivity.
Track time devoted to tasks and provides historical data to support hour estimates for future work (releases).	Support development, testing, and project tracking tools.
Maintain issue tracking and resolution processes.	Create and support the processes related to Configuration management.
Maintain change control process, including facilitation of Statement of Work development.	Execute nightly batch processes per the batch schedule defined by the Implementation RFP vendor and State.
Develop and support a formal Work Approval Process (WAP).	Resolve network, operating system, file transfer, and database problems related to batch processing.
Monitor performance through the use of project scorecards and other performance metrics.	Manage file transfers to/from external entities (DCH, Treasury, Federal Government, etc).
Interface with other State agencies and contractors as necessary.	Interface with DIT Infrastructure, Field Services, and Agency Services divisions.
Facilitate communication across stakeholders, including vendors.	
Establish meeting schedules and agendas; facilitate release and status meetings.	

This project has some high expectations for the quantity and quality of work to be performed. The PCO Technical Control Team will provide 24 x 7 x 365 infrastructure support for the BRIDGES environment. The Batch Support sub-team will work three shifts per day, seven days per week. The Batch Support Lead will be on call for problem resolution 24 hours per day. Other Technical Control Team members will also be on call for problem resolution. Selected staff from both the Scope/Schedule Control and Technical Control Teams will work around the clock on release implementation weekends, monitoring the schedule, publishing status, and performing infrastructure tasks. The State estimates that there will be four application releases per year (after the initial release of the new application), translating into four release implementation weekends each year.

In addition to ongoing Scope/Schedule Control and Technical Control tasks, unexpected events will require resource hours outside the scope of tasks covered by the fixed price Contract. Examples of such events are emergency application releases, introduction of new technology to the BRIDGES architecture, or a change in the State infrastructure. The State estimates that 30,000 hours per year will be needed to address these events. The

State will utilize Statements of Work with the contractor to authorize hours to be drawn from this pool. Note that the annual 30,000 hours is an estimate only and that the State is not obligated to purchase any of the 30,000 hours in a given year.

The State ultimately intends to incorporate all PCO Technical Control tasks within the DIT Agency Services and Infrastructure Services Bureaus. The timeframe for such a transfer is not known at this time, nor is it contemplated to begin before October 1, 2007. The State reserves the right to transfer some or all PCO Technical Control tasks to State employees, as it deems appropriate.

Key objectives to be accomplished with the PCO and this contract include:

1. Scope Control/Management – ability to package units of work into meaningful implementations (releases) of value to the stakeholders, and the ability to effectively evaluate, manage, and control changes to those planned releases as the State and/or application development vendor propose changes to the agreed upon plans.

2. Schedule Control/Management – planning and monitoring of application development vendor tasks and State tasks, identifying problems as early as possible so that corrective plans can be put in place quickly to keep the project on track.

3. Technical / Infrastructure Control – environment, database, and application code control to ensure the work promised – and only that work – is delivered, assuring that delivered functions of the system perform as required.

The contractor agrees to work in concert with the State and their development and implementation vendor to deliver timely, high-quality project control services for the Department of Human Services (DHS), the Department of Community Health (DCH), the Department of Information Technology (DIT), and their program partners. While working with the development and implementation vendor and the State, the PCO will offer an independent, unbiased analysis of project status and overall direction. Furthermore, through the Technical Control team, the PCO will ensure the integrity of the environments and source code, the security of the application, and the soundness of the technical solution. The contractor will leverage their prior experience with other states.

The contractor agrees to work with the State to satisfy the objectives of the BRIDGES PCO project as well as the needs of future BRIDGES application development and implementation projects that support Michigan citizens who depend on the accurate determination of program eligibility.

The PCO links DIT, DHS, and DCH, just as the contractor's activities span the project life cycle. By providing structure and guidance for project initiation and planning, the contractor will formalize the establishment of project scope, timing, and staff while furnishing the architectural and database expertise that represent the foundation for a solid technical solution. As the project moves through execution, the contractor will monitor scope, schedule, and staff. The contractor will support the development and implementation vendor in delivering architecture, database structures, and application source code that satisfy immediate needs while accommodating future growth and enhancements. As each release is completed, the contractor will work with the State and the development and implementation vendor to review the results and will incorporate lessons learned into future efforts. The contractor will perform comprehensive project management and technical infrastructure control to enable the development and implementation vendor to fulfill the State's vision.

By exercising project management control and implementing the Michigan Project Management Methodology (PMM), the contractor will justify a high level of State confidence in the following:

- Commitments made are commitments kept.
- Scopes are defined, and change control processes are enforced.
- Schedules are established, and milestones are tracked.
- Unambiguous performance criteria are defined, and progress is measured against those criteria.
- Tasks are scheduled for each worker, and effort and capacity are monitored.
- Rapid identification and resolution of project issues and risks enables successful schedule and scope management.

For technical infrastructure control, the integrity of the BRIDGES application is paramount. Definition of, and adherence to, strong and uncompromising technical control processes will be enforced by the contractor to enable the following:

- Architecture plans are established, and adherence to those plans is enforced.
- Data models are rational and efficient.
- Coding standards are enforced to promote maintainability, reusability, and efficiency.
- Batch cycles are executed reliably and efficiently.
- Application and database security are maintained.
- Standards and best practices for any COTS products included with BRIDGES are followed.
- Promotion of code, database changes, and configuration data into production is strictly controlled through robust configuration management and build processes.

The project management and technical infrastructure control functions will be enabled by using the recommended suite of Michigan project management tools.

1.102 OUT OF SCOPE

1. Delivery of any business requirements, strategies or direction will be the responsibility of the implementation vendor.

2. Any hardware/software solutions or implementations will be the responsibility of the implementation vendor and/or the State of Michigan.

3. Ultimate acceptance/satisfaction of the end customer that the system meets their needs is the responsibility of the implementation vendor.

1.103 TECHNICAL ENVIRONMENT

The contractor will use a DIT standard set of project control tools and processes to monitor and control all BRIDGES work. A description of the tools can be found in **Appendix F – PCO Web Tools**. The following provides a technical overview of the planned BRIDGES-specific environment in which these tools will run.

Project Control Office software architecture:

Microsoft Windows 2003 server
Microsoft SQL Server 2000
ColdFusion 6.x
Crystal Reports 10.x
Microsoft Web Services
Oracle 9i (to act as the Remedy repository)
Remedy database (used to assist in the automation of the build steps)
PVCS for version control
Apache 2.x with Tomcat 5.x to support Java Server Pages

Browser requirements:
Project Office website is available to users with Internet Explorer 6.0 or higher. The Toolset uses JavaScript to perform many tasks.

Security
Security for the PCO Tools is delegated to the use of session based “Cookies”.

Infrastructure Setup

PCO Web Server:
- Microsoft Windows 2003
- Microsoft Internet Information Services
- SQL Server 2000

This server is where the PCO Web Tools reside.

To-Be-Named Server:
- Unix Server
- Java Server Pages with Apache and Tomcat
- Oracle Database

This Unix server holds the Infrastructure Request System (IRS). It also stores the “Build” database. This server also contains the Build Tracker system which contains information about builds that were conducted by the “Build” application. This server contains the Migration tool which lets the development team move existing code from a previous configuration to an emerging configuration. This functions as long as the code does not presently exist in the emerging configuration. It moves code between branches and versions to make sure code is kept consistent with future releases. Finally, ToolDb database is located in the Configuration Management (CM) server. It is an Oracle database that the Infrastructure Team uses to house miscellaneous applications.

To-Be-Named Servers:
- Unix Servers
- Oracle
- Java
- Scripts – to execute scheduled builds
- Java Server Pages
- Tomcat Java Application Server

These two servers host the application which drives the builds and reads the schedule in the CM server to produce a build. The application accesses the project database in the CM server for schedule lookup and if appropriate, executes stored procedures for configuration creation for the builds. All configurations produced as a result of the build are stored in CM repository. This application also interacts with the Remedy server for ticket based builds.

1.104 WORK AND DELIVERABLE

The 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 contractor’s PCO will establish and implement project management and technical processes, methodologies, and tools to minimize the risk and contain costs on the BRIDGES initiative. The contractor’s PCO will support the State - and the State’s application development and implementation vendor - in meeting the timely delivery of quality information technology services for all stakeholders of the BRIDGES system.

The contractor will use a DIT standard set of project control tools and processes to monitor and control all BRIDGES work. A description of the tools can be found in **Appendix F – PCO Web Tools**.

The BRIDGES PCO will be comprised of both vendor and State of Michigan DIT staff. The contractor is responsible for utilizing and mentoring these State staff. These staff members will supplement vendor staff for various PCO functions. The exact number of staff and positions shall be mutually agreed upon by the Vendor and

the State. A minimum of four (4) and no more than eight (8) State staff will be utilized for the BRIDGES PCO throughout the duration of this contract.

In addition, due to the uncertainty of the size and scope of the BRIDGES initiative, the contractor will provide up to 30,000 hours of staff time per year (above and beyond staff outlined below) to be used at the State's discretion.

The contractor will apply formal project management practices to the activities of the development and implementation vendor and to the contractor's activities as well. In general, the Contractor's approach to implementing the Bridges Project Control Office is described below.

Project Initiation

The contractor will use a proven methodology for project initiation. The contractor will deal with more than the relatively simple mechanics of physical implementation, and will address the cultural and organizational changes that need to occur. During the large-scale initiation effort, the contractor's team will perform the tasks outlined in the table below.

Organizational Change Management	Project Initiation Component
Solicit input and involvement of staff in planning and development.	This is part of impacted organizations/ interfaces and project scope.
Convey the benefits of change and develop an "enterprise vision" in which each official sees himself or herself as part of the larger system.	This begins with the project kickoff meeting, is built upon garnering participation in the initiation and planning process and continues through the execution phase with the communication plans.
Establish a rational pace and event sequence for implementing organizational change management and communications.	This is inherent in the contractor's approach to defining a work breakdown structure and establishing project milestones.
Acknowledge the contributions of individuals or groups in moving BRIDGES forward.	Whether performed formally or informally, this is a key element from project inception through implementation.

The initiation of the PCO is the next step forward for the BRIDGES program. Through this effort, the project management process set, tools, and controls will be put in place for guiding all future efforts. The contractor will apply project initiation methodology to facilitate success and also to provide the BRIDGES leadership the opportunity to learn the process in preparation for the development and implementation vendor initiation.

The PCO will manage change during the BRIDGES project. The contractor will implement transition methodologies that overcome the resistance and guide people to acceptance. The contractor will work with the State and its development and implementation vendor until the State's existing eligibility systems are replaced by BRIDGES.

The key deliverables for project initiation efforts are as follows:

- Project kickoff
- Plan for the plan
- Master project plan
  - Project objectives
  - Scope
  - Impacted organizations/interfaces
  - Communication plan
  - Work Breakdown Structure (WBS) definition
  - Milestones
  - Performance standards
  - Staff plan with training plan
  - Assumption, issue, and risk identification
  - Project schedule.

Project Kickoff: The project kickoff meeting will facilitate the 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 PCO initiation kickoff meeting, the State and the contractor's shared project control vision will be presented. Next the contractor 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 BRIDGES.

Plan for the Plan: This activity establishes a calendar for the creation of the master project plan. Ownership of the master project plan components will be assigned and target dates will be set. Status meetings, review meetings, and special breakout sessions will be scheduled. For the PCO initiation, the contractor will establish an aggressive calendar for creating the master plan. The contractor will identify resources from across the State, PMO, and PCO teams to participate in this effort and assign them ownership of specific plan components. Early participation and ownership from each of the stakeholders is key to their long-term acceptance.

Master Project Plan: This will become the roadmap and the baseline for the project. The components of the master project plan will be spelled out as completely as possible. For the BRIDGES PCO, the master project plan and the contract will be the key inputs. Working collaboratively with the State, the master project plan will provide details for each of the following:

Project Objectives: This defines the objectives of the product/process being created and where this new project fits into the agency objectives. For the initiation of the PCO, the objectives will focus on establishing the project office as defined by the contract so it facilitates the State's vision for BRIDGES.

Scope: This is a high-level description of the products and services to be delivered through the project. For the BRIDGES PCO initiation project, the scope will aim to further refine the elements presented in the ITB. Specifically, it will finalize the following parameters:

- Timing and process for adding PCO staff
- Refining requirements and implementation of PCO process set
- Refining requirements and implementation of PCO toolset
- Identification of project specific process and tool needs and creating a tailoring schedule
- Establishing the framework for initiation of the new development and implementation vendor
- Implementation plans for all elements of the ITB.

Impacted Organizations/Interfaces: These are the organizations, applications, groups, and individuals that will be impacted by the project. For the initiation of the PCO, recipients of PCO services will be included as well as all participants in the project control activities. At a minimum, this will include the PMO, DHS, DCH, and DIT. It will also include representatives from the DHS and DCH partner communities. Identifying these individuals and organizations will be critical to the success of the PCO and the success of BRIDGES. With the help of the State, the contractor will identify the stakeholders and document the following for them:

- Their sphere of responsibility
- Their impact on BRIDGES
- BRIDGES impact on them
- Their interaction with the PCO.

This information will become part of the communication plan.

Communication Plan: The contractor will define the information needs of project stakeholders, the information sources, the reporting cycles, and the reporting format. The basic reporting cycle and report templates are defined in Status Reporting on page 15. Using the information gathered in the previous step, impacted organizations/interfaces, and the BRIDGES communication plan the contractor will tailor the plan to meet the organizational needs.

Work Breakdown Structure Definition: The WBS is a deliverable-oriented document used to break down the work to be done within the project to a manageable level. For this project, the contractor will establish a WBS that fits the deliverables and reporting needs of the initiation of the BRIDGES PCO.

Milestones: The contractor will establish the stage gates for each major component of the WBS. For the period of PCO initiation, the milestones will be set so regular progress can be demonstrated and performance to plan can be tracked.

Performance Standards: The contractor will determine the factors needed to be in place for the project to be a success, how to effectively measure these factors, and identify the thresholds for success. The contractor will define the general project monitoring standards that will be followed. The contractor will also work with the State to establish specific measures of success for the deliverables of this initiation effort. Figure1.3-4, PCO Performance Thresholds, lists the performance thresholds for the BRIDGES project.

	Green	Yellow	Red
Major Milestone Tasks	< 10% of tasks late	10 % to 29 % of tasks late	> 30% of tasks late
Major Milestone	Achieved		Missed
Escalated Issues Not Resolved		> 2 weeks	
No Plan to Evaluate Progress		Target date for establishing plan is less than 30 days out	Target date for establishing plan is > 30 days out
Earned Value Schedule Variance (SPI)	.9 <= SPI <= 1.2	.8 <= SPI < .9 or 1.2 < SPI	SPI < .8

Figure 1.3-4, PCO Performance Thresholds

Staff Plan with Training Plan: The resource component includes 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 contractor and State staff members of the PCO. The contractor 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. Training will take place throughout the initiation phase. Mentoring of the State staff and the development and implementation vendor will take place over the life of the contract. Along with the job specific training, this knowledge transfer period will include overviews of the PCO toolset, the PCO process set, and the BRIDGES project. The most critical component of the training is the development and execution of the PCO initiation plan itself. The contractor will provide the State with hands-on, real-life experience with all of the components of the PCO. Since this process will be the same as is followed for any project, the State will be fully prepared as the contractor starts the first planning initiative with the development and implementation vendor.

Assumption, Issue, and Risk Identification: The contractor will create a comprehensive list, collaboratively with the stakeholders of their assumptions, concerns, and perceived exposure on this project. The contractor will work with each stakeholder, individually and in groups, to document their assumptions regarding the initiation effort and their perceived risks. The contractor will consolidate the assumptions, reviewing them with the stakeholders to identify and resolve conflicting assumptions. 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. The issues and risks will also be reviewed and put through the contractor's formal management process.

The contractor recognizes the significant challenge the State will confront in identifying ways to minimize the risks inherent in the project initiation and transition period. The contractor will identify and analyze critical risks. Some examples are seen in the table below for the Initiation and Transition Risk Mitigation Plan. Any additional risks will be determined by the contractor as well.

Risk Description	Risk Impacts	Mitigation Plan	Potential Impact	Overall Prob-ability	Prob-ability with the contractor *
Project management philosophy and methodology are not compatible with the State's PMM.	Extended learning curve for State employees. Project management practices do not live up to State standards.	The contractor's Project Management Methodology has already demonstrated compatibility with the State's PMM and delivers superior project management results.	High	High	Low
he PCO and State staff would not have the time during project initiation to learn the required project-specific knowledge.	Critical functions would not be adequately performed and the project office foundation will be weak.	The contractor will leverage highly talented personnel, with extensive experience in supporting State projects.	High	High	Low
Critical relationships with key users and stakeholders would not be established.	Input from key stakeholders would be missed, and adequate buy-in and cooperation would not be secured, thus jeopardizing buy in and the ultimate success of the project.	The contractor will leverage resources that already have extensive networks within the Sate and will continue to build on existing relationships.	High	High	Low
The project control vendor recommends a new PCO toolset.	High cost for a new toolset. An extended implementation period may be required. Extended learning curve for State employees. Incompatibility with other State projects already using the common toolset.	The contractor will support the State's choice of toolsets.	High	High	Low
The vendor's alternative project management tool set is not compatible with the State's project management	The project control tools do not support critical project management functions.	The State recommended PCO toolset was custom developed by the contractor to meet the State's unique project	High	High	Low

Risk Description	Risk Impacts	Mitigation Plan	Potential Impact	Overall Prob-ability	Prob-ability with the contractor *
practices.		management needs.			
The project control vendor is unfamiliar with the toolset and introduces defects into the toolset.	The project control toolset functionality is hampered, not only for BRIDGES, but also for other users of the toolset.	The contractor developed the toolset. The contractor has a unique understanding of its operation, support, and usage by other organizations.	High	High	Low

Project Schedule Development:
The project schedule provides a graphical representation of predicted tasks, milestones, dependencies, resource requirements, task duration, and deadlines. The project's master schedule inter-relates all tasks on a common time scale. The master schedule will encompass the tasks for each scope item, logically broken down by WBS and tangible deliverables with resource assignments. The master schedule will be effort driven and meet the project milestones. Through the development of the master schedule, the PCO contractor will confirm the milestones and resource plan are realistic for achieving the project scope.

Project Management
The contractor will adhere to the State's PMM methodology and apply a delivery-focused philosophy. The contractor will use a delivery-focused philosophy that has two key components: aggressive problem identification and resolution and keeping the end in mind.

The contractor will look for trends; snippets of data that independently mean nothing, but when viewed holistically, identify burgeoning trouble. These concerns will be reviewed with the development and implementation vendor and the State. In considering potential resolutions, priority will be given to the quality, scope, and schedule commitments made in the master project plan. The contractor will go after these problems, working with the State and the development and implementation vendor to achieve a speedy resolution. First, the contractor will exhaust options that use plan contingencies (extending workdays and work weeks, reallocating work and resources, adjusting intermediate milestones, and so on). If these contingencies are inadequate to address the potential problem, the contractor will examine the option of additional resources. The development and implementation vendor will need to address any budgetary issues that arise from this. If, in the end, modifying the scope or timing of a release is the best option, the contractor will collaborate with the State and the development and implementation vendor to create a high-confidence plan that will maximize the priorities of the State, and minimize the impact to scope and timing as much as possible.

The contractor will keep the end in mind by working with the State and the development and implementation vendor to perform the following:

- Clearly define the goals, scope, and timing of each release
- Actively monitor and manage the project schedule
- Tightly control scope (By clearly defining goals, scope, and timing, then actively managing to these commitments, the contractor and the State will enable the development and implementation vendor to meet the project's objectives.)

The contractor will implement the PMM process set for the BRIDGES project, while bringing elements of CMMI Level 5 methodologies and PM2 for the benefit of the State.

Status Reporting

Transparency of project status is vital to the success of any project, especially one as large and complex as BRIDGES. The contractor will collaborate with the State and the development and implementation vendor to produce a comprehensive project status communication plan. The communication plan will define the information needs of BRIDGES stakeholders, partners, and the entire project team and addresses the following:

- Formats of status reports
- Types of communication
- Timing of communications
- List of recipients
- Tools to support communications.

The contractor will continue to facilitate weekly status meetings with the State and the development and implementation vendor project directors and agency leaders. In addition, the contractor's PCO manager will continue to consolidate weekly progress reports that describe 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.

The critical input into project status is progress against tasks. To gather this information, the contractor will create a time tracking tool that generates time sheets weekly for each resource with assignments automatically extracted from the Microsoft Project schedule. Time sheets are automatically updated each night to reflect any changes to scheduled tasks or resource assignments. The project staff updates their time sheets with effort-hours by detailed task and submits weekly. Automated tools and reports in the tracking tool will provide immediate feedback to team leads on missed estimates and late projected finish dates. The suite of available time tracking reports allows for rapid schedule analysis and updates. With project time sheets submitted by 10:00 a.m., Monday morning, the PCO will apply the updates to the Microsoft Project schedule and identify the following:

- Over allocated resources
- Under allocated resources
- Late tasks
- At risk scope
- At risk milestones
- Missed milestones
- Conflicts between time sheet status and configuration tracking status.

This information will be e-mailed to the development and implementation vendor team leads, along with detailed earned value reports by close of business Monday. Earned value charts will be generated simultaneously and will be available through Report Tracker.

The Project Management Control team and team leads will review the schedules, identifying and analyzing relevant resource workload problems, issues, and potential change controls. Scorecards will be produced based on schedule metrics and identified issues and will be used during the weekly manager status meetings and the executive status meetings every two weeks.

The Ticket Assessment Group (TAG) will meet weekly and the Change Control Board (CCB) will meet semiweekly, generating input for the weekly release planning meeting.

The contractor will employ several channels to achieve wide distribution and availability of status information. Status reports and charts will be available on demand through the PCO Web site, distributed in hard copy at the weekly and biweekly status meetings, posted to the visibility wall in the PCO room, and e-mailed as needed to stakeholders who cannot attend the meetings and cannot access the State intranet.

The Resource Usage Report will be produced from Time Tracker. Resource assignments will be pulled from all active project schedules and displayed by team, by resource, by project, and calculated by week. This report will be generated on demand. It will allow the PCO and project team leads to quickly identify under- and over-allocated resources and to which projects the resources are assigned.

The Earned Value Report will chart earned value, an effort-driven analysis of progress to date compared to the approved project schedule. Predefined thresholds provide a consistent and objective measure for performance.

The Task Counts Report will chart task counts, which provide a numerical analysis of tasks completed compared to tasks targeted for completion in the approved project schedule. Predefined thresholds provide a consistent and objective measure for performance.

The Project Scorecard Report, will depict the project scorecard, which displays color-keyed status by milestone, highlights issues and risks negatively affecting status, and includes recommended corrective actions. The scorecard status is a byproduct of combining the earned value and task count analyses with identified project issues and risks.

The Weekly Status Report will detail 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. All team leads on the BRIDGES project complete these reports, which the PCO will then consolidate and collate with the relevant metrics reports and scorecards.

Every two weeks, the contractor will submit executive-level status updates and escalated issue reports to the BRIDGES project leaders.

The contractor will provide copies of all project status reports and escalated issue reports, which will be distributed to the following:

- PMO program manager
- The development and implementation vendor project manager
- Agency directors
- Project documentation file.

In addition to the recurring weekly and monthly status reports, the following required reports will be provided:

- Warranty work tracking through remedy and standard project tracking reports
- Incidental reports for unscheduled system unavailability and monthly downtime
- Monthly staffing reports
- Incident reports describing unanticipated problems, actions taken to address the problems, and outcomes
- Ad hoc reports, as requested by the DIT BRIDGES project director.

During test execution, the PCO contractor will produce Test Execution and Defect Resolution Status reports. The Test Execution Status reports will provide real-time counts of the total number of test cases, total started, total passed, total failed, and total not started. The Test Status and Defect Status Report will display counts by day so progress is easily viewed. This report will be viewed daily during test execution. The Defect Status Report will show defects by area and severity and resolution progress over time. This report will be viewed daily during test execution.

