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 TECHNOLOGY, MANAGEMENT AND BUDGET **March 6, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CHANGE NOTICE No. 1
OF
CONTRACT NO. 071B1300209
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Deloitte Consulting LLP** **333 Bridge ST, N.W.** **Suite 700** **Grand Rapids, MI 49504** **Email: ujadhav@deloitte.com**	TELEPHONE (626) 664-7682 **Umesh Jadhav** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-3215 **Steve Motz**
Contract Compliance Inspector: Barb Suska 517-335-4067 **Bridges Maintenance and Support**	
CONTRACT PERIOD: From: **February 11, 2011** To: **February 10, 2015**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION:	

NATURE OF CHANGE(S):

Effective immediately, this contract is hereby CANCELED and replaced with 071B1300256 due to an error in the vendor Fein number.

AUTHORITY/REASON(S):

Per vendor and agency agreement and the approval of DTMB Purchasing Operations.

TOTAL REVISED ESTIMATED CONTRACT VALUE: $0.00

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 TECHNOLOGY, MANAGEMENT AND BUDGET **February 15, 2011**
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

NOTICE
OF
CONTRACT NO. 071B1300209
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Deloitte Consulting LLP** **333 Bridge ST, N.W.** **Suite 700** **Grand Rapids, MI 49504** **Email: ujadhav@deloitte.com**	TELEPHONE (626) 664-7682 **Umesh Jadhav** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-3215 **Steve Motz**
Contract Compliance Inspector: Barb Suska 517-335-4067 **Bridges Maintenance and Support**	
CONTRACT PERIOD: From: **February 11, 2011**	To: **February 10, 2015**
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
MINIMUM DELIVERY REQUIREMENTS **N/A**	
MISCELLANEOUS INFORMATION: **TOTAL ESTIMATED CONTRACT VALUE: $61,217,820.00**	

THIS IS NOT AN ORDER: This Contract Agreement is awarded on the basis of our inquiry bearing the ITB No. 071I1300001. Orders for delivery will be issued directly by the Michigan Department of Corrections through the issuance of a Purchase Order Form.

All terms and conditions of the invitation to bid are made a part hereof.

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 TECHNOLOGY, MANAGEMENT AND BUDGET
PURCHASING OPERATIONS
P.O. BOX 30026, LANSING, MI 48909
OR
530 W. ALLEGAN, LANSING, MI 48933

CONTRACT NO. 071B1300209
between
THE STATE OF MICHIGAN
and

NAME & ADDRESS OF CONTRACTOR **Deloitte Consulting LLP** **333 Bridge ST, N.W.** **Suite 700** **Grand Rapids, MI 49504** **Email: ujadhav@deloitte.com**	TELEPHONE (626) 664-7682 **Umesh Jadhav** CONTRACTOR NUMBER/MAIL CODE BUYER/CA (517) 241-3215 **Steve Motz**
Contract Compliance Inspector: Barb Suska 517-335-4067 **Bridges Maintenance and Support**	
CONTRACT PERIOD: From: **February 11, 2011** To: **February 10, 2015**	
TERMS **N/A**	SHIPMENT **N/A**
F.O.B. **N/A**	SHIPPED FROM **N/A**
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FOR THE CONTRACTOR:	**FOR THE STATE:**
Deloitte Consulting LLP Firm Name	Signature
Authorized Agent Signature	Name/Title
Authorized Agent (Print or Type)	Division
Date	Date

STATE OF MICHIGAN
Department of Technology, Management and Budget
Purchasing Operations

Maintenance and Support of DHS' Eligibility System: Bridges

Buyer Name: Steve Motz
Telephone Number: 517-241-3215
E-Mail Address: motzs@michigan.gov

Table of Contents

DEFINITIONS

Days	Means calendar days unless otherwise specified.
24x7x365	Means 24 hours a day, seven days a week, and 365 days a year (including the 366th day in a leap year).
Active Case	Means a file containing all information and documents pertaining to the case which received a public assistance benefit for at least one day during the time period.
Active Client	Means a person who received at least one public assistance benefit from the for a minimum of one day during the time period
Additional Service	Means any Services/Deliverables within the scope of the Contract, but not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Audit Period	See Section 2.110
Business Day	Whether capitalized or not, shall mean any day other than a Saturday, Sunday or State-recognized legal holiday (as identified in the Collective Bargaining Agreement for State employees) from 8:00am EST through 5:00pm EST unless otherwise stated.
Blanket Purchase Order	An alternate term for Contract as used in the States computer system.
Business Critical	Any function identified in any Statement of Work as Business Critical.
CDC	Acronym referencing the Child Development and Care program which provides payment for child care services for qualifying families when the parent, legal guardian or substitute parent is unavailable to provide the child care
Chronic Failure	Defined in any applicable Service Level Agreements.
Deliverable	Physical goods and/or commodities as required or identified by a Statement of Work
DTMB	Michigan Department of Technology Management and Budget
Environmentally preferable products	A product or service that has a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. Such products or services may include, but are not limited to, those that contain recycled content, minimize waste, conserve energy or water, and reduce the amount of toxics either disposed of or consumed.
Excusable Failure	See Section 2.244.
FAP	Acronym referencing the Food Assistance Program (Federal Supplemental Nutrition Assistance Program) which supplements the food purchasing power of low-income individuals and families
FIP	Acronym referencing the Family Independence Program which provides cash assistance to families with children and pregnant women
Hazardous material	Any material defined as hazardous under the latest version of federal Emergency Planning and Community Right-to-Know Act of 1986 (including revisions adopted during the term of the Contract).
Incident	Any interruption in Services.
ITB	A generic term used to describe an Invitation to Bid. The ITB serves as the document for transmitting the RFP to potential bidders
Key Personnel	Any Personnel designated in Article 1 as Key Personnel.
MA	Acronym referring to Medicaid which provides health care to children, families, and adults who meet certain eligibility requirements
New Work	Any Services/Deliverables outside the scope of the Contract and not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration.
Ozone-depleting substance	Any substance the Environmental Protection Agency designates in 40 CFR part 82 as: (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or (2) Class II, including, but not limited to, hydro chlorofluorocarbons

Post-Consumer Waste	Any product generated by a business or consumer which has served its intended end use, and which has been separated or diverted from solid waste for the purpose of recycling into a usable commodity or product, and which does not include post-industrial waste.
Post-Industrial Waste	Industrial by-products that would otherwise go to disposal and wastes generated after completion of a manufacturing process, but do not include internally generated scrap commonly returned to industrial or manufacturing processes.
Recycling	The series of activities by which materials that are no longer useful to the generator are collected, sorted, processed, and converted into raw materials and used in the production of new products. This definition excludes the use of these materials as a fuel substitute or for energy production.
Deleted – Not Applicable	Section is not applicable or included in this RFP. This is used as a placeholder to maintain consistent numbering.
Reuse	Using a product or component of municipal solid waste in its original form more than once.
RFP	Request for Proposal designed to solicit proposals for services
SDA	Acronym referencing the Refugee Assistance Program which provides temporary cash and medical assistance for eligible non-citizens
Services	Any function performed for the benefit of the State.
Source reduction	Any practice that reduces the amount of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment prior to recycling, energy recovery, treatment, or disposal.
State Location	Any physical location where the State performs work. State Location may include state-owned, leased, or rented space.
Subcontractor	A company Contractor delegates performance of a portion of the Services to, but does not include independent contractors engaged by Contractor solely in a staff augmentation role.
Unauthorized Removal	Contractor's removal of Key Personnel without the prior written consent of the State.
Waste prevention	Source reduction and reuse, but not recycling.
Waste reduction and Pollution prevention	The