Interfaces with State Staff, Description of Roles, and Estimated Hours

State Management and Oversight
The State will establish the foundation for project success by completing the following actions:

- Establishing a strategic direction for Eligibility and steering BRIDGES on a path to support that direction
- Providing the base architecture and network for BRIDGES application operations
- Supplying eligibility expertise and the detailed requirements that drive system design.

Specifically, DHS and DCH will play a vital role in the following project elements:

- Garnering the participation of the partners, counties, and other project stakeholders
- Providing direction through the PMO, Release Planning Group, and TAG
- Approving and accepting all project deliverables.

DIT's role will be equally critical and includes the following components:

- Providing daily direction and leadership to the BRIDGES project
- Supplying the appropriate hardware and operating system software required by BRIDGES
- Furnishing base infrastructure support for the central servers and networks that enable BRIDGES to reach application users.

On the basis of a realistic assessment of the State requirement to direct and control project management activities for the BRIDGES project, the contractor forecasts the personnel allocation as listed in the table below, Forcasted State Project Management Resources for BRIDGES. This only addresses the staff for project control and oversight. It is not meant to identify or estimate all of the State resources that will be involved in the BRIDGES project. This also does not include the four to eight State resources directly augmenting the PCO whose roles are defined in the paragraph below titled, State PCO Staff Augmentation.

Forcasted State Project Management Resources for BRIDGES				
Task/Team Organization	**Staff FY06**	**Staff FY07**	**Staff FY08**	**Staff FY09**
Task 1, Project Management Control				
Program Manager	1	1	1	1
DCH Business Owner	1	1	1	1
DHS Business Owner	1	1	1	1
DIT Project Owner	1	1	1	1
User Support Manager	1	1	1	1
Budget and Finance	1	1	1	1
HR, Administration Support, Facilities	1	1	1	1
Executive Secretary	1	1	1	1
Total State Personnel for Task 1	8.0	8.0	8.0	8.0
Task 2, Technical Infrastructure Control				
Application Support Service Manager	1-4	1-4	1-4	1-4
Support Services Manager(s)	1-4	1-4	1-4	1-4
Total State Personnel for Task 2	2-8	2-8	2-8	2-8
Total State Resources by Fiscal Year	10-16	10-16	10-16	10-16

State PCO Staff Augmentation. The State will provide four to eight resources to directly augment the staff of the PCO. They will be valued team members, full participants in all appropriate PCO activities. They will receive their daily direction and task assignments either from the contractor's PCO manager or the contractor's Technical Control manager, depending upon their roles. Their assignments will be commensurate with their skills and without delineation between State PCO tasks and contractor's PCO tasks.

As with the contractor's staff, the contractor will provide project specific training to the State team members. Assuming a base skill set appropriate for the position, the contractor will assess the project specific skills and knowledge each resource required to perform their appointed function. The resulting training plan will emphasize self-paced review of existing project process and tool documentation and provide extended on-the-job training with an experienced mentor. The State will retain administrative responsibility for these resources, including, but not limited to, addressing job performance evaluation, career planning, and salary administration.

The contractor will augment staff by pairing State staff resources with their PCO contractor teammates as described in the table below. When identified, State staff skill sets will match these tasks. The contractor will work with the State to place the staff in the most appropriate roles to match their skill sets and the projects needs. State personnel will be available when given sufficient lead-time and notification. The following staffing plan is based upon the State-defined staffing levels and start times.

Recommended Allocation of State PCO Staff Augmentation					
PCO Role	Staff Months Fiscal Year 2006	Staff Months Fiscal Year 2007	Staff Months Fiscal Year 2008	Staff Months Fiscal Year 2009	Total Staff Months
State PCO Staff					
Configuration Management	9	12	12	12	45
System DBA	9	12	12	12	45
Network/Development Environment Support	9	12	12	12	45
Data Loading, Data Utilities – DB2	6	12	12	12	42
Batch Support/Scheduling – Oracle	6	12	12	12	42
Remedy Processing, Documentation, Administrative Support, Impact Analysis Tool	6	12	12	12	42
Web Tools Support	18	12	12	12	54
Total State PCO Staff Months by Fiscal Year	69	96	96	96	357

Internal Project Management and Organization

The contractor's team views a strong relationship with the DHS, DCH, and DIT managers and personnel as critical for the success of BRIDGES. The contractor will share ownership and accountability in successfully accomplishing BRIDGES goals and objectives. The contractor's leaders will work closely with the BRIDGES PMO program manager's entire team.

Mr. Will Mahoney will report directly to the BRIDGES program manager and will hold overall responsibility for the BRIDGES PCO. Further, Mr. Mahoney will work directly with the DIT, DCH, and DHS owners, submitting formal communications about day-to-day operations. Mr. Arthur Kurtze will report directly to Mr. Mahoney and informally report to the DIT owner and leadership team.

As shown in Figure1.3-14, the contractor's PCO Management Team will be directed and maintained by the contractor's PCO manager, who is experienced in executing projects for the State of Michigan. All PCO team

personnel will be ultimately accountable to the contractor's PCO manager, who is responsible and accountable to the PMO program manager. The contractor's PCO management team will monitor project progress to fulfill the State vision outlined in this contract. This core management team will agree on the direction of the project and will resolve any significant issues as a unified team. Mr. Mahoney holds the authority to make decisions and commit resources on behalf of the contractor in all aspects of service delivery under this contract, including adding personnel if State demands increase in a functional area.

The Project Management Control staff will report to the contractor's PCO manager. The Technical Control manager also will report to the contractor's PCO manager. The Technical / Infrastructure Control staff will report to the Technical Control manager.

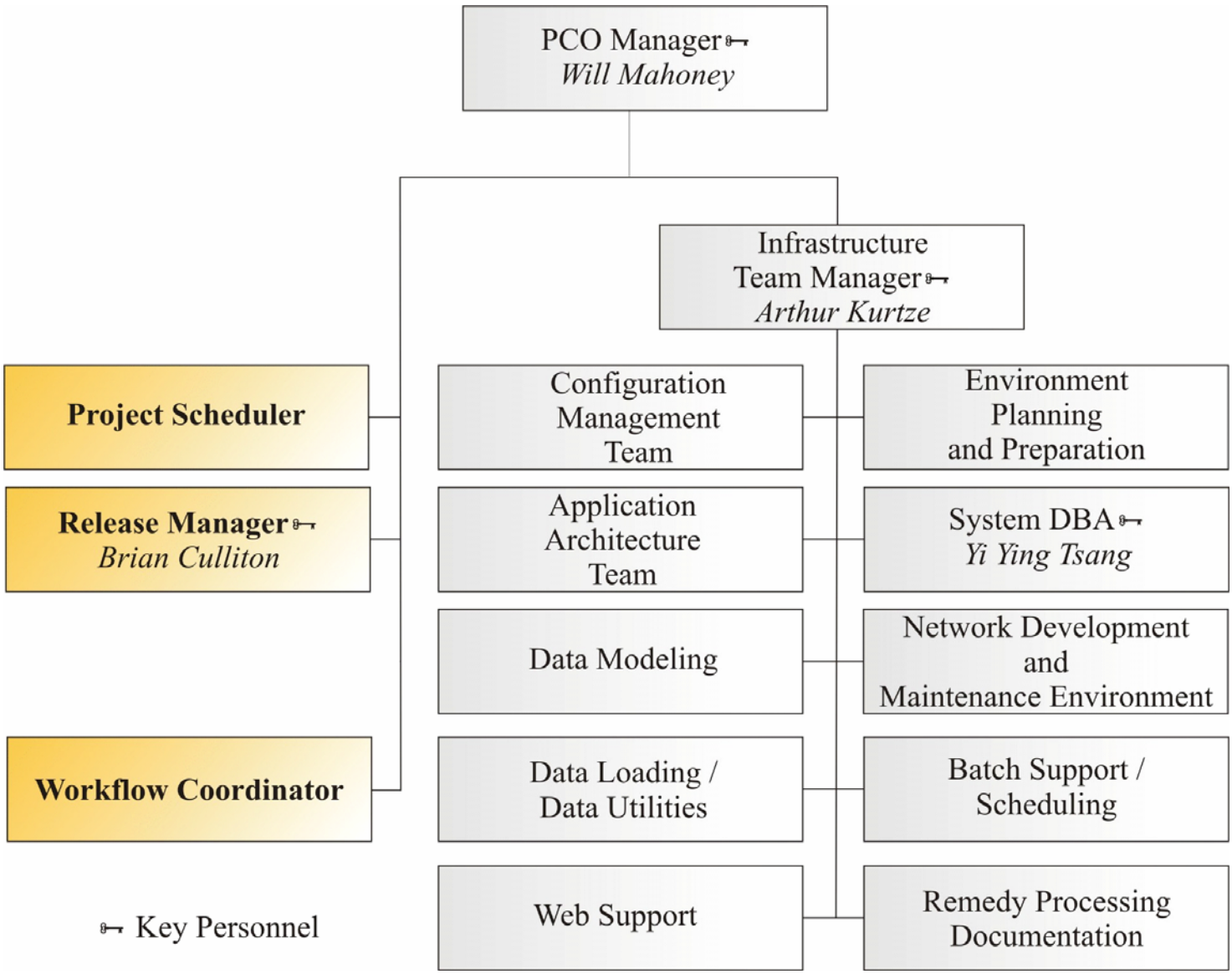


Figure 1.3-14, PCO Management Team

Overall, the named key personnel will form the project leadership team co-located at the Grand Tower building in Lansing and will work closely with all project personnel, interact with any other pertinent State subcontractors, and work hand-in-hand with DIT, DHS, and DCH leaders to make sure BRIDGES PCO objectives are satisfied professionally, on time, and within budget.

Time Estimating Procedures

The development of every project plan will include the identification of included tasks, assumptions, constraints, and risks as well as the effort associated with each item in the plan. The contractor's team will fully analyze the scope of work, applying their 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. The contractor will employ a robust estimating process and procedures that accurately predict needed development effort. This estimating process will include the following major components:

- Metrics repository containing historical metrics from all BRIDGES 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 contractor's team will perform individual task estimation, as well as considering resource-leveling techniques, task interdependency, and other constraint information.

Internal Quality Control Monitoring

The contractor's project manager 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 be able to see the plans and procedures that are followed. Performance to project requirements, goals, and standards will be analyzed to monitor compliance with both State and project team expectations.

The contractor will apply work product review processes and procedures. The contractor will conduct work product reviews for all deliverables and will enlist the State's participation. This approach will improve accuracy, enhance the probability of meeting or exceeding expectations, and produce work products that are correct the first time and thus avoid the need for rework.

Deliverable Products and Signoff Procedures for Deliverables and Activities

The State has identified deliverables to be delivered by the contractor and major activities requiring a formal sign-off. 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 contractor's project manager and the State 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. All active SOWs will be reviewed on a monthly basis.

The sign off timing for identified deliverables is noted in the table below.

Deliverable	Sign Off
PCO Project Initiation	
PCO Project Initiation	Formal sign off will be required upon completion of the master project plan and at each subsequent major milestone.
Task 1	
Release plans, including narrative description of release contents and fully resourced schedules	Formal signoff will be required upon completion of each release plan.

Deliverable	Sign Off
Detailed task-level plans and schedules for release deployment	Creation of the project schedules occurs as part of release plan creation. Formal sign off will be required upon completion of each release plan. Maintenance of the project schedules is part of ongoing operations. Formal sign off for this will occur monthly.
Facilitation of and materials preparation for release deployment meetings.	Facilitation of and materials preparation for release deployment meetings is part of ongoing operations. Formal sign off for this will occur monthly.
Weekly status reports	Generation of weekly status reports is part of ongoing operations. Formal sign off for this will occur monthly.
Facilitation of and preparation of materials for weekly status meetings for managers and team leaders	Facilitation of and preparation of materials for weekly status meetings for managers and team leaders is part of ongoing operations. Formal sign off for this will occur monthly.
Facilitation of and preparation of materials for biweekly leadership meetings	Facilitation of and preparation of materials for biweekly leadership meetings is part of ongoing operations. Formal sign off for this will occur monthly.
Facilitation of and preparation of materials for weekly release planning meetings	Facilitation of and preparation of materials for weekly release planning meetings is part of ongoing operations. Formal sign off for this will occur monthly.
Participation in and materials preparation for executive leadership meetings, as requested by the BRIDGES program manager.	Participation in and materials preparation for executive leadership meetings, as requested by the BRIDGES program manager is part of ongoing operations. Formal sign off for this will occur monthly.
Performance metrics, including score cards, earned value analysis, resource usage, defects found and resolved in testing, defects introduced into production, analysis of application development and implementation vendor warranty work, and analysis of application down time.	Performance tracking is part of ongoing operations. Formal sign off for this will occur monthly.
Facilitation of and materials preparation for close-out of each release, including archival of all project data, lessons learned sessions, and close-out of any open action items.	Facilitation of and materials preparation for close-out of each release, including archival of all project data, lessons learned sessions, and close-out of any open action items is a major milestone for each release. Formal sign off for this will occur upon completion.
Ad hoc reports requested by the BRIDGES program manager.	Ad hoc reports requested by the BRIDGES program manager are on demand. Formal sign off for this will occur upon completion.
Training on the processes and tools used for project management control for State staff designated to work with and on the PCO project management team.	Training on the processes and tools used for project management control for State staff designated to work with and on the PCO Project Management team is a milestone within the PCO initiation effort. Formal sign off for this will occur upon completion.
Task 2	
Weekly written status reports that include, at a minimum, a description of work accomplished, summary of work scheduled, and identification of issues requiring management attention.	Weekly written status reports are part of ongoing operations. Formal sign off for this will occur monthly.

Deliverable	Sign Off
Capacity plans and reports.	Milestones for initial delivery of capacity plans and reports will be established as part of the PCO initiation master project plan. Formal sign off will be required upon completion of each milestone. Maintenance of the capacity plans and reports is part of ongoing operations. Formal sign off for this will occur monthly.
BRIDGES data model.	Milestones for initial delivery of the BRIDGES data model will be established as part of the PCO initiation master project plan. Formal sign off will be required upon completion of each milestone. Maintenance of the BRIDGES data model is part of ongoing operations. Formal sign off for this will occur monthly.
BRIDGES Application Architecture.	Milestones for initial delivery of the BRIDGES Application Architecture will be established as part of the PCO initiation master project plan. Formal sign off will be required upon completion of each milestone. The implementation vendor has responsibility for designing and delivering the application architecture, and the PCO has responsibility for approving, tracking and enforcing the architecture. Maintenance of the BRIDGES Application Architecture is part of ongoing operations. Formal sign off for this will occur monthly.
BRIDGES Technical Architecture.	Milestones for initial delivery of the BRIDGES Technical Architecture will be established as part of the PCO initiation master project plan. Formal sign off will be required upon completion of each milestone. The implementation vendor has responsibility for designing and delivering the technical architecture, and the PCO has responsibility for approving, tracking and enforcing the architecture. Maintenance of the BRIDGES Technical Architecture is part of ongoing operations. Formal sign off for this will occur monthly.
Documentation of all implemented processes and tools to support application development, testing, release, and configuration management.	Milestones for initial delivery of the documentation of all implemented processes and tools to support application development, testing, release, and configuration management will be established as part of the PCO initiation master project plan. Formal sign off will be required upon completion of each milestone. Maintenance of this documentation is part of ongoing operations. Formal sign off for this will occur monthly.
Training on the processes and tools used for technical / infrastructure control for State staff designated to work as part of the Technical Control team.	Training on the processes and tools used for technical / infrastructure control for State staff designated to work as part of the Technical Control team is a milestone within the PCO initiation effort. Formal sign off for this will occur upon completion.

Problem Identification and Resolution

Problems and issues are a common occurrence for any development project. The contractor will employ a formal issue management process and automated tool to identify and track issues and to facilitate their resolution. The contractor will exercise issue management at regularly scheduled staff meetings and assign responsibility and accountability to appropriate personnel who are tasked with resolving the issue at the lowest common denominator. The contractor will utilize the issue tracking tool, which is Web-based and will be readily accessible to 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 State and the contractor will establish an issue escalation process defined for risk management and issue management as well as key decision points. Unresolved issues on the BRIDGES project will be assigned an escalation level that generates a review at the regularly scheduled leadership meeting. Items requiring the involvement of a leader to remove roadblocks will be assigned to that leader, who assumes ownership of the issue and assists in its swift resolution. This approach will be modified as needed as the stability of BRIDGES matures.

Figure 1.3-15, Issue Resolution Process Flow, provides an overview of the process.

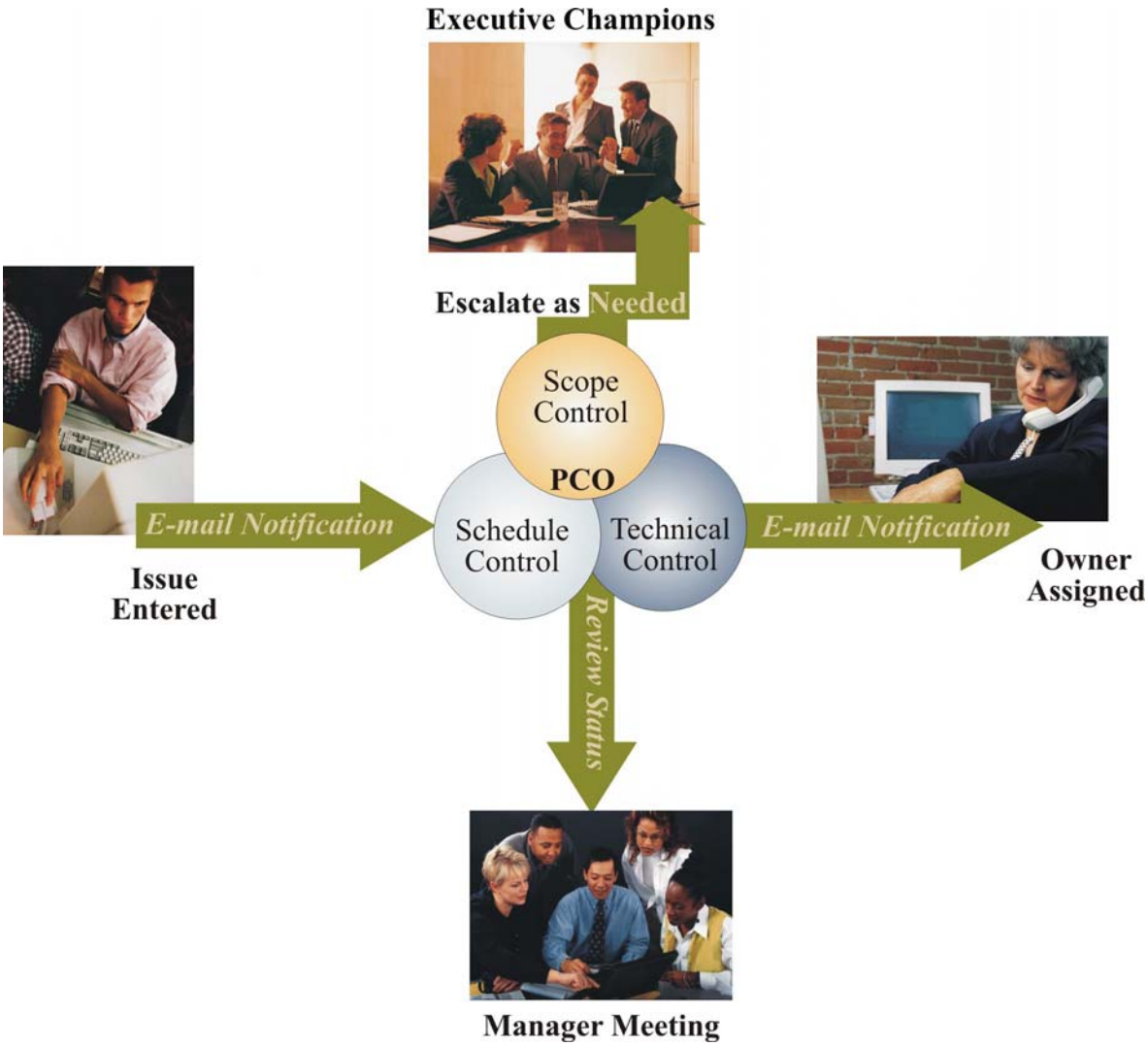


Figure1.3-15, Issue Resolution Process Flow

TASKS:

The following tasks involved in providing project management control and technical control for the BRIDGES project will be performed by the contractor in carrying out this contract.

Task 1 – Project Management Control

The contractor's PCO Project Management Control Team will follow the Project Management Methodology (PMM) adopted by the State. This methodology includes the following standard project phases:

- Initiation
- Planning
- Execution
- Control
- Closeout

The contractor will ensure that the BRIDGES project will rigorously follow the PMM to manage on-time delivery of quality application releases.

The State PMO, PCO contractor, and the development and implementation contractor jointly comprise the management team for the BRIDGES project. Specifically, the PCO Project Management Control Team will provide project management support to the State in project administration, scope change control, release planning, release management, risk management, issue management, production ticket assessment, performance metrics for the development and implementation contractor, and participation in project strategy and direction as requested.

The contractor's PCO Project Management Control Team will provide assistance to the State in the form of independent oversight, monitoring, and reporting on activities and metrics critical for on-time delivery of quality technology services that meet the needs of DHS, DCH, and DIT. The PCO Project Management Control Team is responsible for creating and maintaining detailed MS Project plans and schedules that support project scope, milestones, and deliverables, using input from the implementation vendor and the State Of Michigan. Once a project plan is resourced and baselined, all resources (State and Contractual) are required to report effort against the plan. The contractor's PCO Project Management Control Team will use this information to track progress against the plan, determine earned value calculations, and derive weekly status reports.

Through its Project Management Control team, the contractor's PCO is responsible for fully and rigorously implementing the State PMM. The Project Management Control team will follow the PMM phases (Initiation, Planning, Execution, Control, and Closeout). When responding to each Project Management Control subtask, the contractor will identify those PMM phases that the subtask supports. The contractor will use their understanding of, and scrupulous adherence to, State project management principles to successfully complete the Bridges projects while identifying risks and driving solutions.

The contractor's team will use their independent project analysis and insights and will not be influenced by State expectations or vendor desires, but rather will be driven by a combination of key metrics data and the holistic understanding of project health. Moreover, issues, risks, and concerns will be identified and rapidly resolved by the contractor. Consequently, the contractor will establish and maintain detailed rational project schedules that encompass the work needed to fulfill the scope and meet project milestones. This project schedule will be used as input to generate graphical metrics status. These metrics join issues, risks, and concerns as key inputs to various status reports, which the Contractor will generate and use to foster open and honest reviews as the Contractor facilitates the weekly and biweekly manager and executive status meetings.

The contractor will establish a delivery-focused project management model for ridges, leveraging expertise from the Lansing-based resource center, assessed as a CMM level 5 organizations. The contractor will apply their expertise and the CMM level 5 process sets to support Michigan, CMMI benefits for predictability, project duration, and costs, as an organization matures, project duration and cost decline, and predictability increases. The contractor will assist the State in maximizing the performance, predictability, and reliability of the Bridges project.

The contractor's PCO Project Management Control Team will provide project management assistance to the State and its development and implementation contractor through performance of the following tasks:

a) Develop and manage project schedules and application releases – Work in tandem with the BRIDGES Development and Implementation contractor to create system lifecycle schedules and plans that are logic and resource driven. Maintain the schedules to manage releases and scope.
b) Manage resource pool – Using project management tools, align resources to application releases and tasks, identify number of resources needed, identify resource conflicts, and assist in leveling resources across tasks and/or releases. This task does not include staff supervision or direct assignment of individuals to tasks. These specific responsibilities (staff supervision and task assignment) are the responsibility of the Development and Implementation contractor and/or the State.

c) Maintain Scope Change Control and Issue Resolution processes – Provide structure to manage changes in scope. Document, and escalate issues. Facilitate cross-functional team communications for timely issue resolution.

d) Time Tracking – Support level of effort and time tracking, determine where resource time is spent, gather and document data to enable increased estimating accuracy for future software releases based on historical data.

e) Production Ticket Assessment – After the new system is in production, support the tracking of production tickets from the users and manage the ticket assessment process. Facilitate and coordinate the prioritization and integration of business requirements into maintenance releases. Facilitate weekly meetings to assess open tickets.

f) Release Planning – Support the BRIDGES Release Planning process by close coordination with the Development and Implementation vendor in selection, research, and preliminary planning of application releases. This effort includes input from production ticket assessment, Executive Leadership, and the PCO Technical Control Team, as well as groups representing the end users.

g) Communication – Identify appropriates information requirements and their flow, and ensure individuals at all levels receive appropriate information on scheduling and planning in a timely manner. Establish meeting schedules and agendas. Facilitate release and status meetings. Coordinate communications across stakeholders and among vendors.

h) Performance Monitoring - Maintain disciplined process for monitoring release deliverables and schedule milestones. Update and produce project scorecards. Monitor and publish earned value and other performance metrics. Report program status and milestones on a timely basis. Facilitate action plans for solving progress-related obstacles.

i) Provide support and assistance to other BRIDGES projects as resources permit.

j) Interface with DHS, DCH, DIT, BRIDGES Development and Implementation contractor, and other areas as necessary.

DELIVERABLES:

Deliverables will not be considered complete until formally accepted and approved by the BRIDGES Program Manager. Deliverables to be completed by the contractor for the BRIDGES PCO for this scope of work include:

a) Release plans, including narrative description of release contents and fully resourced schedules.
b) Detailed task level plans and schedules for release deployment.
c) Facilitation of and materials preparation for release deployment meetings.
d) Weekly status reports.
e) Facilitation of and materials preparation for weekly status meetings for managers and team leaders.
f) Facilitation of and materials preparation for bi-weekly leadership meetings.
g) Facilitation of and materials preparation for weekly release planning meetings.
h) Participation in and materials preparation for Executive Leadership meetings, as requested by the BRIDGES Program Manager.
i) Performance metrics including score cards, earned value analysis, resource usage, defects found and resolved in testing, defects introduced into production, analysis of Application Development and Implementation vendor warranty work, and analysis of application down time.
j) Facilitation of and materials preparation for close-out of each release, including archival of all project data, lessons learned sessions, and close-out of any open action items.
k) Ad hoc reports requested by the BRIDGES Program Manager.
l) Training on the processes and tools used for project management control for State staff designated to work with and on the PCO Project Management Team.

Development and management of project schedules and application releases

The contractor's PCO Project Management Control team will conform to the State PMM and will support the State and its development and implementation vendor by performing key project management schedules and application releases activities.

The contractor's Project Management Control team will work in concert with the development and implementation vendor to create project schedules that address the deliverables identified in the master project plans. Using Microsoft Project, the contractor's team will create schedules that track to the appropriate system life-cycle phases, organize the work in the sequence performed, and are driven by resources. These schedules are living documents that are integral to tracking the performance of the team and the status of the project. Progress updates will be captured through weekly timesheets. The impact of these updates will be reviewed with the development team leads, and corrective actions are taken as needed. The contractor's Project Management Control team will perform workload analysis so that development team leads can make personnel assignments that support satisfaction of project milestones.

To support project transparency and to verify that the State can access critical project data, the contractor will post all project schedules to the BRIDGES internal project control site. Figure 1.2-4, PMM Activities Relevant to Project Schedule Development, lists the key PMM processes and phases that are relevant to developing and managing project schedules and application releases.

PMM Key Process	PMM Phase
• Time management • Integration management • Communication management	• Planning • Control

Figure 1.2-4, PMM Activities Relevant to Project Schedule Development

Management of resource pool

The contractor will start with estimates provided by the Development and Implementation vendor. The contractor's Project Management Control team personnel will develop a resource plan for each release, applying tools tailored to meet the needs of BRIDGES, project-specific resource productivity assumptions, and its expertise in workload planning. This release resource plan will be balanced against the resource needs of other releases and the skill profiles of available personnel. These plans & analyses will be conducted in collaboration with the development and implementation vendor and the State. The resource plan will identify the specific personnel who are assigned project deliverables, incorporating their hour allocations per week, vacation schedules, and holiday assumptions. After the initial resource plan is approved, the contractor's Project Management Control team 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 team leads. Misallocation of personnel to tasks outside of the approved work plan will be reviewed and resolved with the State and the development and implementation vendor. Figure 1.2-5, PMM Activities Relevant to Resource Management, notes the key PMM processes and phases that are relevant to managing the personnel pool.

PMM Key Process	PMM Phase
• Human resource management • Time management	• Planning • Control • Execution

Figure 1.2-5, PMM Activities Relevant to Resource Management

Maintenance of scope change control and issue resolution processes

The contractor's team will institute robust issue and change control processes for BRIDGES, leveraging the State-provided 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.

New issues can be entered by any project team member or by the Project Management Control team, which reviews all new issues and assigns them to the appropriate staff member and establishes a target date for resolution. Issues are reviewed at team meetings, manager status meetings, and executive leadership meetings as needed. The Project Management Control team will escalate the issue so that the appropriate level of management is aware of the problem and resolution can be expedited. The Project Management Control team serves as the facilitator and driver for the change control process. New change controls can be entered by any project team member or by the Project Management Control team. For each new change control, the development and implementation vendor will identify a staff member to estimate the effort and identify the personnel required to implement the change. The Project Management Control team will perform an analysis against the project schedule to determine the effect on existing project commitments. The Project Management Control team will facilitate weekly Change Control Board (CCB) meetings that address the change control scope, effort, and schedule impacts with the State and the development and implementation vendor so that timely decisions can be made.

Issues and change controls will reside in the password-secured Issue Tracker tool and will be accessible through the project control Web page. To facilitate cross-functional team communication, access will be afforded to key DHS, DCH, DIT, and development and implementation vendor personnel. Figure 1.2-6, PMM Activities Relevant to Maintaining Change Control and Issue Resolution Processes, notes the key PMM processes and phases relevant to maintenance of change control and issue resolution processes.

PMM Key Process	PMM Phase
• Risk management • Communication management • Cost management • Quality management • Scope management • Integration management	• Planning • Control

Figure 1.2-6, PMM Activities Relevant to Maintaining Change Control and Issue Resolution Processes

Time tracking
Time tracking is used for the following three primary purposes:

- Tracking progress on scheduled tasks
- Monitoring personnel workloads
- Analyzing historical information to improve future planning.

The contractor will use the Time Tracker tool, a customized, Web-based time reporting system. This tool will generate a weekly timesheet for each staff member working on the BRIDGES project. The timesheet will include project assignments from the Microsoft Project schedules that support each release and base operation activity.

Each team staff member will submit a timesheet weekly. The team managers will review timesheets before they are submitted. To facilitate this review, the time tracking tool automatically highlights over-budget and late tasks on individual timesheets and generates manager-level reports with comparable information. The Project Management Control team will review the timesheets to detect any unusual entries before applying the effort to the schedule. This review process will be used as a mechanism for identifying underutilized or overused personnel and for confirming that effort was not misapplied. Once the effort is applied to the schedule, the Project Management Control team will identify tasks that have exceeded their estimate, are in jeopardy of missing their target date, or both. The Project Management Control team will identify tasks that beat their estimates or target dates so that available capacity can be used. The PCO will use this information as input for a status review with each team lead.

As part of closeout, the contractor's PCO will analyze the effort entered in Time Tracker at the task level and at the major deliverable level and then will organize results by quantifiable size of the deliverable. This information will be analyzed for accuracy and will be reviewed with the development and implementation vendor. On the basis of this analysis, standard task estimates and major deliverable projections will be refined. As BRIDGES proceeds with continual improvement initiatives, the contractor will use this same analysis will be employed to demonstrate improved efficiency and productivity.

All of the data and reports used by the PCO will be available to the development and implementation vendor and the State through the Manager's Reports link in Time Tracker. Figure 1.2-7, PMM Activities Relevant to Time Tracking, notes the key PMM processes and phases relevant to tracking time.

PMM Key Process	PMM Phase
• Time management	• Control • Execution • Closeout

Figure 1.2-7, PMM Activities Relevant to Time Tracking

Production ticket assessment
Ticket assessment represents a major entry point into release planning. The contractor's Project Management Control team will collaborate with the PMO, DHS, DCH, DIT, and development and implementation vendor 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 BRIDGES project, including system enhancements, bug fixes, required legislation enhancements, and technical improvements. Using production ticket assessment, tickets will be scheduled into maintenance releases as warranted by size, resource availability, and priority.

The work flow coordinator on the contractor's Project Management Control team will play a crucial rule in confirming that the process is smooth and productive. This coordinator will participate in triage, ticket assessment, and release planning operations to weave a common thread across all processes. The work flow coordinator will act as an unbiased facilitator of the weekly Ticket Assessment Group (TAG) meetings, managing the queue of requested work by using predefined prioritization criteria. Figure 1.2-9, PMM Activities Relevant to Ticket Assessment, notes the key PMM processes and phases pertinent to assessing tickets.

Release planning

The release planning process is the gateway for completion of all major system enhancements and implementations. Release planning components include the following:

- Objective statement
- High-level scope
- Effort and staff estimates
- Assumptions and risks
- Stakeholder concurrence.

PMM Key Process	PMM Phase
• Scope management • Communication management	• Initiation • Planning • Control

Figure 1.2-9, PMM Activities Relevant to Ticket Assessment

The contractor in coordination with the State and the development and implementation vendor, the Project Management Control team will participate in and support all steps of release planning. The PCO will supply the initial project plan template and will create a "plan for the plan," a calendar-style schedule that identifies draft due dates, scheduled reviews, and key decision points. The release planning effort will be driven by, and monitored according to, this schedule. The PCO will facilitate the participation of DHS, DCH, DIT, and the development and implementation vendor. Project estimates will be assessed for reasonableness. The PCO then will project the number of personnel necessary to issue the release. Based on resource constraints, critical path analysis, and State needs, project milestones will be established. A detailed resource-driven project schedule will be created.

The scope, schedule, and resource allocation will be reviewed and adjusted iteratively until the State, development and implementation vendor, and Project Management Control team agree that maximum value will be delivered within required time and staff constraints. Figure 1.2-10, PMM Activities Relevant to Release Planning, notes the key PMM processes and phases pertinent to planning application releases.

PMM Key Process	PMM Phase
• Integration management • Scope management • Risk management • Communication management	• Planning

Figure 1.2-10, PMM Activities Relevant to Release Planning

Communication

The contractor's team will employ a multi-pronged strategy for meeting the objectives of the Bridges project.

First and foremost, the contractor's Project Management Control team will establish and maintain a robust communication plan that identifies project stakeholders, regardless of their organization or employer. The plan will specify the information to be communicated, information sources, and target audiences. To promote communication consistency, procedures and distribution lists will be created for standard project communications. The contractor will support and monitor these communications to verify adherence to the plan.

Project information transparency is enabled through self-service Web-based tools whenever practical. To support this goal, the contractor's team will establish the BRIDGES project control Web page to afford the State and the project management team access to the same raw information, metrics, and performance analysis reports.

The contractor will incorporate numerous automated communication features in the project control toolset recommended by the State. The infrastructure request system creates an e-mail notification to key personnel whenever a new request is entered. As the status of the request is updated, the requestor will receive an e-mail notification. Project Tracker notifies the project owner whenever a project is elevated to red status. Time Tracker identifies the staff members who are late in submitting their timesheets so that e-mail notifications can be generated and sent. Issue Tracker also includes automatic e-mail notification functions for issues, change controls, and risks. Furthermore, Issues Tracker offers tailoring capabilities that enable each user to define the projects and events for which they will receive notifications.

Regardless of the efficiency and effectiveness of electronic and paper communication solutions, face-to-face meetings remain a critical component of successful communication. The Project Management Control team will plan and facilitate standing BRIDGES leadership and critical special initiative meetings, including formulating agendas and confirming their implementation; reviewing and addressing issues; and distributing minutes. The contractor's approach to successful meeting planning and facilitation is noted in the table below.

Plan for a Successful Meeting			
Meeting Norms	**Facilitation Rules**	**Meeting Components**	**Meeting Planning**
• Participation is expected. • Be open and honest. • No idea is a bad idea. • Respect the views of others. • Agree to disagree. • Do not verbally attack other participants. • Use headlines to enhance clarity. • Paraphrase complex ideas to enhance understanding. • Express problems and concerns as "how to…." or "I wish…." • Tell no war stories. • Participate in one conversation at a time. • Leave old baggage at the door. • Be on time. • Bring no hidden agendas.	• Understand roles, responsibilities, and focus of session leader. • Understand tools for making decisions (brainstorming, RACI, fish diagrams, and so on). • Create effective physical environment for groups, including facilities and tools. • Understand the stages of group dynamics. • Demonstrate skills, techniques, and behaviors to lead a group to consensus.	• Introduction • Kickoff • Approach, including: – Identify problems – Determine possible solutions – Determine possible solutions to implement – Identify constraints – Review decisions – Wrap up discussion – Review issues and concerns. • Follow-up activities	• Identify the owner. • Identify the participants. • Decide on the purpose, scope, and objectives of the meeting. • Identify the meeting constraints. • Create the agenda. • Establish the meeting time and location. • Send meeting agenda in advance.

Figure 1.2-11, PMM Activities Relevant to Communication, notes the key PMM processes and phases pertinent to communication.

PMM Key Process	PMM Phase
• Communication Management	• Initiation • Planning • Control • Execution • Closeout

Figure 1.2-11, PMM Activities Relevant to Communication

Performance monitoring

In conjunction with the State, the contractor's Project Management Control team will establish key performance measures and status thresholds for effective monitoring of delivery performance. These key performance measures will be generated, analyzed, and reported each week so that the management and executive leadership of the BRIDGES project can make fact-based decisions based on current and relevant project status.

The contractor will perform several data quality assurance checks, including the following:

- Actual effort is too far from (or too close to) the original estimate.
- Tasks are marked as complete, but the programs are not checked in the code repository.
- Staff member reported effort versus available working time.

If a discrepancy cannot be resolved with the staff member, the issue will be escalated until a satisfactory answer is produced. After the raw data are validated, the effort-hours will be applied to the project schedule, and impacts will be assessed. Any concerns will be escalated until satisfactory answers are obtained. Figure 1.2-12, PMM Activities Relevant to Performance Monitoring, notes the key PMM processes and phases pertinent to performance monitoring.

PMM Key Process	PMM Phase
• Communication management • Cost management • Quality management • Scope management • Risk management • Time management	• Control

Figure 1.2-12, PMM Activities Relevant to Performance Monitoring

The project schedule will be updated with the prior week's progress by close of business each Monday. After the schedule is updated, a number of tools are used to extract data from the schedule and to perform completion-to-milestone and earned value analyses (page 15, Status Reporting, includes a sample earned value report). This information will posted to Report Tracker on the BRIDGES project control Web page and is distributed to the team leads on that Monday evening.

When analysis indicates a problem, the contractor will notify the State of Michigan about the problem and will document it on the project scorecard. The relevant team lead, team manager, or project manager will devise an action plan for bringing the project back on track. The contractor will work with appropriate managers from the development and implementation vendor and the State to facilitate root cause analysis, alternative examination, action plan creation, and initiation of a change control as needed. The contractor will assess the viability of the action plan and, after it is approved, will incorporate it into the project schedule. This action plan monitoring will become part of the weekly performance monitoring process until the project is again on schedule.

Figure 1.2-13, PCO Performance Thresholds, lists recommended performance thresholds for the BRIDGES project.

	Green	Yellow	Red
Major Milestone Tasks	< 10% of tasks late	10 % to 29 % of tasks late	> 30% of tasks late
Major Milestone	Achieved		Missed
Escalated Issues Not Resolved		> 2 weeks	
No Plan to Evaluate Progress		Target date for establishing plan is less than 30 days out	Target date for establishing plan is > 30 days out
Earned Value Schedule Variance (SPI)	.9 <= SPI <= 1.2	.8 <= SPI < .9 or 1.2 < SPI	SPI < .8

Figure 1.2-13, PCO Performance Thresholds

Support for other BRIDGES projects

As special initiatives and needs arise, the contractor's Project Management Control team will support the State in any way possible as long as primary Michigan goals and objectives are not jeopardized. If a special request does jeopardize other State objectives, the contractor will work with Michigan personnel to identify alternatives for satisfying the established objectives and the special request. Interface with stakeholders

The contractor's Project Management Control team will monitor the initiatives of other organizations, looking for activities that could adversely affect BRIDGES. Figure 1.2-14, PMM Activities Relevant to Stakeholder Interactions, notes the key PMM processes and phases pertinent to interacting with stakeholders.

PMM Key Process	PMM Phase
• Communication management	• Initiation • Planning • Control • Execution • Closeout

Figure 1.2-14, PMM Activities Relevant to Stakeholder Interactions

Task 1 Deliverables. The deliverables defined for Task 1 are listed in the table below.

Deliverable	Measure of Success
Release plans, including narrative description of release contents and full personnel schedules	The contractor's team will meet the release planning needs of the State by applying the Michigan PMM, standardized templates, and customized resource forecasting tools. At the end of each release planning effort, the PCO will provide a release plan to the State for signoff. This plan includes the following information: • Affected interfaces • Project scope • Estimates by scope item • Staffing plan • Project milestones by development phase • Assumptions • Risks. At the end of each release planning effort, the PCO also will submit an MS Project schedule to the State for signoff. This schedule includes information on the following: • Detailed tasks for all scope items, by development phase • Personnel assignments through implementation • Satisfaction of all development phase milestones • Maintenance of the resource workload assumptions of the development and implementation vendor.
Detailed task-level plans and schedules for release deployment	In coordination with the State and the development and implementation vendor, the contractor will create logical, detailed, and effort-driven project plans and schedules. These project schedules will be maintained in MS Project format and will be furnished to the State as described under the Release Plan deliverable. Furthermore, the project schedules will be maintained weekly so that they continue to track all scope items at the phase and task level, meeting project milestones and avoiding personnel workloads that violate project assumptions. This maintenance will continue through the life of all releases, from initiation through deployment.
Facilitation of, and materials preparation for, release deployment meetings	The contractor's team will coordinate with the State and the development and implementation vendor to facilitate open and honest release deployment meetings. To satisfy the requirements of this deliverable, the Contractor will undertake the following activities: • Schedule frequent Go-Live meetings starting 6 weeks to 8 weeks before deployment • Create an MS Project Go-Live schedule that details the events leading up to and through Go-Live weekend, assuming a 24x7x365 calendar • Identify the need for Go-Live participation by DHS, DCH, DIT, the development and implementation vendor, or other organizations external to the project and then acquire their support • Facilitate release deployment meetings and drive the completion of tasks • Act as a communication hub during Go-Live weekend • Initiate and facility emergency meetings during Go-Live weekend.
Weekly status reports	Using the suite of PCO tracking tools, the contractor will generate graphical metrics reports and will produce scorecards driven by

Deliverable	Measure of Success
	empirical evaluation. The Contractor will collate the scorecards with the issues reports and status reports provided by each team lead. These status reports will be furnished weekly to the State. Section 1.3.2.1, Status Reporting, includes a more complete description of the process and sample reports.
Facilitation of, and preparation of materials for, weekly status meetings for managers and team leaders	Working with the State and the development and implementation vendor, The contractor will develop a status reporting template. As part of the weekly status reporting process, the Contractor will gather the status reports from each team leader and then consolidate and publish the weekly status reports. The Contractor will produce the appropriate number of copies, distribute them at the managers and team leaders meeting, and facilitate the corresponding status meetings.
Facilitation of, and preparation of materials for, biweekly leadership meetings	As part of the biweekly status reporting process, the contractor's team will gather status reports from each project leader and will incorporate these documents in the project scorecards and escalated issues. The Contractor will produce the appropriate number of copies, distribute them to the attendees, and facilitate the corresponding biweekly leadership meeting.
Facilitation of, and preparation of materials for, weekly release planning meetings	The contractor's team will consolidate inputs from the CCB, TAG, and BRIDGES program leaders. The contractor will produce a report on proposed system changes (pending review) and will distribute it to meeting attendees. The contractor will facilitate this meeting, which focuses on major objectives of the BRIDGES project.
Participation in, and materials preparation for, executive leadership meetings, as requested by the BRIDGES Program Manager	The contractor team will support BRIDGES executive leaders as requested by the BRIDGES Program Manager.
Performance metrics, including scorecards, earned value analyses, resource usage, defects detected and resolved in testing, defects introduced into production, analysis of application development and implementation vendor warranty work, and analysis of application downtime	Using the suite of PCO tracking tools, the contractor team will analyze raw performance data and will produce fact-based metrics reports on schedule performance, testing performance, and production performance. These reports will be instrumental in assessing all aspects of project health. The standard report set includes the following: • *Scorecards*: These scorecards provide a visual red, yellow, or green status as well as a brief description of critical issues. • *Earned Value Analysis*: Driven from the project schedule, earned value analysis offers an empirical assessment of each deliverable, delivery phase, or release. Status is displayed graphically. • *Resource Usage*: Several different reports are produced weekly by Time Tracker and the MS Project Schedules to identify over-allocated and under-allocated resources. • *Defect Tracking*: The Remedy application generates many different defect reports that the PCO uses for tracking defects identified in testing and production. • *Warranty Work Tracking*: The PCO uses Remedy to identify and communicate potential warranty items to the State. After the State and the development and implementation vendor agree that the item is a warranty item, the PCO will enter it in the project schedule and will use standard reporting tools to track progress weekly. The PCO will produce a report on warranty tickets by release as part of product quality tracking. • *Application Downtime*: The PCO will work with the State and

Deliverable	Measure of Success
	development and implementation vendor to track and report system availability against the Service Level Agreement.
Facilitation of, and materials preparation for, closeout of each release, including archiving of all project data, lessons-learned sessions, and closeout of any open action items	At the end of each release, the contractor team will execute PMM closeout activities, including project data archiving, publishing of lessons learned, closeout of open items, and continual improvement activities.
Ad hoc reports requested by the BRIDGES Program Manager	The contractor team will make every effort to satisfy the special reporting and project analysis needs of the BRIDGES Program Manager.
Training on the processes and tools used for project management control for the State staff members designated to work with and on the PCO Project Management team.	The contractor will approach training State staff as it would approach training for any team member. Assuming a base skill set appropriate for the position, the Contractor will assess the project-specific skills and knowledge that each staff member requires to perform appointed functions. The resulting training plan will emphasize self-paced reviews of existing project processes and tool documentation and will provide extended on-the-job training with an experienced mentor.

Task 2 – Technical / Infrastructure Control

The contractor's PCO Technical Control Team will enforce technical and network security standards, will oversee adherence to established technical processes, and will provide infrastructure support services to the State and its BRIDGES Development and Implementation contractor.

The contractor's Technical Control Team will provide services in the following areas:

1. **Application / Database Management**
   a. Manage Application Architecture
      Coordinate, interface with, and complement the processes described below of application development and maintenance contractor(s), DIT application development and maintenance teams, database teams, DHS, DCH, DIT-DCO and other functional areas (e.g., security, disaster recovery) as necessary.
      i. Perform capacity planning, analysis and projections
      ii. Provide performance-tuning recommendations to development and maintenance teams (e.g., index recommendations, code efficiencies).
      iii. Monitor coding standards and practices as integrated with any applicable State and project standards, establishing standards where necessary.
      iv. Identify and monitor application quality standards (e.g., commit/restart, modularity, error handling) as integrated with any applicable State and project standards.
      v. Monitor standards for programming languages and application interfaces and integrate with any applicable State standards, establishing standards where necessary.
      vi. Assist the State with software updates, and provide ongoing support management and maintenance of the software used in managing the project.

b. Manage Databases
Coordinate, interface with, and complement the processes described below of application development and maintenance contractor(s), DIT application development and maintenance teams, database teams, DHS, DCH, DIT-DCO and other functional areas (e.g., security, disaster recovery) as necessary.
   i. Manage creation and maintenance process for all "BRIDGES" databases (e.g., production, read-only, training, development, testing etc.).
   ii. Enforce database standards for the system provided by the implementation vendor, establishing standards where necessary.
   iii. Manage creation of the application database from the model and audit all databases for conformance to standards.
   iv. Manage database change request process.
   v. Provide disk space management.
   vi. Provide capacity planning and projections.
   vii. Provide disaster recovery planning, as integrated with Data Center Operations (DCO).
   viii. Provide performance-tuning recommendations.
   ix. Support database security and user profile management.

c. Manage Integrity of Data
Coordinate, interface with, and complement the processes described below of application development and maintenance contractor(s), DIT application development and maintenance teams, database teams, DHS, DCH, DIT-DCO and other functional areas (e.g., security, disaster recovery) as necessary.
   i. Provide reviews of BRIDGES data model(s) to ensure integrity of the data model(s) is maintained.
   ii. Validate activities resulting in new system values are not in conflict with current production values.
   iii. Provide coordination and configuration management of seed data.
   iv. Analyze database changes for proper standards and identify potential inconsistencies.
   v. Manage conversion process to ensure integrity of data.
   vi. Manage data mapping activities to ensure integrity of data.
   vii. Utilize the existing metadata repository to record table and column definitions.

d. Administer Data Loading and Data Utilities
Coordinate, interface with, and complement the processes described below of application development and maintenance contractor(s), DIT application development and maintenance teams, database teams, DHS, DCH, DIT-DCO and other functional areas (e.g., security, disaster recovery) as necessary.
   i. Create processes to implement and manage the loading of data.
   ii. Ensure proper use of data utilities.
   iii. Validate user security/setups in application security tables.
   iv. Assist with creation, and testing of scripts for all data loads.

e. Plan, Prepare and Manage Multiple Database and Application Environments
Coordinate, interface with, and complement the processes described below of application development and maintenance contractor(s), DIT application development and maintenance teams, database teams, DHS, DCH, DIT-DCO and other functional areas (e.g., security, disaster recovery) as necessary.
   i. Provide coordination and function as a focal point for communications between infrastructure teams and other project teams accessing the application architecture.
   ii. Coordinate schedules to meet project requirements for multiple simultaneous development and maintenance database regions and application versions.
   iii. Coordinate planning for region creations, refreshes, data loads, etc. as required by project teams to meet project deadlines.
   iv. Provide advance planning for software releases in order for development, training, and customer support teams to have environment access and data on schedule.

2. **Support Network/Development Environment**
Coordinate, interface with, and complement the processes described below of the application development and maintenance contractor(s), and DIT application development and maintenance teams, DIT-DCO, DIT-Network Operations Center, DIT-Telecomm.
   a. Facilitate network analysis and capacity planning as it pertains to the BRIDGES initiative.
   b. Provide scripting expertise on troubleshooting desktop and network devices for use by the help desk.
   c. Provide interface to telecom providers for on-site troubleshooting and/or coordination of support efforts.

3. **Support Tools**

   Coordinate, interface with, and complement the processes described below of PCO, infrastructure support teams, application development and maintenance contractor(s), and DIT application development and maintenance teams.

   a. Create and maintain tools for the PCO and infrastructure support activities.
   b. Create new reports and functions for the BRIDGES PMO organization, as required.
   c. Establish and maintain the PCO tool set, including:
      i. Issue Tracker
      ii. Change Control
      iii. Time Tracker
      iv. Configuration Tracker
      v. System DB
      vi. Continuous Improvement Request Tracker
      vii. Test Tracker
      viii. Ticket Tracker
      ix. Performance Monitoring and Reporting Tools
   d. Integrate infrastructure tools, applications and utilities within the framework of the project office.
   e. Recommend improvements to tools or new tool creation
   f. Support the tools hosting infrastructure.

4. **Configuration Management**

   Coordinate, interface with, and complement the processes described below of the application development and maintenance contractor(s), DIT application development and maintenance, and DIT-DCO.

   a. Administer the version-control repository to enforce configuration management processes for new development and application maintenance activities.
   b. Create, modify and improve automated build process controls, using established mechanisms provided with the system proposed by the implementation vendor wherever appropriate.
   c. Recommend software configuration products.
   d. Manage and support the processes to modify production and “soon to be” production applications.
   e. Provide configuration management processes for all source code archives and processes for the Data environments.
   f. Manage all configurable items that comprise a software product (requirements, designs, and modules)
   g. Provide support and recommend modifications to any software installation used to automate, facilitate and enforce the development process governing change control, workflow and promotion to production procedures.
   h. Define strategies to manage data for testing, training, and demonstration purposes.
   i. Provide production support ticket information (reports) and other program management data to BRIDGES PMO leadership.

5. **Implementation Vendor Oversight**

   a. Coordinate, interface with, and complement testing processes and schedules with the application development and maintenance contractor(s), DIT application development and maintenance, DIT-DCO, DIT-Desktop, DIT Technical Services, DHS, and DCH.
   b. Coordinate, interface with, and complement training processes and schedules with the application development and maintenance contractor(s), DIT application development and maintenance, DIT-DCO, DHS, and DCH.
   c. Coordinate, interface with, and complement requirements processes and schedules with the application development and maintenance contractor(s), DIT application development and maintenance, DHS and DCH.

6. **Support and Schedule Batch Cycles**

   Coordinate, interface with, and complement the processes described below of the application development and maintenance contractor(s), DIT application development and maintenance team, and DIT-DCO.

   a. Manage batch cycle schedules, including the nightly production batch schedule.
   b. Manage batch schedule for testing, training and all project team regions.
   c. Manage system interface (file transfers, payment interface, inbound file processing, etc.) schedules.
   d. Provide input into batch performance and tuning.
   e. Provide development and maintenance teams with timing information and recommendations.
   f. Support performance improvement efforts and new releases regarding batch topics and batch processing.

DELIVERABLES:

The contractor is responsible for ensuring completion of deliverables. Deliverables will not be considered complete until formally accepted and approved by the BRIDGES Program Manager. Deliverables for this scope of work include:

1. Weekly written status reports that include, at a minimum, a description of work accomplished, work scheduled, and identification of issues requiring management attention.

2. Capacity plans and reports.

3. BRIDGES data model.

4. BRIDGES Application Architecture

5. BRIDGES Technical Architecture

6. Documentation of all implemented processes and tools to support application development, testing, release and configuration management.

7. Training on the processes and tools used for technical / infrastructure control for State staff designated to work as part of the Technical Control Team.

The State, PCO, and development and implementation vendor are jointly responsible for the technical integrity of the BRIDGES application and its architecture. Through its Technical Control team, the PCO is responsible for confirming that the BRIDGES application source code, environments, and database structure and integrity are preserved and are securely controlled. These controls will enable the BRIDGES project to avoid the traps and shortcuts that produce a risky and flawed application and instead to guide the project to a sound architecture, efficient data structure, stable environments, and reliable release processes.

Understanding the tremendous opportunity that BRIDGES affords the State of Michigan, the contractor will assemble a Technical Control team with extensive background in supporting the State, superior technical expertise, unparalleled knowledge of system application architecture, and dedication to key guiding principles. The contractor will set a vision for the Technical Control team that includes enforcing technical and security standards, verifying adherence to established technical processes, and providing infrastructure support services to the State and the BRIDGES development and implementation vendor. The contractor will apply its experience on previous Michigan and private sector IT projects to augment existing State standards and processes, constructing a framework of delivery mechanisms and controls to facilitate high-quality results.

Management of application architecture

The Contractor will manage business-critical applications such as BRIDGES requires in-depth administration capabilities and integration across a diverse infrastructure environment. In order to achieve the vision of BRIDGES, all areas of the infrastructure (application, database, environment, and network) must be managed to avoid downtime of key business applications or systems. Key features of the approach are as follows:

- Managing the complete application, throughout the life cycle
- Ensuring modular design and standardization that allows ease of integration and provides defined entry points into the application for development and deployment of what is needed when it is needed, using standards that come with the system proposed by the implementation vendor and establishing standards where appropriate.
- Managing quality assurance to reduce rework, maintenance, support, and enhancement costs
- Automating change and configuration so that only release-specific changes that fulfill the requirements are implemented
- Managing the total infrastructure to provide an environment that delivers a consistent and predictable application
- Providing performance and capacity planning activities on a release basis
- Providing application monitoring to isolate and resolve problems in a proactive fashion

The contractor understands that the application approach for BRIDGES will involve a system transfer or commercial off-the-shelf (COTS) application, and the contractor will apply its application management processes in this environment. Management of the COTS or system transfer code, interfaces, and batch jobs is vitally important so that the customizations and enhancements will meet the business requirements as defined by the State. The contractor will rationalize and understand the implementation vendor's standards and processes and incorporate the State's specific standards to provide best practices that can be internalized and agreed upon during the initial pre-release phase. The Technical Control team's System Database Administrator (DBA) will work with the implementation vendor to analyze the data model and entity relationship diagrams and then work as a team with State subject matter experts to ensure that the business requirements for BRIDGES can be incorporated into the predefined model as supplied. The Technical Control team will utilize the same set of processes for the initial pre-release phase and all subsequent release phases. The contractor's processes and approach to application management cover the entire life cycle of BRIDGES, beginning with the initial system transfer or COTS enhancements and customization and encompassing all incremental releases through system implementation and production support activities.

The contractor's Technical Control team will furnish many services that are key to the success of the BRIDGES project.

The Technical Control team will leverage knowledge and expertise and will consult with personnel from a variety of industries to acquire fresh insights. The contractor's team will build strong relationships with the DIT Infrastructure Services staff.

Integrity over expedience. The Technical Control teams will provide an integrated development process and status tracking flow for the BRIDGES project. Changes to source code, database tables, or application data will not be promoted to the production environment without adhering to Michigan quality assurance and configuration management requirements. If the process is not followed, more often than not, the wrong source code, incorrect table change, or erroneous data change is rushed to production, and precious time and resources are squandered on repairing an easily avoidable problem. The integration of the software development process into the existing DIT standard toolset will allow the contractor to leverage this method of system development and maintenance for the BRIDGES project.

Technical Control Team
Guiding Principles
Integrity over expedience
Technology that enables the State and its personnel, rather than the State enabling the technology
Transparency
Evolution as a matter of survival, not an option

Figure 1.2-16, Guiding Principles

Technology that enables the State and its personnel, rather than the State enabling the technology. The Technical Control team will be responsible for forward thinking about new technologies. The contractor will evaluate these technologies in relation to the needs of BRIDGES. The contractor will not adopt technology for technology's sake, but instead assess short-term and long-term Michigan needs and devise technology strategies that support those needs. In addition, the contractor will apply lessons learned from project experience to introduce or implement successful components within the BRIDGES technical environments from the very beginning of the project.

Transparency. The contractor will provide access to the activities of the Technical Control team as well as first-hand unfiltered information direct from the systems providing service to both the State and the development and implementation vendor project teams. The contractor will establish an open process to ensure that data modeling is performed with the full participation of business analysts and the project team. The contractor will use application build status reports that are cascaded automatically through the project team, as are the nightly batch processing results. Numerous self-service tools will be available on the PCO Web site so that any member of the project teams can access real-time reports about system user load, configurable items balance for a team possessing necessary privileged access. The contractor will ensure activities are tracked, audited and published to expedite full disclosure and maximum flow of information.

Technical Approach to Identify, Recommend, and Implement Technology Innovations, outlines the contractor's approach for identifying new candidate improvements and describes numerous examples of previously delivered innovations. The contractor's team will build on these successes to optimize BRIDGES.

Application/Database Management

Management of application architecture

The BRIDGES architecture possibly will span numerous server platforms, database technologies, operating systems, network topologies, and desktop platforms. The contractor's team will assess Michigan needs and develop and deliver the appropriate system architecture solution under demanding conditions. The contractor will manage the computing and storage capacity necessary to support the initial BRIDGES implementation. The contractor will be prepared for many initiatives that require forethought, planning, and rapid responses to meet aggressive deadlines. As the project continues to evolve, many more opportunities will emerge to create a common architecture, simplify technical environments, and reduce costs. To achieve the long-term Michigan vision, the contractor will work in cooperation with DIT, DHS, DCH, and the development and implementation vendor to manage the evolution of the BRIDGES system architecture strategy.

System architecture constitutes more than hardware and vendor software and encompasses an application approach that concentrates on robust standards, flexible and extensible designs, performance-tuning considerations, and a commitment to maintainability. The Technical Control team will contribute to the design or improvements for the framework of the application, focusing on common capabilities such as detailed exception handling, modular program design for reusability, fault tolerance, and restart and recovery functionality. The Technical Control team will be a full participant in system design and will apply its expertise so that the State retains a best-in-class level of application functionality, performance, and reliability.

Since the BRIDGES system will be a COTS solution or a transfer system, preference should be given to the established architecture of the system. Modifications of the established architecture must have a measurable benefit to the State Of Michigan and the long term maintainability of the system without disrupting the development schedule. The development and implementation vendor will provide essential input on the system architecture.

Performance of capacity planning, analysis, and projections

The Technical Control team will analyze BRIDGES data volume estimates, user base (average concurrent, peak, named), response time requirements for batch and online processing, and the proposed technical architecture (operating system [OS], relational database management system [RDBMS], 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. The contractor will involve the vendors (such as hardware, RDBMS, software, BRIDGES development and implementation contactors) and State infrastructure teams (such as Data Center Services, Telecommunication and Network Management, and Field Services) to gather measurements and validate architecture plans. Production environments as well as development, testing, training, and other relevant environments will be included in the assessment to acquire a complete picture of disk space, central processing unit (CPU) load, memory utilization, and network bandwidth. Target peak hardware usage limits will be defined (usually in the 70 percent to 80 percent range) to use the system efficiently while accommodating growth and avoiding degradation due to overload. Ongoing monitoring will include collection of system metrics, analysis of usage patterns, and generation of reports and graphs to facilitate projections and decision-making. Capacity plans will be adjusted as the targets are breached, and acquisition of additional disk space, memory, and hardware upgrades may be initiated. Desktop performance and load characteristics are influenced by the footprint of the BRIDGES application or interoperability with other user desktop applications and thus will be addressed by the development and implementation vendor.

Provision of performance-tuning recommendations

The contractor will provide database expertise, application architecture expertise, and skilled professionals knowledgeable in programming concepts to identify opportunities for optimization of the BRIDGES application during initial implementation and ongoing maintenance phases. Recommendations will be provided at various application system levels to apply tuning techniques within the data model, the physical database, Structured Query Language (SQL), and the source code logic itself. A database index or simple SQL restructuring often is insufficient to resolve or prevent severe performance issues. The system design must incorporate efficiency at all levels. Performance will be adversely affected by unnecessary cursor looping in program code, failure to use set processing, table design that results in poor SQL join options, and lack of attention to relevant data volumes in attempted operations. The Technical Control team also will use available toolsets to analyze SQL performance (such as explain plan, trace file, perfstat, and the like) and to monitor system characteristics (such as input/output wait and computing resource consumption) to isolate the impacts of the functionality on the system. The contractor will address these issues and recommends establishing dedicated performance testing efforts early in

the development cycle to identify and correct issues before the project reaches the phases when a core design change cannot be effectively absorbed.

Establishment and monitoring of coding standards

The Technical Control team will leverage existing coding standards and practices as applicable and available within Michigan organizations and body of knowledge. In addition, the contractor will identify any potential gaps in the standards and will work with DIT to address areas that need standards defined. The contactor offers industry experience and intellectual capital to BRIDGES and will furnish suggested practices for inclusion in Michigan standards. The contractor will participate in the monitoring and enforcement of standards by attending design peer reviews and source code peer reviews, focusing on the goal of supplying a robust, flexible, maintainable system to DIT, DHS, and DCH. Work products that do not comply with documented standards, practices, conventions, and de facto standards will be rejected by the Technical Control team at the peer review. The development and implementation vendor is expected to conduct formal peer reviews, allowing adequate preparation time and enabling participants to inspect deliverables and note comments.

Identification and monitoring of application standards

In pursuit of a robust, and maintainable BRIDGES system, the Technical Control team will work with the development and implementation vendor to deliver an application framework that meets Michigan application standards and objectives for IT systems. The contractor will strive to foster a high degree of modularity and will guide the development and implementation vendor to a strategy of reusable common modules (for example, error handling, logging, checkpoint restart, system parameterization and global variables). Full automation and integration with batch scheduling packages, including detailed error reporting and exception handling, will be a primary focus. Error severity levels will be implemented, and jobs will be coded to bypass and report erroneous data whenever possible, without resorting to fatal error and termination. Whenever possible, jobs will redirect or retain failed transactions appropriately to enable automatic reprocessing later (recycle queue). In general, batch jobs must be interruptible and capable of restart and must expend a minimum amount of reprocessing to reposition the job for resumption. Job failures must never result in data loss, and mechanisms must be designed so that a re-execution of the job can correct or replace invalid data. Job executions must never be time sensitive (that is, requiring an execution on day x of the month, or the window of opportunity closes) and whenever possible must tolerate and account for other transactional activity in the system without requiring static data conditions to be preserved solely for the execution of the job. The contractor will enforce these concepts in the same manner as all applicable standards for BRIDGES, through peer review participation with the development and implementation vendor.

Establishment and monitoring of interface standards

The BRIDGES system will interface with many other State systems within and external to DIT, DHS, and DCH. Consequently, information exchange and direct database access between the systems must build on a framework of standard file formats, messaging protocols, and remote program execution and invocation methods. The contractor will work with the various State agencies and the development and integration vendor to define programming language and data exchange standards to govern interfaces to the BRIDGES system. The contractor will incorporate existing Michigan standards as applicable and will define additional conventions so that information interchange between State systems provides all project teams with the necessary structure to exchange data accurately and reliably. The contractor will work to develop a common interpretation of data elements, their defined usage within BRIDGES interface components, and transactional control over them that remains consistent and supports a robust and dependable data delivery mechanism.

Assistance for the State with software updates

In cooperation with Data Center Services, the Technical Control team will establish standard maintenance windows for BRIDGES as system uptime and availability hours are defined. In addition to hardware maintenance, OS, system software and database software patches will be applied each month. The contractor's approach will be to apply patches first to the development servers in one month and to apply the same patch bundle to production servers in the successive month wherever possible. Systems thus will be properly maintained and guarded against security threats, system flaws, and software obsolescence. For major system upgrades, standard BRIDGES release planning will be employed because application source code modifications often are required. The contractor's team will perform and coordinate system administration duties with Data Center Services and other State organizations to manage and maintain the system software used to support and deliver BRIDGES, including software required for the DIT standard toolset. The contractor will work with DIT, DHS, and DCH 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 (that is, 24x7x365, on site, monitored, other Service Level Agreement, and so on) will be determined by the State in accordance with the needs and criticality of the BRIDGES system.

The criticality of BRIDGES requires oversight and management of the system architecture. The databases and supporting environments will be controlled and managed to provide integrity and reliability. Key components of the application such as designs, source code, and test scripts will be subject to thorough configuration management. It is only through rigorous configuration management that the State can be confident that all of the code and only the code developed to meet the project scope are delivered. The batch process will be run as planned, including close monitoring of inputs and outputs, especially files exchanged with other agencies. In addition, unforeseen needs often arise, and the Technical Control team will be prepared to handle such events in a timely manner.

In addition to the management of application architecture and identification and monitoring of application standards, the Technical Control team in conjunction with the Project Management team will provide the following application management functions:

- **Ticket Assessment and Feasibility** – Ticket assessment represents a major entry point into release planning. This process will allow stakeholders to have input into the prioritization and timing of work on the BRIDGES project. This work may include system enhancements, bug fixes, required legislation enhancements, or technical improvements. Through production ticket assessment, tickets will be fit into maintenance release as warranted by size, resource availability, and priority. The Project Management and Technical Control teams will collaborate with the Project Management Office (PMO), Department of Human Services (DHS), Department of Community Health (DCH), Department of Information Technology (DIT), and the development and implementation vendor to ensure the feasibility of the requested change in terms of environment, database, and capacity planning prior to placing the ticket into a release.
- **Release Planning** – The release planning process is the gateway for the completion of all major system enhancements and implementations. In coordination with the State and the development and implementation vendor, the Project Management and Technical Control teams will participate in and support all steps of release planning. The PCO, with input from the Technical Control Office (TCO), will supply the initial project plan template and create a schedule that identifies due dates, scheduled reviews, and key decision points. The release planning effort will be driven by this schedule. Based upon resource constraints, critical path analysis, and State needs, project milestones will be established. The scope, schedule, and resource allocation will be reviewed and adjusted on an iterative basis until the State, the development and implementation vendor, and the Project Management and Technical Control teams agree that the maximum value will be delivered within the required constraints of time and staff.
- **Quality Assurance** – The Technical Control team is responsible for confirming that the BRIDGES application source code, environments, and database structure and integrity are preserved and securely controlled. These controls will enable the project to avoid the traps and shortcuts leading to a risky and flawed application and instead guide it to a sound architecture, efficient data structure, stable environments, and reliable release processes. The contractor's team will participate in the monitoring and enforcement of standards, via design and source code peer reviews, with the goal to provide a robust, flexible, maintainable system. Work products not in compliance with documented standards, practices, conventions, or de facto standards will be rejected at the peer review. In pursuit of a robust, maintainable system, the Technical Control team will work with the development and implementation vendor to ensure that an application framework is delivered meeting State application standards and objectives for IT systems. The contractor will strive to foster a high degree of modularity and guide the development and implementation vendor to a

strategy of reusable, common modules (such as error handling, logging, checkpoint restart, and system parameterization/global variables).

- **Configuration Management** – Configuration management includes source code and work products other than source code. The overall delivery of a system is based on a collection of documented requirements, process flows, business designs, technical designs, code, training documentation, system documentation, end-user documentation, and other non-release-specific artifacts critical to the project and the operation of the system. The Technical Control team will define the repository structure and check-in/check-out processes for BRIDGES, addressing all of the components that contain technical or intellectual value for the system. The TCO will also work with the development and implementation vendor to define naming and categorization standards for all configurable items and will recommend approaches, such as "living" business design documents, leading to comprehensive, complete, and updated information from release to release. The contractor's goal for BRIDGES configuration management is a well organized, intuitive collection of deliverables that is securely version controlled and managed to ensure the success of the development/maintenance effort of the project. The Technical Control team will be committed to continual improvement and will strive to optimize this configuration management process by enhancing in-house toolsets and furnishing multiple and concurrent release support.
- **Critical Resource Planning** – The Technical Control team will analyze BRIDGES data volume estimates, user base (average concurrent, peak, named), response time requirements for batch and online, and the proposed technical architecture (OS, RDBMS, hardware) to develop capacity plans and computing resource requirements. The contractor will involve the vendors (hardware, RDBMS, software, BRIDGES development and implementation vendors) and State infrastructure teams (such as Data Center Services, Telecommunication and Network Management, and Field Services) to gather measurements and validate architecture plans. Production environments, as well as development, testing, and training environments, will be included in the assessment to provide a complete picture of disk space, CPU load, memory utilization, and network bandwidth. Target peak hardware usage limits will be defined (usually in the 70 to 80 percent range) to use the system efficiently while allowing for growth and avoiding degradation due to overload. Ongoing monitoring will include collection of system metrics, analysis of usage patterns, and report/graph generation to facilitate projections and decision making. Capacity plans will be adjusted as the targets are breached, and acquisition of additional disk space, memory, or hardware upgrades may be initiated. Desktop performance and load characteristics are influenced by the footprint of the BRIDGES application or interoperability with other user desktop applications and will be addressed by the development and implementation vendor.
- **Performance Monitoring** – The contractor's team will apply experience and knowledge from other State and industry environments to identify areas of batch performance concern and to suggest improvements. Examples of such likely tuning strategies include: multi-threading of individual batch processes, data archiving, real-time transactional updating versus offline batch execution, database de-fragmentation or reorganization, parallel job scheduling, and other techniques designed to exact the most efficient results from the available computing resources. The contractor will also provide other performance assistance via the application architecture team members, who will focus on SQL tuning, efficient design/code, and other application-related optimizations. Within all BRIDGES environments, the Technical Control team will collect and produce timing information as available within the scheduling toolsets and provide information to all project team members. Batch windows and scheduled online availability are critical service measurements for the entire BRIDGES team to meet. The contractor recognizes the criticality of measuring performance prior to production release and will provide recommendations regarding unacceptable runtimes or other factors likely to impact the system viability. In addition, ongoing monitoring and collection of historical production performance trends will aid in capacity planning, system improvement initiatives, and tactical problem response. The Technical Control team will work with the Data Center Operations (DCO) team to define the aspects of the system that need to monitor for system availability.
- **Day-to-Day Care** – The Technical Control team, in concert with Data Center Services, will establish standard maintenance windows for BRIDGES as system uptime/availability hours are defined. In addition to hardware maintenance, OS, system software, and database software patches will be applied each month. The approach will be to first apply patches to the development servers in one month and then apply the same patch bundle to production servers in the successive month. In this manner, systems will be properly maintained and guarded against security threats, system flaws, and software obsolescence. Standard BRIDGES release planning will be utilized for major system upgrades, as they often require application source code modifications. The contractor's team will perform and coordinate system administration duties with Data Center Services and other State organizations to manage and maintain the system software used to support and deliver BRIDGES, including software required for the DIT standard toolset. The contractor

will also work with DIT, DHS, and DCH to acquire and maintain proper support contracts with software vendors to ensure that technical support, patches, upgrades, and new releases are included and available to the State as needed. Software vendor support levels (such as 24x7, onsite, monitored, and other SLA) will be determined by the State in accordance with the needs and criticality of the BRIDGES system.

- **Batch** – The Technical Control team will schedule, control, and monitor the nightly production batch cycle according to the job schedule defined by the State and the development and implementation vendor. The Technical Control team will explore opportunities for improving BRIDGES batch performance, reducing batch window length requirements, and automating nightly batch processing. We will work closely with State personnel and the development and implementation vendor team to realize the goal of fully automated, unattended batch executions and the completion of full batch processing within available batch windows.
- **Database** – The Technical Control team will provide support for database instances, database system configuration, and database maintenance for all production and development environments. Other services provided will include creation and configuration of database instances, disk space management, capacity planning, disaster recovery, application of tuning improvements, administration of the operating system, and general system operations. System DBA's within the Technical Control team will establish database creation scripting and associated table space allocation templates to create environments of varying size in support of development, test, and production activities. The Technical Control team will apply concepts from other State and private-sector systems to audit the database structure in each development, testing, and production instance for conformity to the established BRIDGES data model. Generation of database instances will originate from a version-controlled data model and be the primary method for creating application environments. Automated scripting and formal configuration management of the data model will be used to ensure that all database objects can be created without manual intervention as generated from the data model representation. Data model changes will be applied via the same build process as used to promote application source code changes to each environment. Audit scripts will compare environments and provide difference reports to ensure that each environment is created or modified as expected.

Management of databases
The Technical Control team will support database instances, database system configuration, and database maintenance for all production and development environments. The contractor's team has implemented stringent practices to confirm that system control as well as database security and integrity adhere to State policy. Other services include creation and configuration of database instances, disk space management, capacity planning, disaster recovery, application of tuning improvements, administration, and general system operations.

The contractor's team will provide expertise to developers on the database environment, approaches to efficient query design, and configuration of developer environments. Technical Control team personnel will apply their knowledge and the expertise of their support organizations to apply available tools to identify database optimization and management opportunities.

Management of database creation and maintenance
System database administrators (DBAs) on the Technical Control team will establish database creation scripting and associated tablespace allocation templates to create environments of varying size that support development, test, and production activities. Using standard RDBMS tools, most likely the application of database archive or transaction logs, the contractor will implement synchronization and refresh processes to maintain read-only instances, if defined for BRIDGES. Read-only production database environments will be implemented as physical standby instances. The contractor expects that the BRIDGES application will contain functionality to verify that it operates without violating the constraint against database updates to any object in the physical standby.

Management of data model and audit
The Technical Control team will apply concepts from other State and private sector systems to audit the database structure in each development, testing, and production instance for conformity to the established BRIDGES data model. Generation of database instances will originate from a version-controlled data model and will be the primary method for creating application environments. Automated scripting and formal configuration management of the data model will be used to create all database objects without manual intervention as generated from the data model representation. Data model changes will be applied through the same build process used to promote application source code changes to each environment. Audit scripts will compare environments and will provide difference reports to verify that each environment is created or modified as expected. The contractor will publish audit results to the project team, using the Web-based Infrastructure Request System whenever possible.

Management of database change request process
Data modelers on the Technical Control team will implement a formal methodology and associated documents for requesting database object creation for, or modification of, the BRIDGES system. Peer reviews of submitted changes will be conducted to enforce proper modeling approaches to normalization, foreign key constraints/RI, system-generated primary key usage, data abstraction, and performance indexes. Poor database design will threaten the success and maintainability of the BRIDGES system, so the contractor will apply its expertise to confirm that efficient designs are implemented, resulting in database-level application of relationships and data integrity. Whenever possible, forethought will be applied to data volume management, ongoing expandability, and flexibility to accrue maximum benefits from the BRIDGES data model.

Provision of disk space management
The contractor will monitor and manage magnetic disk space consumption, provide input on storage expenditure estimation, and advise on long-term planning of storage costs. To confirm efficient disk space usage and system performance, the contractor will verify that the initial implementation of the selected BRIDGES system will contain a data archiving and purging mechanism for fully removing historical, inactive, and obsolete data from the production database. If required, the migrated data should be retained in a database instance, archive storage, or both, separated from production operations. The contractor will recommend other system management strategies as appropriate to contain storage costs.

For development, testing, training, and other environments used by the development and implementation vendor, the contractor will recommend data reduction or other data creation and management techniques to encourage maximum use of reduced databases. Use of full production-size copies of data may be limited to only performance or load testing. Test data creation and maintenance is the responsibility of the development and implementation vendor.

Provision of capacity planning and projections
The Technical Control team will analyze BRIDGES data volume estimates, user base (average concurrent, peak, named), response time requirements for batch and online processing, and the proposed technical architecture (OS, RDBMS, 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. The contractor will involve the vendors (such as hardware, RDBMS, software, BRIDGES development and implementation contactors) and State infrastructure teams (such as Data Center Services, Telecommunication and Network Management, and Field Services), as well as Agency Services teams to gather measurements and validate architecture plans. Production environments as well as development, testing, training, and other relevant environments will be included in the assessment to acquire a complete picture of disk space, CPU load, memory utilization, and network bandwidth. Target peak hardware usage limits will be defined (usually in the 70 percent to 80 percent range) to use the system efficiently while accommodating growth and avoiding degradation due to overload. Ongoing monitoring will include collection of system metrics, analysis of usage patterns, and generation of reports and graphs to facilitate projections and decision-making. Capacity plans will be adjusted as the targets are breached, and acquisition of additional disk space, memory, and hardware upgrades may be initiated. Desktop performance and load characteristics are influenced by the footprint of the BRIDGES application or interoperability with other user desktop applications and thus will be addressed by the development and implementation vendor.

Provision of disaster recovery planning
The contractor will assess the selected BRIDGES architecture and will make recommendations about hardware, software, and configuration to integrate disaster recovery needs into the overall Data Center Services plan. The contractor's Technical Control team is proficient in database-specific recovery concepts such as Oracle RMAN backups, database exports, physical standby instances, and other replication techniques that offer hot backup functionality (for example, Oracle Data Guard and Oracle Real Application Clusters). The contractor also understands that database recovery constitutes only one aspect of disaster recovery planning, and will work with Data Center Services to identify the equipment and steps required to redirect production operations in the event of a disaster that renders primary equipment inoperable for an extended period of time. The contractor fully recognizes the absolute criticality of providing comprehensive disaster recovery options for the BRIDGES project.

Provision of performance tuning recommendations
Applying expertise from other State and industry systems, the contractor will use standard analysis tools provided by the State and available in the BRIDGES architecture to conduct SQL explain plan analysis, trace analysis, database resource monitoring, system resource monitoring, and performance statistics analysis (such as perfstat

in Oracle). In addition, database statistics and data histogram recalculations will be executed regularly (for example, monthly) to properly incorporate database growth effects or data distribution changes in the RDBMS optimization processes.

Support for database security and user profile management
The contractor will work with the Michigan Enterprise Security team to implement strict user ID management processes and other necessary security measures in accordance with State and Federal security compliance requirements. The Technical Control team will define database roles, grants, and resource limits to properly protect BRIDGES data and system resources. The contractor will recommend user identification (ID) creation procedures to formalize, document, and adhere to access granting processes. The system DBAs will secure the BRIDGES database from unauthorized interactive SQL access or other ad hoc access. The contractor will work with Enterprise Security and Date Center Services to detect and report unauthorized access attempts. Operating system-level accounts will be reserved for members of the Technical Control team and Data Center Services administrators. For development and implementation team members, OS-level interactions such as file uploads and downloads will be abstracted and provided through controlled interfaces within the Infrastructure Request System. The contractor will work with the development and implementation vendor to confirm that application-enforced security is consistent with data access rules and database security conventions. Whenever possible, components such as Secure Shell (SSH), Secure File Transfer Protocol (SFTP), Secure Sockets Layer (SSL), encryption, and other security software options will be installed or enabled. The Technical Control team will recommend modifications to the application architecture (or the creation of additional application architectures) to incorporate the correct granularity of user access control and data protection in the BRIDGES system.

Management of data integrity
The contractor's approach to data integrity management will focus on furnishing central organization and oversight for data modeling activities. The Technical Control team will apply available State toolsets to create and maintain the application database logical and physical models. Data definitions will be consistently represented across the application to enforce naming standards, match data types, and eliminate redundancy or unnecessary denormalization. Ad hoc data model modifications to satisfy isolated needs will not be permitted, and the overall benefit of suggested designs will be assessed to provide flexibility, maintainability, and efficiency. In addition to securing the database structure from unauthorized changes, one of the Technical Control team's first and most important priorities will be creating a data model and an associated change process for generating and maintaining the database from within toolsets or repeatable automated scripting. The institution of a database modeling methodology will follow and adhere to industry standards for normalized relational database design. The result will be a model that includes correct referential integrity, consistent data, efficient management of data, and accurate requirements-based representation of application functionality in the data model.

The contractor must understand that the BRIDGES project comprises several vendor teams, State agencies, and technical resources, such as DHS, DCH, DCS, Technical Services, Enterprise Security, and other DIT organizations. Each of these teams will contribute effort such as requirements, resources, work products, designs, and source code. In addition to preserving and delivering functionality, the Technical Control team is committed to working with those teams to incorporate security, failover, and disaster recovery considerations in the data model and design as appropriate.

Provision of reviews of BRIDGES data model
The contractor will supply the BRIDGES project with the expertise needed to review the proposed data model and physical database structure to identify sub-optimization, poor modeling practices, and opportunities for improvement. Table structure, data types, indexes, and constraints will be reviewed to enforce integrity at the database level. Physical organization on disk will be assessed against estimated data volumes to identify efficient initial tablespace and extent allocations. History tables, data-purging strategies, and migration of data out of the active production database will be recommended at initial implementation to position BRIDGES to manage data volume growth and associated impacts on system performance. Peer reviews will be conducted to assess proposed design changes during software development cycles and will follow a formal change process.

Validation of system values
The Technical Control team will assist the development and implementation vendor with the proposed support table foreign keys, codes, and other system-specific lookup data to define valid domains that enforce the allowed range of values. In collaboration with the development and implementation vendor, the contractor will review the new system values to confirm that they align with the existing system. Any identified discrepancies will be

addressed to maintain smooth integration and interface conditions. Design and implementation efforts will be reviewed to prevent noncompliance with system data requirements.

Coordination of Seed Data
The contractor's Technical Control team will facilitate the implementation and loading of seed data for reference tables, system codes, user security, and other base data required to initialize the BRIDGES system. The contractor's approach is to apply concepts such as SQL Loader files, repeatable scripts, and other configurable automated data loading mechanisms. These items will be managed within the BRIDGES project version control repository and whenever possible will be applied through standard build processes. If applicable, scripting will be designed to be re-executable so that data can be entirely deleted and then reloaded as development cycles refine the process or identify required data. After production implementation, the contractor will verify that subsequent operations on system reference data and other initial seed data will be provided through application functionality within the BRIDGES system. Seed data loads are planned as initial implementation processing events that do not require ongoing scripted maintenance unless substantial new functionality is introduced in a release and requires similar initialization.

Analysis of database changes for standards and inconsistencies
The Technical Control team will review data model designs and other database change requests to verify that naming standards are followed (for example, same data element has the same column name in all occurrences in the database; names conform to standard). Furthermore, because it is critical for referential integrity, foreign key constraints, and table join processing, the contractor will work with the development and implementation vendor to confirm that the data type for a particular data element (integer, character, varchar) is identical in all occurrences of the field. Proper data element usage will be enforced to prevent programs from using data fields for purposes other than the intended function (for example, storing unrelated data in a column merely to avoid requesting a new column in the data model). The data element types in the BRIDGES database must be defined consistently; each data element must contain the data indicated by the element definition; data element names must conform to standards; and data element names must match when needed to facilitate intuitive table joins and easier technical design research. The contractor will work with the BRIDGES development and implementation vendor to develop a meaningful, coordinated, solid data model as a strong foundation for well-defined system development practices.

Management of conversion process to verify integrity of data
In coordination with the DIT, DHS, DCH, and development and implementation vendor, the contractor's Technical Control team will apply its expertise to manage and support applicable data conversions for BRIDGES.

Management of data mapping activities to verify integrity of data
The Technical Control team will guide the development and implementation vendor during conversion efforts to establish an approach for assessing and mapping legacy systems data needed for the initial BRIDGES implementation. Data mapping discrepancies may influence data modeling choices, and the contractor must be proactive during mapping activities to preserve data integrity and verify that database designs are not suboptimized. BRIDGES project teams must resist shortcuts and patchwork data matching because they threaten the quality of the data and the viability of the system. The contractor will provide reconciliation query assistance to assist conversion personnel in identifying data mismatches. As needed, the contractor will incorporate cross-reference tables or relationships in the data model to correctly link disparate data and provide truly relational content within the BRIDGES database. The success of BRIDGES depends on the convergence of multiple data sources in a cohesive central database and application.

Use of metadata repository
The Technical Control team will use available functionality in the RDBMS or available integrated development and data modeling environments to store the data model definitions. Various model tools can be employed as available, and data model version control will be managed in the version control repository if possible. The contractor will maintain accurate and up-to-date definitions by integrating the existing metadata repository into the processes governing data modeling activities.

In addition to data model metadata, certain data values stored in the production database are critical to the operation of the BRIDGES system and thus constitute another form of metadata to secure and preserve. The contractor will use available repository capabilities for the initial load, maintenance, and retention of reference (or lookup) data. Reference data typically are used to specify system code values and other data elements used in drop-down lists, domain values, constraint validation, and referential integrity relationships. The Technical Control

team will consistently emphasize the control and management of system values and codes used within BRIDGES.

Administration of data loading and data utilities
The contractor will support the coordination, loading, and configuration management of seed data. As a critical application component, seed data are used to control, for example, functionality, drop-downs lists, system values, and user security setup. Another vital data loading and system utilities service addresses the propagation of data across the database instances used by testing, development, training, and other personnel. To meet specific and unique requirements, data reduction and extraction programs will be created, maintained, and executed to create production data subsets. This innovative process accrues significant benefits such as faster builds, quicker batch cycles, and reduced consumption of critical infrastructure resources. The Technical Control team will work proactively during initial BRIDGES phases to identify mechanisms for accurately and efficiently satisfying the specific data needs of the non-production supporting environments.

Creation of processes to implement and manage data loading
Initial data loading typically is accomplished in parallel with the development of the system programs designed to perform that functionality after implementation. Automated scripts perform data updates and are always version-controlled, executed, and tracked in the formal build process. For backout purposes, output logs are generated to identify the key data affected by the script. Some processes may apply data directly from staging areas by using database links or remote procedure calls. Other processes that modify existing data may capture the before-update data in temporary tables in a staging area to retain a copy for backouts. Review processes validate the script results in development and testing environments before applying them to production. The contractor will work with the development and implementation vendor to collect, validate, and apply initial BRIDGES data loads.

Another element of data loading is ongoing batch interface processing. The contractor will apply its expertise to influence the design of batch processing and incorporate robust loading mechanisms. Efficient technologies such as Oracle SQL Loader will be used as appropriate.

Verification of proper data utility use
The contractor will use available State tools, recommend additional tool acquisition, and guide project teams in the use of efficient commands, utilities, and system processes. The contractor will tailor the selection of tools and approaches according to the data loading and manipulation task at hand as well as required contingency capabilities. The contractor's data utility experience will result in performance-oriented processing, resilience, and safeguards for BRIDGES.

Validation of application user security setup
The contractor will work with the development and implementation vendor, DIT, DHS, and DCH to collect, organize, and process initial user security information for the BRIDGES application. The Technical Control team will verify that user ID creation conforms to formal State processes for granting access and will work with established user support teams to complete the task of preparing the system for use.

Validation reports will be produced and distributed to appropriate teams to verify that the accounts are created correctly, possess the appropriate application access roles, enforce database grant rules, and match the submitted paperwork or initial user account collection file.

The contractor will apply its operational readiness experience to provide the system data required by users to access BRIDGES successfully.

Assistance with creation and testing of data load scripts
The contractor will provide data loading and overall scripting expertise will be applied to assist the various BRIDGES teams (for example, development and implementation vendor and State personnel) in developing efficient and accurate data load scripts. The contractor will provide the framework and mechanisms to enforce version control and build processes for testing and execution efforts. The contractor will review scripts, recommend improvements, identify performance techniques, and guide developers in integrating re-execution and back-out capabilities. Detailed error handling, output logs, and robust logic will properly protect BRIDGES data. The Technical Control team will confirm that scripting components contain the standards and conventions necessary for securely and reliably manipulating BRIDGES data.

Planning, preparation, and management of multiple database and application environments
The contractor will perform environment planning and preparation for the infrastructure teams and project teams, addressing needs such as training, quality assurance, and development, which require BRIDGES environments to perform assigned work. The Technical Control team will work closely with each project team to adequately allocate finite system resources to the expanding and varied needs of these groups. In addition, environment planning and preparation personnel must be proficient in the overall disaster recovery plan for the system so that ongoing support operations and system maintainability also are considered as operations to be recovered.

The Technical Control team will pursue strategies such as extended use of data reduction techniques to satisfy accurately and swiftly the varied environment needs of the BRIDGES project teams.

Provision of communications focal point
The Technical Control team approach to environment preparation and planning for BRIDGES includes establishing team member participation in release planning meetings, production maintenance ticket review sessions, and other key forums to coordinate activities for the development and testing phases. The contractor will use the DIT standard toolset to furnish request entry, assignment, and tracking. Environment preparation and planning team members rely on this central interface to service the needs of project teams for application builds, database refreshes, and other environment-related processing required in the application architecture. Environment preparation and planning personnel serve as the link between project teams and the various technical control sub-teams to centralize communications and establish a common path for operating the BRIDGES environments. This role is critical to defining handoffs between the project development and implementation team and infrastructure teams that specify environment availability, state, and status. The contractor will create a coordinated focal point for environment and application architecture issues.

Coordination of Schedules
The contractor will coordinate schedules and environments, providing multiple simultaneous development and maintenance activities for the BRIDGES project. The BRIDGES model is based on two promotion-to-production paths. One path is the maintenance path for the release version actively in production. This path would correspond to a current configuration management repository and has separate development and testing databases to support builds and releases through that path. The other path relates to the release version in development that is progressing toward production implementation. This path would correspond to an emerging configuration management repository and, because of potential conflicts with code modifications in the maintenance path, will have environments separate from the maintenance path. The Technical Control team will work with the development and implementation vendor to understand the capacity, constraints, and interrelationship of each path. Processes such as retrofitting will be established, and configuration management personnel will assist by identifying crossover configurable items undergoing modification in both paths. The activities planned in each path will be assessed by the Technical Control team and PCO to align release dates, re-baseline activities, refresh activities, and create concurrent code modifications. Project plans will clearly define allowable concurrent activities to establish the economy of development and testing effort s well as the integrity of configurable items.

Coordination of environment planning
Understanding the lead times, turnaround time, availability, and other assumptions about environment capabilities will support more accurate estimating and scheduling when establishing project deadlines. The contractor's Technical Control team is committed to communicating and delivering the structure necessary to provide properly prepared and managed environments within the planned timeframes for the BRIDGES project.

Provision of advance software release planning
In addition to furnishing environments as scheduled for the development and testing phases, the contractor recognizes that major software projects also depend on the provisions necessary to address operational readiness issues such as prerelease training and other user support activities. Such activities often require special environments to isolate those capabilities from development and testing activities. The contractor's Technical Control team will incorporate the planning of all environments in the overall BRIDGES project plan to formally indicate when these areas will be available with the appropriate application build and data. The preparation and maintenance of environments is a cyclical process that rebaselines those areas after a major release and applies release-specific changes according to project plan milestones. The Technical Control team will supply input for the definition of project plan milestones to properly consider the activities required to deliver environments according to the schedule. Post-release processing will be identified in the plan to specify procedures for maintaining the environments for the successive release. The contractor will validate that the

BRIDGES project uses a proven, structured, and repeatable mechanism to manage the application architecture as needed for successful implementation.

Support for Network and Development Environment

The contractor will coordinate with the various State infrastructure teams (Data Center Services, Field Services, Telecommunications and Network Management [T&NM]) to complete successful design and implementations as well as address ongoing support issues. The contractor will collaborate with the application development and maintenance contractor (to provide application-specific characteristics), and private sector infrastructure experience will be leveraged to facilitate application stability and responsiveness to technical issues. The contractor will assist in supporting network configurations, routers, firewalls, network capacity planning, and other telecommunication technology. Such services affect every platform, network, and desktop in the deployment environment as well as the environments and software products used by the State's internal BRIDGES project development, testing, and training teams. As needed, the contractor's team will assist the user sites with their desktops, servers, and firewalls.

The Technical Control team will employ available, State-provided, advanced network and system monitoring tools, working in concert with the T&NM group, to proactively identify and correct issues. The contractor will use the Load Tracker Web site to afford access to a collection of information and links necessary to assess the health of the production environment. Analysis of available monitoring data will be used to craft intelligent, expedited problem resolutions. The Technical Control team will establish and expand the collection and management of this useful information to deliver proactive responses to the BRIDGES population.

Facilitation of network analysis and capacity planning

Using network analysis, measurement, and reporting tools available from the State, the contractor will measure and monitor the applicable network components in the BRIDGES architecture. This activity is most beneficial in a load testing simulation or full production user base situation. The Technical Control team will conduct appropriate metrics collection during development and successive production activities to serve as input to the overall capacity planning effort for BRIDGES. The contractor will identify or recommend tools as needed to deliver this service. The contractor will coordinate network analysis activities into the overall system and application architecture design to make sure items such as geographical distribution and available network topologies/bandwidth are properly considered. The Technical Control team will provide collected measurement and analysis data via the DIT standard toolset in the form of self-serve reports or graphs.

Provision of desktop and network troubleshooting expertise

In conjunction with Field Services, the Technical Control team will provide troubleshooting expertise for the user desktop environment for BRIDGES. The contractor's team, in cooperation with the development and implementation vendor, represents the BRIDGES application requirements, footprint, and desktop template needs and must be the advocate for those characteristics to the organizations developing State standard desktop templates. The contractor also realizes significant initiatives, such as Windows XP rollout and Michigan/1, have an effect on application environments and will be assessed in relation to BRIDGES.

Provision of interface to telecommunications providers

The contractor's Technical Control team will coordinate with the State T&NM, Field Services, and various site entities as needed to interface with and manage the services of telecom providers. Recognizing the State has sufficient capabilities in these technologies and a mature networking infrastructure, the contractor expects involvement of the Technical Control team to be of a troubleshooting or one-time initiative nature, rather than a daily support role.

Support Tools

In a project as large and visible as BRIDGES, robust communication and readily available data can mean the difference between success and failure. The contractor will establish an integrated PCO Web site as a mechanism for sharing data across the project facilitates this critical capability. The PCO Web site will provide access to a wide range of project information and dynamic communications among project personnel, the PCO, and project managers. The contractor will make sure the Web site and associated toolsets interface with, complement, and support the processes of the various project teams (PCO, Technical Control team, development and implementation vendor, DIT application development, and maintenance teams, and so on).

Using this Web site, project members can retrieve information such as current project schedules, PCO process documentation, contact lists, standard templates and forms, and various performance metrics. The infrastructure components of the PCO Web site augment the project management features to respond to development team needs and supply management with an enterprise view of the IT project. Furthermore, automation of processes and self-serve availability of technical environment data and services increase efficiency while eliminating error.

This suite of Tracker tools, the DIT standard toolset, is expected to be deployed to BRIDGES, and the Technical Control team will leverage its experience with these tools to establish and maintain these components for maximum reuse, benefit, and improvement to the project.

The Technical Control team will continually maintain, monitor, and improve this critical set of tracking tools for BRIDGES to establish a solid foundation for continued DIT project success and to construct a springboard for future optimization.

Creation and maintenance of PCO and infrastructure support tools
The contractor will continue to apply these concepts to BRIDGES by creating and maintaining a full complement of tools to deliver infrastructure-related information and project management critical data.

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. The environment preparation and planning team will use 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 will be password-secured, and group ownership constraints will allow only authorized requesters and gatekeepers to initiate activities in the controlled environments. The contractor will apply these features to the BRIDGES project, enhancing the DIT standard toolset to facilitate automation whenever possible.

Additional functionality may be developed to acquire and present system-level information to perform system health checks on the production application as well as the various development and testing environments. Items such as number of active users, user account information, user logon history, and so on, may prove useful in managing the BRIDGES system.

The DIT standard toolsets do not solely support the activities of the Technical Control team. The Project Tracker functionality is used by project management 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. The contractor will categorize this information by project, by deliverable, and by phase.

Creation of new reports and functions for PMO
The Technical Control team will continue improvements and enhancements to the DIT standard toolset as needed for the BRIDGES PMO. The contractor 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.

The contractor will support any such enterprise approach to the toolset, should it be the desire of the State.

Issue Tracker
The Technical Control team will establish and maintain this toolset for the BRIDGES project.

Change control
The contractor will maintain this functionality in conjunction with the maintenance of Issues Tracker.

Time Tracker
The Technical Control team will establish and maintain this toolset for the BRIDGES project.

Configuration Tracker and Build Tracker
The Technical Control team will establish and maintain this toolset for the BRIDGES project.

System DB
The contractor's Technical Control team will establish and maintain these databases on the BRIDGES project and define appropriate backup strategies to make sure the valuable project information assets are preserved and protected.

Improvement requests (CIR, Infrastructure Request System)
The contractor will establish and maintain this functionality within the Infrastructure Request System to centralize work order processing, assignments, and tracking for the Technical Control team.

Test Tracker
The contractor will establish and maintain this functionality for the BRIDGES project.

Ticket Tracker
The contractor's Technical Control team will establish and maintain this toolset for the BRIDGES project.

Performance monitoring and reporting tools
The contractor's Technical Control team will establish and maintain this toolset for the BRIDGES project. In addition, the contractor 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) via the DIT standard toolset. The contractor will work with the development and implementation vendor 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.

Integration of Tools, Applications, and Utilities in project office framework
The Technical Control team, in concert with the Project Control team, will target the design, construction, and improvement of the tools to support and complement the BRIDGES PCO processes and organization.

Recommendations for improvements or new tool creation
The contractor's Technical Control team has extensive experience improving productivity, accuracy, and integration through tool development and improvement. The contractor will meet the challenges of the BRIDGES project and respond to process and automation needs with talented technical leaders and tools support personnel.

Support Tools Hosting Infrastructure
Physical hosting and administration of the DIT standard tools and associated server hardware/software is the responsibility of the State Data Center Services and Technical Services teams. The contractor 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 BRIDGES project. The contractor will also recommend backup/export strategies and retention periods, development environment separation, application tier architecture options, and other technical considerations, such as patching and upgrade strategies.

Configuration Management
The contractor's Technical Control team will use the configuration management framework and supporting assets that the BRIDGES project requires. The current State configuration management process is integrated into the Remedy (Action Request System) help desk toolset, making sure a rigid development and testing methodology is followed before any changes to the system are released. Unauthorized changes are prevented, and all activity is automatically captured for audit and reporting. The contractor's team is committed to continual improvement and will strive to optimize this configuration management process, for example, by concentrating on enhancing in-house toolsets and on furnishing improved multiple and concurrent release support.

Configuration management is not just a control methodology; when implemented properly, configuration management can also function as an enabler for productivity and quality improvements. The configuration management methodology the contractor's team implements can enable multi-threaded development; allowing certain phases of multiple development projects to overlap and increasing throughput for maintenance release cycles. Configuration management also ranks as a critical factor in successfully and correctly deploying any IT system across many development, training, testing, read-only, and production environments.

The contractor will use Build Tracker, a customized Web-based tool to enable members of the project team to initiate source code promotion activities and to view the history of builds, relevant configurable items, and corresponding versions of each configurable item. This information can be viewed by database and application environment, making the content of each environment known and comparing it to all other environments. The contractor is prepared to institutionalize these same capabilities and toolsets within the BRIDGES project.

Administration of version control repository
The contractor's Technical Control team will provide configuration and administration of the BRIDGES version control repository. Directory structure, naming standards, check-in/check-out processes, developer working directory structure, and overall organization of configurable items will be specified to complement the DIT standard toolset. Enforcement, automated whenever possible, and security will be established to safeguard the intellectual and technological assets of the BRIDGES project. Gatekeepers with privileged access will be identified within the Technical Control team. The contractor will make sure robust version control and configurable item management is implemented within the available State configuration management software.

Creation, modifications to, and improvements in automated build processes
The Technical Control team will establish analogous build scripting and management tools/processes, based on the States Build Tracker, for the BRIDGES project. The contractor will implement improvements and streamline the process to foster greater productivity and throughput.

Recommendations for software configuration products
The Technical Control team will apply knowledge and experience, largely from other State Of Michigan projects, to identify and recommend configuration management software products. The contractor will carefully consider State technical direction of Polyhedron Version Control System (PVCS), available licensing, cost implications, and reusability of existing DIT standard toolsets in such recommendations for BRIDGES.

Management and support of promotion processes
The Technical Control will institute the movement of configurable items, will be integrating it into automated toolsets, and each environment will receive changes in the exact same manner, through repeatable, scripted, secure delivery of change packages. As available version control software allows, the selection and download of the change package from the version control repository will be based on configurations, which provide a build list or "makefile" of the applicable configurable items and their associated versions. Configuration history will be retained for exception comparison between environments. Build output logs will be generated and reviewed or parsed for build verification and auditing. Promotion processes will be integrated into the development life cycle to make sure compliance becomes part of the natural workflow. Proven processes and life cycles will be applied to BRIDGES to make sure the State receives the full benefit from the contractor's configuration management experience.

Provision of configuration management processes for source code and data
The contractor will use release implementations including repository re-baselining activities to retain the previous release container and begin work within the emerging release container. Release content is managed through several levels of project status: Archived, Current, Emerging, and Future. Each level corresponds to the state of the release content. Archived is release content previously implemented in production, but no longer current as another release has replaced it. Current is the active production version of the configurable items and is used to perform maintenance activities on the system. Emerging is the collection of work products under development for the next release to be implemented. Future is a holding area for pre-release work (early requirements definition, analysis activities, and so on) "on deck" to become the next development release effort. Each level can have version specific subcategories and contain full repository structure as needed to manage all configurable items. The Technical Control team will also provide configuration management of specific data as needed by the various development environments. Fully maintained, common exports of data are used to refresh and reset training environments on the BRIDGES project. These baselines will be managed as releases occur to upgrade them at the same time application changes are implemented to production. This provides predictable, repeatable results for the environments and the teams depending on them. The contractor will apply these concepts to the BRIDGES project.

Management of all configurable items and work products
Configuration management includes source code and work products other than source code. The overall delivery of a system is based on a collection of documented requirements, process flows, business designs, technical designs, code, training documentation, system documentation, end-user documentation, and other non-release specific artifacts critical to the project and the operation of the system. The contractor will provided version control and configuration management for these items and more for many other State and public sector projects. The Technical Control team is prepared to define the repository structure and check-in/check-out processes for BRIDGES, addressing all of the components that contain technical or intellectual value for the system. The contractor will also work with the development and implementation vendor to define naming and categorization standards for all configurable items and recommend approaches, such as "living" business design documents, leading to comprehensive, complete, and updated information from release to release.

Support and recommendations for modifications to promotion to production software
The contractor will provide support of the Build Tracker components, such as Oracle SQL scripts, build script templates, UNIX shell scripts, used in automating the promotion to production for BRIDGES. Recognizing that modifications or duplicate installations of the Remedy environment may be needed to use the toolset in its current form, it is expected the State will maintain the Remedy (Action Request System) these modifications as required for use on the BRIDGES project. The contractor will recommend the necessary installation or configuration of Remedy to properly integrate with current Build Tracker functionality for BRIDGES use. The Technical Control team will perform modifications on the Build Tracker components and build scripting. The contractor will work with DIT resources to integrate toolsets for the BRIDGES application.

Definition of strategies for test, training, and demonstration data
The contractor's Technical Control team's approach to test/training/demonstration data employs static baseline exports that are maintained as BRIDGES system releases are implemented into production. Each baseline receives the same change package applied to production and is retained with the updates. Baselines for testing, training, demonstration, and even development activities should be reduced data sets to allow for quick refresh cycles and expedited maintenance of environments. Furthermore, reduced data sets allow for testing batch cycles to complete faster and have less impact on the duration of project phases than waiting for full, production-sized environments to complete processing. A full-size performance environment should be established for timing and performance assessment. The contractor will work with the development and implementation vendor to capture, maintain, and restore their prepared baseline data as needed for project development activities. The contractor will also recommend test data strategies, such as reset scripting, to restore data conditions after a test without requiring a full refresh of the environment. The development and implementation vendor will have responsibility for the creation of representative development data, training data, and testing data to support their test and demonstration conditions. The contractor will assist the development and integration vendor with scripting concepts and baseline data management approaches, including the use of a superset of baseline data – a consolidated, single, common set of data shared by all project teams and refreshed to any environment. The contractor's Technical Control team will assist in assessing data needs to efficiently manage computing resource consumption and execution durations for the BRIDGES project.

Provision of production support ticket reports and data
Using Ticket Tracker reports and the PCO governance model, the contractor will provide BRIDGES PMO leadership with timely information regarding the state of the system, state of the project, and other decision-making input. The contractor will address issues, defects, and enhancement requests quickly to increase user satisfaction and system effectiveness. The Technical Control team will support the PCO and Program Management Office (PMO) in their reporting needs and will make sure the DIT standard toolset facilitates responsive management of BRIDGES system and project issues.

The Technical Control team will support Implementation of Vendor Oversight
The contractor will define integration strategies to merge the responsibilities and capabilities of the various teams (Data Center Services, Technical Services, development and implementation vendor, DHS, DCH, and so on) into a cohesive plan and workflow. Indicators will be put in place and supported by toolsets to validate status, facilitate task completion, and formalize handoffs between teams. A primary goal of project management is to provide the framework for assessing project progress and success. The contractor will coordinate the processes and work products such that the critical oversight information is collected, thus facilitating a smooth implementation for BRIDGES.

Testing processes and schedules
The contractor will provide management of testing activities via the Test Tracker tool, in conjunction with environment preparation planning and scheduling, to oversee progress while considering the interrelationship of the project teams (development and implementation vendor, DHS, DCH, DIT application development and maintenance, other State resources). The contractor will also assess factors external to the project (initiatives of DIT Desktop, Data Center Services, Technical Services, and so on) to properly consider the impact of such activity on the testing schedule for BRIDGES. The contractor's Technical Control team will incorporate tracking and automation of testing tasks to monitor the stage of completion and the overall health of the application (for example, excessive defect ticket logging in test cycles, large number of returns for a particular configuration item, significant size and content of daily builds to test regions, and so on).

Training processes and schedules
The contractor's team will work with the development and implementation vendor and State project teams (DHS, DCH, DIT application development and maintenance, other State resources) as part of the environment preparation and planning process to provide application and database instances for training activities. Refresh schedules will be established to reset the environments and data reduction techniques will supply manageable baseline datasets according to the criteria needed for training scenarios. The team will also recommend multi-user data definition strategies to replicate and segregate training data for each training ID, giving each user their own identical copy of the scenarios. Environment availability will be coordinated with the overall project schedule to meet project deadlines. The contractor will also assess factors external to the project (initiatives of DIT Desktop, Data Center Services, Technical Services, and so on) to properly consider the impact of such activity on the training schedule for BRIDGES. The project plan may also involve those teams to procure training sites, connectivity, or other technical enablers to deliver BRIDGES training (remote desktop training capabilities, Web-based training, and so on) as determined during project execution. The Technical Control team and the PCO will monitor the overall training process and schedules to make sure user readiness activities are defined, planned, and delivered on time.

Requirements processes and schedules
The Technical Control team, together with the development and implementation vendor, will incorporate configuration management processes into the requirements definition process to make sure that official versions are approved, or signed off. Formal signature documents will be produced, complete with version number of the approved requirements document, and checked into the repository. Actual scanned images will be used where possible and the PCO will monitor the repository containers to validate those requirements generation adheres to the process and the completion of requirements tasks will result in proper configurable items within the repository. The contractor will make sure that the development and implementation vendor works with the requisite system owners and subject matter experts from the various project teams (DHS, DCH, DIT application development and maintenance, other State resources) and those representatives sign off according to the process. The contractor will also assess factors external to the project (initiatives of DIT Desktop, Data Center Services, Technical Services, and so on) to properly consider the impact of such activity on the requirements definition schedule for BRIDGES.

Support and Schedule Batch Cycles
The Technical Control team will coordinate with the development and implementation vendor, DIT application development teams, and Data Center Services to establish an organized, automated batch processing approach. The contractor's resources will interface with representatives from the various project and State teams to work seamlessly within the core operations structure. Incorporating available tools and existing processes, the contractors will augment or define procedures as necessary to operate the BRIDGES batch environment.

Management of batch cycle schedules
The Technical Control team will schedule, control, and monitor the nightly production batch cycle according to the job schedule defined by the State and the development and implementation vendor.

The Technical Control team will explore opportunities for improving BRIDGES batch performance, reducing batch window length requirements, and automating nightly batch processing. The contractor will work closely with State personnel and the development and implementation vendor team to realize the goal of fully automated, unattended batch executions and the completion of full batch processing within available batch windows.

Management of non-production batch schedules
The contractor will apply the same batch execution automation and controls to development, testing, training, and other non-production environments to facilitate uniform results in all project team regions. This management strategy for batch schedules, scheduling toolsets, and environment configurations will match production procedures and conditions whenever possible to eliminate variation and any risk of unforeseen complications resulting in production failures upon release.

The Technical Control team will establish processes for requesting and initiating batch executions in all environments. Access to batch execution components will be limited to Technical Control team members to prevent unauthorized, unmanaged, job execution that could negatively impact development or testing results and cast doubt upon the integrity of the environments.

Management of system interface schedules
The contractor will incorporate file transfer functionality and file receipt detection functionality into the scheduling toolset as the BRIDGES application architecture allows to manage system interface processing schedules. The Technical Control team will incorporate the State Data Exchange Gateway standard and intends to invoke that mechanism for interface file transfer. Processing of input files and other interface-related processing will be included in the schedule according to schedule toolset capabilities. Business requirements, system availability, maintenance windows, legislation, and other processing constraints must be defined for the BRIDGES project to make sure the schedule provides the appropriate response and throughput according to these influencing factors.

Provision of batch performance and tuning input
The contractor's team will apply experience and knowledge from other State and industry environments to identify areas of batch performance concern and suggest improvements. Examples of such likely tuning strategies include: multi-threading of individual batch processes, data archiving, real-time transactional updating versus offline batch execution, database de-fragmentation or re-organization, parallel job scheduling, and other techniques designed to exact the most efficient results from the available computing resources. The contractor will also provide other performance assistance via the application architecture team members, who will focus on SQL tuning, efficient design/code, and other application-related optimizations.

Provision of timing information and recommendations
Within all BRIDGES environments, the Technical Control team will collect and produce timing information as available within the scheduling toolsets and provide information to all project team members, whenever possible, via the DIT standard toolset (Web site, Infrastructure Request System, automated e-mail distribution). Batch windows and scheduled online availability are critical service measurements for the entire BRIDGES team to meet. The contractor will measure performance prior to production release and will provide recommendations regarding unacceptable runtimes or other factors likely to impact the system viability. In addition, ongoing monitoring and collection of historical production performance trends will aid in capacity planning, system improvement initiatives, and tactical problem response.

Support for performance improvement efforts
The Technical Control team is committed to collaborating with the State, the development and implementation vendor, and hardware/software vendors to address performance issues and craft solutions jointly. This is especially critical for the initial implementation of the BRIDGES system as well as successive maintenance and enhancement releases.

Statement of Work. In addition to the core tasks and responsibilities of the Technical Control team, unexpected and unplanned needs may arise, demanding additional effort from existing personnel or requiring skills not currently possessed by the contractor's team members. At the request of the State, the PCO will estimate effort and cost and will construct a project timeline for such unplanned activities.

Technical Control Team. The Technical Control team will provide all necessary support to improve stability, reliability, and responsiveness of the BRIDGES projects.

Task 2 Deliverables

The deliverables defined for Task 2 are listed in the table below.

Deliverable	Measure of Success
Weekly written status reports that include, at a minimum, a description of work accomplished, work scheduled, and identification of issues requiring management attention	The contractor's team will provide weekly written status reports that include, at a minimum, description of work accomplished, summary of work scheduled, and identification of issues requiring management attention.
Capacity plans and reports	The contractor's team will provide these outputs to the State in document or Web-site form.
BRIDGES data model	The contractor's team will construct and manage a formal data model in available State tools. The data model will be checked into the repository. The data model will generate database object creation scripts for use in build processes.
BRIDGES Application Architecture	The contractor's team will provide documented standards and recommend coding practices defining robust error handling, modular approaches, and common minimum program capabilities.
Documentation of all implemented processes and tools to support application development, testing, release, and configuration management.	The contractor's team will provide documentation of all implemented processes and tools to support application development, testing, release, and configuration management. This information will be checked into the repository and made available on the PCO Web site whenever possible.
Training on the processes and tools used for technical/infrastructure control for State staff designated to work as part of the Technical Control team	The contractor's team will provide training on the processes and tools used for technical/infrastructure control for State staff designated to work as part of the Technical Control team. The training will be in the form of documented processes and mentoring as State resources become integrated members of the Technical Control team and receive regular working assignments.

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Roles and Responsibilities

1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES

The Contractor will provide staff to be approved by the State to perform these functions. Critical roles and corresponding qualifications (skill set, experience) are: (Required experience and skills are listed in Appendix D)

Anticipated start dates are subject to change according to the BRIDGES program manager.

Project Control Office (PCO) Manager

This individual coordinates the activities of the Project Control Office and is responsible for the delivery of the BRIDGES project. The PCO Manager ensures consistency with the State's Project Management Methodology (PMM) and establishes the strategy for monitoring vendor compliance and performance. This individual ensures the delivery of Project Control Office (PCO) responsibilities - Vendor Management, Schedule Management, Resource Management, Issue Management, Communication Management, Risk Management, Performance Monitoring, Time Tracking, and Work Approval. The role requires experience in software development, project management, in-depth knowledge of IT systems and architecture, and proven competency in guiding multiple simultaneous releases and vendors as part of large system development projects. This individual manages the enterprise view and the interdependencies between projects to achieve business objectives and focuses on interaction at multiple levels and partners. The PCO Manager uses MS Project, MS Excel, MS Word, MS PowerPoint, Remedy and the Tracker Tools or the comparable tools within the vendor's alternate tool set. The individual is often consulted to resolve escalated issues, create plans to mitigate risk, and remove roadblocks.

Project (Release) Manager

This individual manages detailed project plans and schedules for the day-to-day tracking and oversight of project releases using the Project Management Methodology (PMM). This individual creates and uses tools to monitor and report on schedule progress, resource utilization, issue resolution/escalation, and process adherence. This individual also gathers and reports on vendor performance and compliance metrics. The project release manager is a skilled user of MS Project, MS Excel, MS Word, MS PowerPoint, macros, charting, Remedy and the Tracker Tools or the comparable tools within the vendor's alternate tool set, which enable them to monitor and report on releases. This individual has a software development background and has developed and managed releases on large systems. This individual is often consulted to resolve issues and to address specific release roadblocks. The PCO Release Manager is responsible for managing the release delivery within specified parameters of cost, time, and quality.

Project Scheduler

These individuals update schedules for day-to-day tracking. These individuals support Release Managers using project management tools, techniques, and methodologies such as MS Project, MS Word, MS Excel, MS PowerPoint, Remedy and Tracker Tools or the comparable tools within the vendor's alternate tool set to assist in the monitoring of individual tasks. A Project Scheduler has a software development background and has developed on large systems. A PCO Release Manager directs the daily activities of the Project Scheduler. The Project Scheduler does many of the administrative tasks needed to monitor and report on the status of a release.

Work Flow Coordinator

This individual coordinates the activities of the Work Approval and Release Planning process. The role requires participation in three groups – Triage (emergency Production problems), Ticket Assessment (non-emergency Production problems), and Release Planning. This individual is detail oriented, follows set criteria, but must be able to lead the review of problem tickets as the facilitator of the Ticket Assessment Group. The Work Flow Coordinator communicates with and creates a working relationship with all project members from the site support person in a county to the Director of the BRIDGES Program. This individual uses MS Project, MS Word, MS Excel, MS PowerPoint, Remedy, and Tracker Tools or the comparable tools within the vendor's alternate tool set to assess, route, and monitor throughput of the tickets (maintenance requests). The role requires fundamental project management knowledge and experience. This individual may seek guidance from more experienced project managers. The Work Flow Coordinator is the "Gatekeeper" for all tickets and is responsible for packaging them for review.

Infrastructure Team Manager

This individual works with the System Architect and team to coordinates the activities of the Infrastructure and is responsible for staffing issues, providing technical direction to the various sub-teams (Data Management, Configuration Management, System DBA). The role requires a technical background in RDBMS, SQL, server administration, shell scripting, automation techniques, conversion processes, SEI CMM processes, productivity improvement and enterprise system management. This individual provides direction, solutions, improvements and suggests/designs/improves tools and processes to deliver services to the project teams dependent on Infrastructure team capabilities. The individual is often consulted to solve technical issues, plan/manage environments, create/maintain overall development processes/standards, and provide the overall vision and guiding principles for the team. This individual participates directly at the project management level, providing proposal/plan responses, estimates, assumptions and task definitions. The team manager has overall responsibility for the management of the Production, Development, Training, Testing, etc. environments and is involved directly in their configuration, capacity planning, maintenance, etc.

BRIDGES Configuration Management

Members of the BRIDGES Configuration Management team are responsible for administering the PVCS Data Repository, defining collections and branches of artefacts as working and production releases, and enforcing configuration management processes on the BRIDGES project for new development and maintenance activities. The team members create, modify and improve automated build processes, configuration management tracking utilities/applications, configuration management reporting utilities/applications and any other automated productivity tools used for building and/or tracking the configurable items within the BRIDGES application(s). A subset of the team also assumes responsibility for supporting and modifying an “IT Remedy” installation, which is customised to automate, facilitate and enforce the development process governing change control, work flow and promotion to production procedures. Some team members are also leveraged to support various other project tracking tools and are often requested to provide production ticket information/reports and other program management data to DHS/BRIDGES leadership. Basic knowledge of the java and database application components is required and some troubleshooting is provided to project developers regarding compilation errors, etc. Other skills include PVCS, Data Repository, SQL, scripting, Active Server Pages, HTML, DOS Batch scripting.

Application Architecture

Members of this team are responsible for reviewing problem areas of the application, improving adherence to good coding practice and ensuring that the application components produced by developers will be robust enough for Production to operate smoothly and without excessive maintenance effort. Performance tuning (efficient code, index recommendations, tuning recommendations) is a key responsibility. Other areas of concern addressed by the team include: commit/restart capability of batch processes, modularity/maintainability of design and code, adherence to standards, and error handling. This team is consulted heavily by developers. SQL, relational database design, Java, JSP, J2EE architecture and implementation, JDBC, and web server technologies, are required skills, however, team members are most valued for their ability to improve system performance and reliability through robust, efficient coding techniques and mentoring.

Environment Planning and Preparation

This role is intended to be the focal point for communications between the infrastructure team and other project teams requiring their services. This individual must be able to understand the impact of co-ordinating multiple development and maintenance database regions/application versions simultaneously. Further, this individual must co-ordinate planning for region creations, refreshes, data loads, etc. as required to meet project deadlines and ever-changing conditions/requirements. This individual will work directly with Development, Testing, Training, Data Readiness and other project groups to provide and manage the available databases and applications required to support all aspects of the BRIDGES initiative. Multi-tasking capabilities, configuration management experience, project management experience, and an understanding of large-scale development efforts are required. This individual must possess great attention to detail and be able to determine when planned activities conflict or other repercussions can cause difficulty or require contingency planning.

System DBA

This team is responsible for the database instances, database system configuration and database maintenance for all Production Development, Testing, and Training environments. Tasks include: creation and configuration of database instances, disk space management, capacity planning, business resumption/disaster recovery, application of tuning improvements, efficient management of data/index files, server administration, shell scripting, system/database security and general system operations. This team also configures and administers the application server, load balancers, and web server components of the online application. Individuals on this team will be sought out for expertise, consultation and solutions by all project development groups. Required skill sets include: server administration, shell scripting, Java, SQL, and DBA expertise, including advanced database management and configuration knowledge.

Network/Development Environment Support (also Network/Maintenance Environment Support)

This team provides troubleshooting expertise related to the connectivity and user desktop environment of the BRIDGES application(s). Broad experience in network configurations, routers, firewalls, web load balancers, network capacity planning, etc. is required. Additional skills required are knowledge of Windows software products, Internet Explorer, Development environment, and relational databases. This team also provides desktop support for the developers on the project and is tightly connected to various DHS/DIT support groups (Desktop, DHS Network, DCO, Model Office, Technical Support, LAN support, etc.). Other responsibilities include administration of file servers used to support development efforts, assistance with build scheduling, backup of servers, and general assistance with application infrastructure issues. Members of this team will be dispatched to work “hot” issues requiring on-site troubleshooting and/or coordination of support efforts.

Data Modelling

This team is responsible for analysis through implementation of database change requests received from developers. The team is responsible for the tight control and integrity of the BRIDGES data model and all applicable standards and conventions. The team must be able to create the application database from the model and audit any instances for conformity. Expertise and experience in tuning and efficient database design is also a necessity and a main responsibility. Team members also participate greatly in seed data activities and have a broad understanding of the data values key to the application.

Data Loading, Data Utilities

This team works very closely with the Data Modelling team and often completes some of the same tasks (e.g., applying DDL changes). The focus of this team’s activities is on the co-ordination, loading and configuration management of seed (control) data (data used by the application to control functionality, drop-downs, system values, etc.). Members of this team will have experience with SQL, RDBMS, DDL and the BRIDGES seed data/system tables. Some BRIDGES application knowledge will be needed to reconcile value problems, especially with user/security setup in the application security tables. This team is an integral part of database creation/refreshes and is the key source for populating the various areas used by Testing, Development, Training, etc. Data reduction/extraction programs are created, maintained and executed by this team to produce reduced databases for testing and/or demonstration purposes not requiring full Production data. This team will also have a key role in Implementation, especially data conversion activities that result in new system values merging with current Production values. Ability to multi-task and manage/coordinate many simultaneous environments for multiple concurrent development and maintenance releases is critical.

Batch Support/Scheduling

This team will provide primary support for nightly execution of Production Batch. Members of this team will also provide system expertise and have advanced knowledge of the batch programs and system interfaces. Team members will apply expertise (as first line response) to resolve batch failures requiring data correction or other situations requiring action to restart/resume processing (such as tactical index creation). Knowledge of the application, its historical beginnings and usage in the local offices is expected, in addition to expertise as a DBA. The team also manages the schedulers and has expertise in the tools. The team will also provide valuable input into batch performance and tuning, as well as provide Development and Maintenance teams with timing information and recommendations. The team assists and participates in performance improvement efforts and new release planning to advise on batch topics and the batch window.

Remedy Processing, Documentation, Administrative Support, Impact Analysis Tool

This role is intended to provide a single point of contact for Remedy tickets assigned to the project team. Also, when specific documentation (such as procedures, standards, audit responses, etc.) are required, team members gather, create or coordinate that documentation. General administrative support is also provided and encompasses the maintenance of on-call schedules and other team communication/coordination. The team also assumes responsibility to develop and maintain the in-house impact analysis tool (SQL, Java, and general BRIDGES application knowledge required).

Web Tools Support

This role is intended to provide the BRIDGES Program Office with tool support (specifically PCO Web tools) as well as the integration of infrastructure tools, applications and utilities with the framework of the BRIDGES Program Office suite of tools. A DIT standard set of project control tools and processes will be used to monitor and control all BRIDGES work. As a result, this standard set of tools will be established for the BRIDGES environment. This individual will perform this task and provide ongoing direction regarding improvements to tools and/or new tool creation. Knowledge of servers, RDBMS, Crystal Reports, Cold Fusion, IIS, Visual Basic, Visual InterDev, Active Server Page, HTML and general web concepts is required. Other tools supported include: Configuration Tracker, Infrastructure Request / Information system, Remedy reports (Crystal Reports from Remedy Oracle DB).

The contractor will staff a project team that possesses talent and expertise in the fields of schedule control and technical control.

The designated key personnel for whom the contractor has submitted and agreed to are:

- Project Control Office Manager – Wilbur Mahoney
- Project Release Managers Brian Culliton
- Infrastructure Team Manager Arthur Kurtze
- System DBA – Yi-Ying Tsang

Other staff to be provided are:

- Project Schedulers
- Workflow Coordinator
- Configuration Management Members
- Application Architecture Team Members
- Environment Planning & Preparation Team Members
- Network Environment Support Team Members
- Data Modeler
- Data Loading/Data utilities Team Members
- Batch Support/Batch Scheduling Team Members
- Remedy Processing Documentation Impact Analysis Tool/Administrative Support Team Members
- Web Tools Support Team Member

The PCO manager will oversee and direct PCO & Infrastructure staff by scheduled assignment. Effort hours will be collected weekly for each staff member by assigned task in the project schedule. Resource leveling will efficiently utilize staff during the course of the work week.

The contractor will create and maintain a staffing plan that balances the resource needs of the project against the skill profiles of available personnel. This plan will be refined in collaboration with the State. A resource plan will identify specific personnel assigned, project deliverables, will incorporate hour allocations per week, vacation schedules, and holiday assumptions. After the initial staffing plan is approved, the PCO will monitor actual resources allocations against the plan by applying weekly time tracking output to the project schedule. If the resource plan indicates a significant shift from the existing staff levels or skill sets, the contractor will develop a training plan addressing resource and skill set ramp up time.

State provided staff, which will augment the contractor employees will be valued team members and full participants in all appropriate BRIDGES activities. Any staff issues will be worked out between the PCO Manager and the Bridges Program Manager.

The contractor will prepare a monthly status report, which will be submitted along with a billing invoice that provides:

- Accomplishments, including tasks worked on and completed;
- Effort hours expended, effort hours expected, and cumulative effort hours to date; and
- Funds expended for the month, as well as cumulative funds expended

If the contractor determines that a non-Key Personnel change is needed, it will submit notification, including the reason, to the Program Manager. The PCO Manager will work with the BRIDGES Program Manager to ensure that all commitments and deliverables are achieved without disruption. The contractor understands that Key Personnel are critical and agrees that, to maintain the continuity of the project, key personnel will not be removed or reassigned without the State's prior written approval.

The contractor will assess project-specific skills and the knowledge that each resource requires to perform its appointed function. The resulting training plan will emphasize a self-paced review of existing project process and tool documentation and provide extensive on-the-job coaching with an experienced mentor. Training will take place throughout the initiation phase, beginning with project orientation. The contractor will utilize formal training, hands-on experience, and value-added sessions to reinforce critical project-specific skills. Value-added sessions will bring in lecturers to explain best practices and approaches, often from outside the project. Mentoring of the contractors and State staff will continue over the life of the contract. Along with the job-specific training, this knowledge transfer period will include overviews of the PCO toolset, the PCO process set, and the BRIDGES project. The most critical component of the training is the development and execution of the PCO initiation plan itself. Through this effort, the contractor will be able to provide the State with hands-on, real-life experience with all of the components of the PCO.

When the State exercises its option to assume or transfer ownership of the PCO activities, the contractor will support the State-led 90-day transition period. During this transition period, the contractor will transfer ownership of the project-specific tools and process sets to the team designated by the State. The contractor will support the State's training plan, providing self-paced review of existing project process and tool documentation and extended on-the-job training with an experienced mentor. Training will take place throughout the closedown phase. As needed, we will utilize formal training and value-added sessions to reinforce critical project-specific skills. Along with the job-specific training, this knowledge transfer period will include overviews of the PCO toolset, the PCO process set, and the BRIDGES project. The contractor will participate in assessing the success of the knowledge transfer and identify areas for ongoing improvement.

If the State's needs for knowledge transfer conflict with the contractor's daily operational contractual obligations to the BRIDGES project, the contractor will work with the State to balance these needs in the most appropriate manner possible.

1.202 STATE STAFF, ROLES, AND RESPONSIBILITIES

As stated earlier, it is anticipated that 4-8 state staff will be added to various areas of the PCO. Their functions will vary as skill sets are learned and enhanced. It is the State's intent that by project completion that the contractor will transfer the knowledge and skills required to operate and manage the PCO to State staff.

1.203 OTHER ROLES AND RESPONSIBILITIES

The contractor will utilize as many State processes as possible. With that in mind, some resources within both DHS business units and DIT may be needed to understand current processes in place. These staff may be utilized for short periods of time to help PCO staff understand applicable processes and procedures.

1.3 Project Plan

1.301 METHODOLOGY AND APPROACH

1.302 REPORTS

The contractor will provide a monthly status report for all PCO and Infrastructure resources assigned to the BRIDGES project must be submitted to the BRIDGES Program Manager throughout the life of this project. This report may be submitted with the billing invoice. Each monthly status report must contain the following:

1. Hours. Indicate the number of hours expended during the month and the cumulative total to date for the project.

2. Accomplishments. Indicate what was worked on and what was completed during the current reporting period.

3. Funds. Indicate the funds expended during the past month, and the cumulative total to date for the project.

All reports and deliverables will be delivered to the BRIDGES Program Manager, or designee, and must be inspected for accuracy and adequacy prior to delivery.

1.4 Project Management

1.401 ISSUE MANAGEMENT

1.402 RISK MANAGEMENT

Risk management generally involves (1) identification of the risk, (2) assigning a level of priority based on the probability of occurrence and impact to the project, (3) definition of mitigation strategies, and (4) monitoring of risk and mitigation strategy.

1.403 CHANGE MANAGEMENT

1.5 Acceptance

1.501 CRITERIA

A monthly review of Statement of Work (SOW) performance by the Program Manager will determine acceptance. The Program Manager and the contractor's PCO Manager will mutually agree upon delivery dates for specific processes and other output, and these will be added to the BRIDGES project schedule. The contractor's PCO Manager will be held **accountable** to these deliverables in a similar manner as the Development and Implementation vendor, State staff, and others are held accountable for their project schedule tasks.

1.502 FINAL ACCEPTANCE

Signoff (approval) of the Program Manager for the services rendered each month will constitute final acceptance.

1.6 Compensation and Payment

State shall pay Contractor a monthly amount based on the staffing category, number of staff in that staffing category, and the monthly bid amount specified in the vendor Price Proposal. Performance of all the activities specified in the SOW, signed off monthly by the Program Manager, will constitute compensation be made for those services.

1. All prices/rates will be firm for the duration of the Contract. No price changes will be permitted.

   The State will provide necessary on-site office accommodations with necessary equipment (PC, printer and copier) access and privileges granted for data access.

   In the event it is necessary for contractual staff to travel for this project, the project manager must obtain prior approval. Travel charges will be reimbursed at current state-authorized rates as outlined by DMB guidelines and must be accompanied by actual receipts. Travel time will not be reimbursed.

   The State requires all Contractor staff to perform all work for the BRIDGES project on site at the BRIDGES project office located at the Grand Tower Building, 235 S. Grand Ave. in Lansing, MI. Occasional off-site work may be permitted if the State agrees in writing prior to the performance of such off-site work. The State will provide physical workspace for all Contractor staff at the Grand Avenue Facility. Included in this workspace are basic office furniture, telephone for local calls, and a PC configured to meet State requirements. In some instances, Contractor staff shall be required to share a cubicle and telephone. In all instances, each individual Contractor staff person shall be provided a PC and shall not be required to share a PC. The State will not supply parking, cell phones or pagers as part of this contract for the contractor's staff.

Per the Pricing Tables in Appendix K, compensation and payment for the commodities and services required by this contract include:

- Hardware and Software: Prices quoted in the Vendor's price proposal (Table 1) are for purposes of evaluation only. The State recognizes that IT pricing fluctuates rapidly. The State will pay fair market price for proposed hardware and/or software at the time the purchase is made, 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 Vendor.

- Development and Implementation – Release 1.0: fixed price quoted in Vendor's price proposal (Table 2). 30% paid upon approval of "Deliverable Package A", 30% paid upon User Acceptance Test (UAT) approval, and remainder (40%) paid upon successful implementation of Release 1.0 statewide. ***No payment shall be made prior to October of 2006 for this work.***

  "Deliverable Package A" consists of the following:

Deliverable	**RFP Reference**
Technical Environments – Experimental, Development, Integration, QA Testing, UAT Testing, Conversion, and Staging	Activity 1, Task 3
Release 1.0 Technical Designs	Activity 2, Task 3
Release 1.0 Business Designs	Activity 2, Task 3
Release 1.0 Conversion Plan	Activity 4, Task 1
Release 1.0 Training Plan / Training Needs Analysis	Activity 4, Task 2
Master (Implementation) Plan Template (Regional Rollout Plans)	Activity 4, Task 7

- Development and Implementation – Release 2.0: fixed price quoted in Vendor's price proposal (Table 2). 50% paid upon approval of "Deliverable Package B", with remainder (50%) paid upon successful implementation.

  "Deliverable Package B" consists of:

Deliverable	RFP Reference
Disaster Recovery Plan	Activity 1, Task 2
Release 2.0 Technical Designs	Activity 2, Task 3
Release 2.0 Business Designs	Activity 2, Task 3
Release 2.0 Conversion Plan	Activity 4, Task 1

- Development and Implementation – Release 3.0: fixed price quoted in Vendor's price proposal (Table 2). 50% paid upon approval of "Deliverable Package C", with remainder (50%) paid upon successful implementation.

"Deliverable Package C" consists of:

Deliverable	RFP Reference
Release 3.0 Technical Designs	Activity 2, Task 3
Release 3.0 Business Designs	Activity 2, Task 3

- Ongoing Production Support (Maintenance): fixed monthly prices quoted in Vendor's price proposal (Table 3). Paid monthly.

- System and Service Enhancements: firm, fixed hourly rates quoted in Vendor's price proposal (Table 4) based on actual hours expended on completed work. Paid upon successful implementation of the enhancement.

1.7 Reserved

Article 2 – General Terms and Conditions

2.0 Introduction

2.001 GENERAL PURPOSE

The Contract is for the BRIDGES Program Management Office (PMO) for the State of Michigan. Orders will be issued directly to the Contractor by DIT on the Purchase Order Contract Release 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. 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: Joann Klasko
2nd Floor, Mason Building
P.O. Box 30026
Lansing, Michigan 48909
(517) 241-7233
klaskoj@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 four (4) years and will commence with the issuance of a Contract. This will be approximately October 1, 2005 through September 30, 2009.

Option. The State reserves the right to exercise one (1) one-year option, 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 30 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, vendor 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 (FIOA) 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 (CWHSAA) 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 Vendor/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, nothing in this Contract shall require 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 vendor warrants that all software for which the vendor 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://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. Vendors 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 vendor requires training on the methodology, those costs shall be the responsibility of the vendor, 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

Vendors 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 vendors 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.

(If the solution is to be hosted on the michigan.gov hosted environment, then the application may need to be compliant with WebSphere, or need to be evaluated for compatibility with WebSphere.)

2.105 PERFORMANCE AND RELIABILTIY EVALUATION (PARE)

Reserved.

2.106 PREVAILING WAGE

The rates of wages and fringe benefits to be paid each class of individuals employed by the Contractor, its subcontractors, their subcontractors, and all persons involved with the performance of this contract in privity of contract with the Contractor shall not be less than the wage rates and fringe benefits established by the Michigan Department of Consumer and Industry Service, Bureau of Safety and Regulation, Wage/Hour Division schedule of occupational classification and wage rates and fringe benefits for the local where the work is to be performed. The term Contractor shall include all general contractors, prime contractors, project managers, trade contractors, and all of their contractors or subcontractors and persons in privity of contract with them.

It is understood that the trades omitted shall also be paid not less than the wage rate and fringe benefits prevailing in the local where the work is to be performed. The Contractor's rates for this Contract will be included as a part of the schedule incorporated herein.

2.107 PAYROLL AND BASIC RECORDS

Payrolls and basic records relating to the performance of this contract shall be maintained by the Contractor during the course of the work.

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

Vendor 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.

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 POSSIBLE PERFORMANCE-BASED PAYMENTS (Actual performance rendered)

Reserved.

2.205 ELECTRONIC PAYMENT AVAILABILITY

Electronic transfer of funds is available to State contractors. Vendors are encouraged to 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, and with its own organization, 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 Contractor 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 subcontractor's performance under the 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. 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.

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.

Bidder 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 vendor viewing upon request to the Contract Administrator.

2.305 INDEMNIFICATION

General 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 two times the value of the Contract or $200,000 which ever is higher. The foregoing limitation of liability 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; to claims covered by other specific provisions of this Contract calling for liquidated damages; to Contractor's Patent/Copyright Infringement indemnification obligations as described in 2.305; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

In no event will the measure of damages payable by EDS include, nor will EDS be liable for, any amounts for loss of income, profit or savings or indirect, incidental, consequential, exemplary, punitive or special damages of any party, including third parties, even if such party has been advised of the possibility of such damages in advance.

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 the 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 90 days 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.

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.

2.313 PROPRIETARY RIGHTS

Ownership of Work Product by the State.

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

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:

Patty Bogard
Department of Information Technology
Contracts and Procurement Services
535 W. Allegan Street 235 S. Grand Avenue Suite 914
Lansing, MI 48913
517-335-4051-bogardp@michigan.gov

2.402 PERFORMANCE REVIEWS

Acquisition Services in conjunction with the DIT 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, including Federal agencies, 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, 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. THE WARRANTIES OF THE CONTRACTOR SET FORTH IN THIS CONTRACT ARE IN LIEU OF ALL OTHER WARRANTIES AND THE CONTRACTOR EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

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. 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.

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 licensed 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.

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. The notice shall include a copy of any ownership agreement or license that authorizes the Contractor to use the Third-party Software.

2.508 EQUIPMENT WARRANTY

Reserved

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 material 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 prior to 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, except as described herein, to the State, its departments, divisions, agencies, offices, commissions, officers, agents, and employees 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, 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, vendors, 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-deliminated 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

RESERVED

2.704 STOP WORK

1. 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, subject to Contractor’s approval. 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 MODIFIED SERVICES 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 vendor. 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, subject to Contractor's approval, 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.

2.806 Performance.

The obligations of Contractor set forth in this Agreement will be performed by Electronic Data Systems Corporation and its wholly-owned subsidiaries, and all references to EDS, Contractor, Vendor, offeror or bidder in this Agreement shall be deemed to include all such subsidiaries. EDS' wholly-owned subsidiary, EDS Information Services L.L.C., will be a party to the final contract.

2.9 All terms and conditions included in Article 3, as modified by Contractor's Proposal, are considered part of this contract.

a. Disclosure of Litigation.

Disclosure of Litigation:

Contractor must disclose any material criminal litigation, investigations or proceedings involving the Contractor (and each Subcontractor) or any of its officers or directors. In addition, each Contractor (and each Subcontractor) must notify the State of any material civil litigation, arbitration or proceeding which arises during the term of the Contract and extensions thereto, to which Contractor (or, to the extent Contractor is aware, any Subcontractor hereunder) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of Contractor or any Subcontractor hereunder; or (ii) a claim or written allegation of fraud against Contractor or, to the extent Contractor is aware, any Subcontractor hereunder by a governmental or public entity arising out of their business dealings with governmental or public entities. Any such litigation, investigation, arbitration or other proceeding (collectively, "Proceeding") must be disclosed in a written statement to the Contract Administrator within thirty (30) calendar days of its occurrence. Details of settlements which are prevented from disclosure by the terms of the settlement may be annotated as such. Information provided to the State from Contractor's publicly filed documents referencing its material litigation will be deemed to satisfy the requirements of this Section 24.3(a).
(b) Assurances. In the event that any such Proceeding disclosed to the State pursuant to this Section, or of which the State otherwise becomes aware, during the term of the Contract would cause a reasonable party to be concerned about:
(i) The ability of Contractor (or a Subcontractor hereunder) to continue to perform the Contract in accordance with its terms and conditions, or
(ii) Whether Contractor (or a Subcontractor hereunder) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in such Proceeding, which conduct would constitute a breach of the Contract or a violation of Michigan law, regulations or public policy, then Contractor shall be required to provide the State all reasonable assurances requested by the State to demonstrate that: (A) Contractor and/or its Subcontractors hereunder will be able to continue to perform the Contract and any Statements of Work in accordance with its terms and conditions, and (B) Contractor and/or its Subcontractors hereunder have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in such Proceeding.

3.307 Contractor's Liability Insurance.

Liability 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. The Contractor also agrees to provide evidence that all applicable insurance policies contain a waiver of subrogation by the insurance company.

All insurance coverage's 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 herein specified or required by law, whichever is greater. All deductible amounts for any of the required policies are subject to approval by the State.

The State reserves the right to reject insurance written by an insurer the State deems unacceptable.

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. The certificate must be on the standard "accord" form. The contract or purchase order no. Must be shown on the certificate of insurance to assure correct filing. All such Certificate(s) are to be prepared and submitted by the Insurance Provider and not by the Contractor. All such Certificate(s) shall contain a provision indicating that coverage's afforded under the policies WILL

NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY (30) days prior written notice, except for 10 days for non-payment of premium, having been given to the Director of Acquisition Services, Department of Management and Budget. Such NOTICE must include the CONTRACT NUMBER affected and be mailed to: Director, Acquisition Services, Department of Management and Budget, P.O. Box 30026, Lansing, Michigan 48909.

The Contractor is required to provide the type and amount of insurance checked (þ) below:

þ 1. Commercial General Liability with the following minimum coverage's:

$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 INSUREDS on the Commercial General Liability policy.

þ 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 INSUREDS on the vehicle liability policy.

þ 3. Worker's disability compensation, disability benefit or other similar employee benefit act with minimum statutory limits. NOTE: (1) If coverage is provided by a State fund or if Contractor has qualified as a self-insurer, separate certification must be furnished that coverage is in the state fund or that Contractor has approval to be a self-insurer; (2) Any citing of a policy of insurance must include a listing of the States where that policy's coverage is applicable; and (3) Any policy of insurance must contain a provision or endorsement providing that the insurers' rights of subrogation are waived. 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. For contracts providing temporary staff personnel to the State, the Contractor shall provide an Alternate Employer Endorsement with minimum coverage of $1,000,000.

þ 5. Employers liability insurance with the following minimum limits:

$100,000 each accident
$100,000 each employee by disease
$500,000 aggregate disease

¨ 6. Professional Liability Insurance (Errors and Omissions coverage) with the following minimum coverage:

o $1,000,000 each occurrence and $3,000,000 annual aggregate
o $3,000,000 each occurrence and $5,000,000 annual aggregate
o $5,000,000 each occurrence and $10,000,000 annual aggregate

APPENDIX A
PCO PRICING SHEETS

TABLE 1

TOTAL PROJECT PRICE INFORMATION

"NOT TO EXCEED" PRICE PROPOSED FOR EACH TASK FOR 4-YEAR CONTRACT

TASKS 1 AND 2 COVER BASELINE PCO SERVICES FOR THE 4-YEAR CONTRACT. TRANSFER TOTAL PRICE FOR 4-YEAR CONTRACT FOR EACH TASK FROM TABLES 2 AND 3.

1.	Task 1: Project Management Control	$4,610,880.00
2.	Task 2: Technical Control	$10,819,200.00
3.	Statement of Work Hours (To be used as needed)	$6,396,160.00
PRICE PROPOSED FOR TOTAL 4-YEAR PROJECT		$22,000,000.00

TABLE 2

TASK 1 PROJECT MANAGEMENT CONTROL

MONTHLY "NOT TO EXCEED" PRICE FOR EACH STAFFING CATEGORY MULTIPLIED BY NUMBER OF FTEs FOR EACH STAFFING CATEGORY

TRANSFER TOTAL PRICE FOR 4-YEAR CONTRACT TO TABLE 1.

Staffing Category	"Not to Exceed" Monthly Price	FTEs	"Not to Exceed" Total Price
PCO Manager	**$24,000.00**	**1**	**$1,152,000.00**
Project Release Manager	**$22,400.00**	**1**	**$1,075,200.00**
Project Scheduler	**$17,760.00**	**1**	**$ 852,480.00**
Project Scheduler	**$17,760.00**	**1**	**$ 852,480.00**
Workflow Coordinator	**$17,760.00**	**1**	**$ 852,480.00**
TOTAL MONTHLY PRICE FOR TASK 1			**$ 99,680.00**
TOTAL PRICE FOR 4-YEAR CONTRACT FOR TASK 1 (TRANSFER TO TABLE 1)			**$4,784,640.00**

TABLE 3

TASK 2 TECHNICAL CONTROL

MONTHLY "NOT TO EXCEED" PRICE FOR EACH STAFFING CATEGORY MULTIPLIED BY NUMBER OF FTEs FOR EACH STAFFING CATEGORY

TRANSFER TOTAL PRICE FOR 4-YEAR CONTRACT TO TABLE 1.

Staffing Category	"Not to Exceed" Monthly Price	FTEs	"Not to Exceed" Total Price
Infrastructure Team Manager	**$24,000.00**	**1**	**$1,152,000.00**
Configuration Management Team Member	**$17,760.00**	**1**	**$ 799,200.00**
Application Architecture Team Member			
b. Oracle	**$21,600.00**	**1**	**$ 972,000.00**
Environment Planning and Preparation Team Member	**$18,880.00**	**1**	**$ 849,600.00**
System DBA Support Team Member			
b. Oracle	**$21,600.00**	**1**	**$ 972,000.00**
Network Environment Support Team Member	**$16,000.00**	**1**	**$ 720,000.00**
Data Modeler			
b. Oracle	**$21,600.00**	**1**	**$ 972,000.00**
Data Loading/Data Utilities Team Member			
b. Oracle	**$16,000.00**	**1**	**$ 720,000.00**
Batch Support / Batch Scheduling Team Member			
b. Oracle	**$17,600.00**	**1**	**$ 792,000.00**
*Additional Batch Support/Batch Scheduling Team Member	**$17,600.00**	**2**	**$1,584,000.00**
Remedy Processing Documentation Impact Analysis Tool / Administrative Support Team Member			
b. Oracle	**$14,400.00**	**1**	**$ 518,400.00**

Web Tools Support Team Member	**$16,000.00**	**1**	**$ 768,000.00**
TOTAL MONTHLY PRICE FOR TASK 2			**$240,640.00**
TOTAL PRICE FOR 4-YEAR CONTRACT FOR TASK 2 (TRANSFER TO TABLE 1)			**$10,819,200.00**

TABLE 4

STATEMENT OF WORK INFORMATION

HOURLY RATES FOR EACH STAFFING CATEGORY TO BE USED AS FIXED RATES FOR RESPONSES TO STATEMENTS OF WORK (DRAWN FROM ESTIMATED 90,000 HOURS, 30,000 HOURS PER YEAR)

HOURLY RATES ARE FIXED FOR DURATION OF 4-YEAR CONTRACT

Staffing Category	Fixed Hourly Rate(Not to Exceed)
1. Project Control Office Manager	**$178.00**
2. Project release mgr	**$168.00**
3. Project scheduler	**$132.00**
4. Workflow Coordinator	**$132.00**
5. Infrastructure Team Mgr	**$178.00**
6. Bridges configuration mgt	**$132.00**
7. Application Architecture	**----------**
b. Oracle	**$160.00**
8. Environmental planning and Preparation	**----------**
9. System DBA	**----------**
b. Oracle	**$160.00**
10. Network Environment Support	**$119.00**
11. Data modeling	**----------**
b. Oracle	**$160.00**
12. Data loading, data utilities	**----------**
b. Oracle	**$119.00**
13. Batch support scheduling	**----------**
b. Oracle	**$130.00**
14. Remedy Processing/Documentation, Impact Analysis/Tool Admin Support Team Member	**----------**
b. Oracle	**$107.00**
15. Web Tool Support Team Member	**$119.00**
16. Senior or Expert Analyst	**$150.00**
17. Analyst	**$109.00**
18. Senior Programmer/Analyst	**$150.00**
19. Programmer/Analyst	**$150.00**
20. Senior or Expert Programmer	**$150.00**
21. Programmer	**$109.00**
22. Database Administration Services	**$195.00**

APPENDIX B
PCO CORPORATE REFERENCE FORM

Applies to prime contractor only. Provide a minimum of three (3) references.
Provide <u>all</u> information requested.

VENDOR:

CONTRACTOR NAME: _____

ADDRESS: _____

_____

TITLE OF REFERENCED PROJECT: _____

MANAGER OF REFERENCED PROJECT: _____
NAME

_____
TITLE PHONE NUMBER

<u>REFERENCE</u>:

FIRM/AGENCY NAME: _____

ADDRESS: _____

_____

CONTACT PERSON: _____
NAME

_____
TITLE PHONE NUMBER

_____
EMAIL ADDRESS

PROJECT DATES: _____
STARTED COMPLETED

PROJECT DESCRIPTION *(Provide additional information on a separate sheet if needed)*

Objectives: _____
_____
_____
_____
Client Benefit: _____
_____
_____
_____
Methodology used:
_____
_____
_____
_____
Contractor role(s) and service(s) provided:
_____
_____
_____
_____

PROJECT DATA –

# of Staff Supervised _____
IT characteristics (client/server, GUI, etc):
_____
_____
# of Users: _____
# of Records: _____
# of Workstations: _____
Database Size: _____
# of Locations: _____
DBMS Used: _____
Servers used:
_____
Network type:
_____

PROJECT COMPLETION

ESTIMATED
Total Cost: _____
Start Date: _____
Completion Date: _____

ACTUAL –
Total Cost: _____
Start Date: _____
Completion Date:_____

Project competitively bid (yes or no): _____
Project Fixed Price? (yes or no):_____

PROJECT EVALUATION

Project terminated prior to successful conclusion (yes or no): _____
Total project cost increased by more than 10% (yes or no): _____
Delivery schedule extended by more than 15% (yes or no): _____
Explanation (for any items marked yes):

_____
_____
_____
_____

APPENDIX C

PCO PERSONAL REFERENCES FORM

Provide three (3) references for <u>each</u> key staff person. Provide all information requested.

KEY STAFF

NAME OF EMPLOYEE: _____

KEY STAFF POSITION: _____

EMPLOYER: _____

<u>REFERENCE</u>

CONTACT PERSON: _____
NAME

_____
TITLE PHONE NUMBER

ADDRESS: _____

_____

_____
EMAIL ADDRESS

PROJECT DATES: _____
STARTED COMPLETED

WORKING RELATIONSHIP
WITH STAFF MEMBER
(SUPERVISOR, COWORKER, etc.) _____

PROJECT DESCRIPTION: _____

_____

_____

_____

RESPONSIBILITY AND ROLE
IN REFERENCED PROJECT _____

APPENDIX D
POSITION CLASSIFICATIONS

Select from the following list when completing Tables 1-4. Add position classifications if necessary.

Project Control Office (PCO) Manager

Critical experiences and skills required:
- A history of establishing and managing Project Control Offices in a multi-vendor environment.
- 5 years experience managing projects with a staff of 60 or more on large system development projects.
- 5 years experience with one or more structured development methodologies.
- A strong understanding of the SEI Capability Maturity Model and experience implementing Level 3 compliant (minimum) to Level 5 compliant (preferred) process sets.

Project (Release) Manager

Critical experiences and skills required:
- A history of working within Project Control Offices in a multi-vendor environment.
- 3 years experience managing projects with a staff of 60 or more on large system development projects.
- 3 years experience with one or more structured development methodologies.
- A strong understanding of the SEI Capability Maturity Model and experience implementing Level 3 compliant (minimum) to Level 5 compliant (preferred) process sets.
- Expertise in defining, implementing and analyzing metrics as relevant to application management.

Project Scheduler

Critical experiences and skills required:
- A history of working within a Project Control Office.
- 1 year experience managing projects on system development projects.
- 1 year experience with one or more structured development methodologies.
- An understanding of the SEI Capability Maturity Model and experience implementing Level 3 compliant (minimum) to Level 5 compliant (preferred) process sets.
- Experience in tracking and analyzing metrics as relevant to application management.

Work Flow Coordinator

Critical experiences and skills required:
- A history of working within Project Control Offices.
- 1 year experience managing projects on system development projects.
- 1 year experience with one or more structured development methodologies.
- An understanding of the SEI Capability Maturity Model and experience implementing Level 3 compliant (minimum) to Level 5 compliant (preferred) process sets.
- Experience in defining and managing Work Approval processes.

Infrastructure Team Manager

Critical experiences and skills include:
- 5 years of management experience including three very large database projects.
- 3 years of technical leadership experience, directly contributing to production software
- 2 years experience managing projects with processes conforming with SEI CMM level 3 and preferably level 5

BRIDGES Configuration Management

Critical experiences and skills required:
- 3 years experience with configuration management, including PVCS and version control integrated within a software development life cycle
- 2 years in scripting build processes for large application, including Unix scripting, Dos scripting, and SQL scripting for performing database modifications/updates.
- 1 year of experience with Java based database applications and Java build tools such as Ant.

Application Architecture

Critical experiences and skills required for each skill set:

- 6 years of experience working with web based technologies and applications
- 5 years of experience working with SQL and relational databases
- 4 years of experience in system tuning and optimization
- 4 years of experience Java and JDBC
- 3 years of experience with J2EE architectures and Enterprise Java Beans
- 2 years of experience in a technical leadership role

DB2: The application architect must have a thorough knowledge of DB2 through version 8.1, including DB2 specific SQL syntax and optimisation techniques, SQL stored procedure language, the EXPLAIN command, etc.

Oracle: The application architect must have a thorough knowledge of Oracle up through version 9i, including Oracle specific SQL syntax and optimisation techniques, PL/SQL, proper use of stored procedures, packages, and objects, and oracle utilities such as tkprof, DBMS_STATS, explain plan output, etc.

Environment Planning and Preparation

Critical experiences and skills include:

- 3 years of experience with project management tools and the software development life cycle
- 2 years in a team leadership position
- 2 years working with large systems with multiple environments used for different purposes

System DBA

Critical experiences and skills required for each skill set:
- 4 years of experience working as a system DBA with a major RDBMS system
- 3 years of experience with system administration and shell scripting
- 2 years of experience working with Java based applications
- 1 year working as a senior or lead database administrator for a large database system

Oracle: Through version 9i, including real application clusters (RAC) and other high availability strategies.

DB2: Through version 8.1, including high availability disaster recovery (HADR) and other high availability strategies.

Network/Development Environment Support (also Network/Maintenance Environment Support)

Critical experiences and skills include:
- 4 years of experience in network administration, including switches, hubs, routers and servers
- 3 years of system administration, including a large number of PCs using centralized servers
- 2 years of troubleshooting, identifying network, system, and configuration problems.

Data Modelling

Critical experiences and skills required for each skill set:
- 3 years of experience working as a data modeller, using an industry standard tool such as PowerDesigner, Erwin, and Oracle Designer.
- 1 year of experience working as a lead data modeller or database architect.

Oracle: Through version 9i.

DB2: Through version 8.1.

Data Loading, Data Utilities

Critical experiences and skills required for each skill set:
- 3 years of experience using ANSI SQL on a major RDBMS
- 2 years of experience loading large amounts of data into database for testing and data conversion purposes
- 1 year of experience preparing smaller testing subset of data from a larger production database.

Oracle: Through 9i, including SQL*Loader, Export, Import, PL/SQL optimizations for loading data, and Oracle specific SQL syntax.

DB2: Through 8.1, including DB2 load, load from cursor, export, and import utilities, and DB2 specific SQL syntax.

Batch Support/Scheduling

Critical experiences and skills required for each skill set:
- 3 years of experience using ANSI SQL on a major RDBMS
- 2 years of experience with a batch scheduling tools such as TNG Scheduler or Autosys.
- 2 years of troubleshooting and diagnosing batch job failures

DB2: Through version 8.1, SQL Stored Procedure Language, EXPLAIN utilities, db2pd tool, db2trc, and other DB2 performance monitoring techniques.

Oracle: Through version 9i, PL/SQL, EXPLAIN PLAN, session tracing, DBMS_STATS, and other performance monitoring tools such as Oracle Enterprise Manager.

Remedy Processing, Documentation, Administrative Support, Impact Analysis Tool

Critical experiences and skills required for each skill set:
- 3 years of experience working with Remedy
- 2 years of experience assisting in project management, including scheduling and ticket tracking
- 2 years of experience performing impact analysis on system artefacts with respect to system change requests

DB2: Through version 8.1, SQL Stored Procedure Language

Oracle: Through version 9i, PL/SQL

Web Tools Support

Critical experiences and skills include:
- 3 years of experience with HTML and deploying content on the web
- 2 years of experience with deploying Visual Basic applications on the web using IIS and Active Server Pages or .NET.
- 1 year of experience with Cold Fusion

Senior or Expert Analyst

Under minimal supervision the Senior Analyst performs duties and has responsibilities as an expert in the particular area of work assigned. As a resource person, the senior analyst resolves problems related to the work for staff assigned to the project. Duties include responding to requests for information regarding the particular area of expertise, solving problems related to the work and reviewing the processes involved in the work to ensure efficiency and quality in the work area. The Senior Analyst may also be asked to perform the duties of an Analyst depending on the assignment. **The senior position requires three to five years experience in application development analysis and the Expert position requires six to eight years of up to date current experience.**

Analyst

Shall provide analysis of user needs to determine functional and cross-functional requirements. Performs functional allocation to identify required tasks and their interrelationships. Identifies resources required for each task. Designs architecture to include the software, hardware, and communications to support the total requirements and interfaces using an approved methodology and computer aided software engineering tools which will be determined by the procuring agency. Estimates software development costs and schedule. Ensures systems are compatible with applicable Agency and Statewide standards. **This position requires two to three years experience in application development analysis.**

Senior Programmer/Analyst

Takes a lead and expert role in tasks related to structured analysis, structured design, coding, testing, installation, documentation and maintenance of complex business or technical application computer programs on small to complex business systems. May act as troubleshooter/resource person. These tasks may be in addition to tasks performed by a programmer/analyst. **This position requires three to four years experience in application development programming/analysis.**

Programmer/Analyst

Shall include tasks related to structured analysis, structured design, coding, testing, installation, documentation and maintenance of complex business or technical application computer programs on small to complex business systems. These systems may or may not utilize telecommunications networks, database concepts and a variety of specialized and utility software facilities. Services may also include information engineering/case tools, participation in system design activity, development of project proposals and system program resolution. The offeror must document their area of expertise by hardware platform, operating system, programming languages, utilities, databases, networks, LANS telecommunications, etc. Such services shall be performed by personnel with experience in the appropriate platforms to match the specific procurement. **This position requires two to three years experience in application development programming/analysis**.

Senior or Expert Programmer

The employee within this functional level performs a full range of Information Systems Programmer assignments independently, in a full functioning capacity. Considerable independent judgment is required to carry out assignments that have significant impact on services or programs. Guidelines may be available, but require adaptation or interpretation to determine appropriate courses of action. **The senior level position requires three to four years experience in application development programming and the expert level five to eight years.**

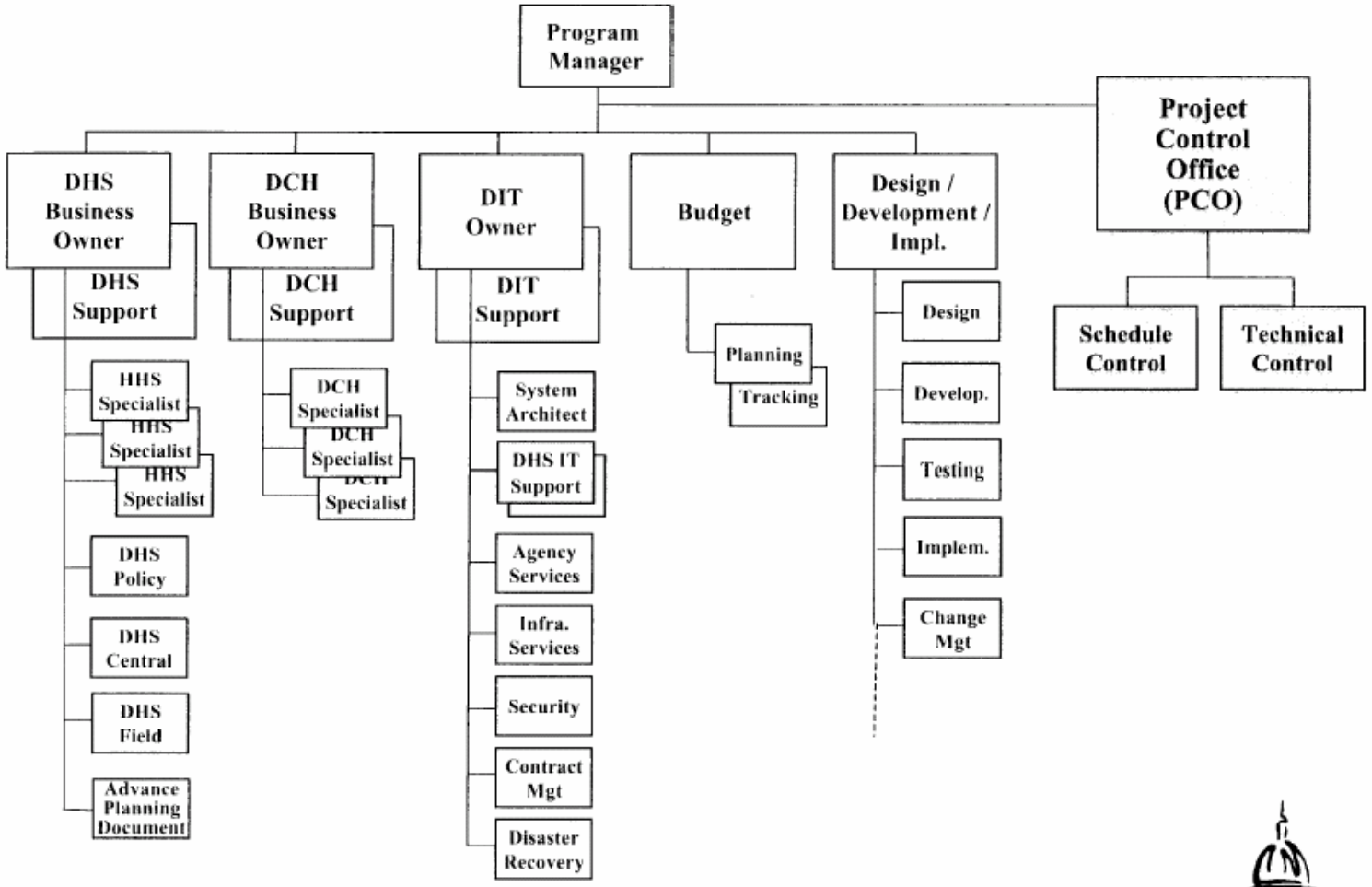
Programmer

Shall translate detailed design into computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required program documentation. Enhances and maintains software to specifications. The offeror must document their area of expertise by hardware platform, operating system, programming languages, utilities, databases, networks, LANs, telecommunications, etc. **This position requires one to two years experience in application development programming**.

Database Administration Services

Database Administration (DBA) services include the design, development, and maintenance of data base management systems. Specifically, DBA services may include: analysis of database requirements, data base generation, database modeling, performance monitoring and tuning, the development of subsystems employing the use of database utility software, problem resolution, installation of software and implementation of modifications and upgrades, and establishing procedures for effective database operation, control, and recovery. Other services may include database interfacing, integration, and replication. This would include the design, testing and implementation of interface modules between various database management systems and other file structures that would allow transparent access to "foreign" databases from a given database management system. The offeror must document their area of expertise by hardware platform, operating system, programming languages, utilities, databases, networks, LANs, telecommunications, etc. **This position requires two to three years experience in application Database Administration.**

Program Management Office (PMO)



Appendix F – PCO Web Tools

Tool	Purpose
Build Tracker	This tool is closely associated with the configuration management processes. Build Tracker enables the parameterized generation and scheduling of build scripts to eliminate errors and enhance flexibility. Furthermore, this tool includes post-build information and auditing capabilities. Build Tracker is an extension and integration of the configuration management framework, positioning the PCO Technical Control team to respond to ever-changing conditions with precise, predictable results. Access to this application is password-secured.
Configuration Tracker	This tool was a precursor to Build Tracker. The initial purpose of Configuration Tracker was to capture post-build reports automatically and parse the results into a manageable form for reporting, configuration item version management, and environment comparisons. Configuration Tracker is a critical tool for providing configuration management information to development, testing, and training personnel. Access to this application is password-secured.
Continuous Improvement Requests (CIRs) Tracker	This tool furnishes a mechanism for acquiring input from users of the PCO Web site. The improvement recommendations generated by this tool will continue to shape and improve the services provided through the PCO Web site. Access to this application is password-secured.
Issue Tracker	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 a project team about all events in the life cycle of an issue, risk, or change control. Access to this application is password-secured.
Infrastructure Request System	This tool is the main conduit between the development, testing and training teams and the PCO Technical Control team. This system provides request entry, assignment, status tracking, and automated e-mail notification features to propagate communication about events in each technical environment. The environment preparation and planning team uses this system constantly to generate many useful reports about the technical 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 are in place to make sure that only authorized requesters and gatekeepers can initiate activities in the controlled technical environments.
Load Tracker	Load Tracker displays the volume of users hitting each of the servers that support the production application, thereby enabling load balancing management. Other Load Tracker reports that document server performance, such as network disconnects, disseminate near-real-time information about the status of the application environment. Access to this

Tool	Purpose
	application is password-secured.
Project Tracker	Project Tracker is the repository of project scorecard (status) information. Milestones and associated information such as baseline date, anticipated completion date, and status are updated and reported in this tool, Access to this application is password-secured.
Report Tracker	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 broken down by project/sub-project, by deliverable, and by phase. Access to this application is password-secured.
Test Tracker	Test Tracker is the repository for the test scripts executed during the system and user acceptance test cycles. Test Tracker offers the capability to track test script progress and to identify areas with high concentrations of defects. Access to this application is password-secured.
Time Tracker	Time Tracker is driven by the Microsoft Project schedules maintained by the Schedule Control team. Using this tool, each staff member can view scheduled assignments, allocate effort applied, report completion, and estimate remaining work. Time Tracker includes a number of management reports that display effort applied and resource workload, broken down by staff member and by task. Access to this application is password-secured.
Ticket Tracker	Ticket Tracker enables project personnel to execute predefined Remedy reports. Many of these Remedy reports were designed to satisfy the needs of the Production Support “Triage team”, but additional reports can be incorporated as new needs are identified.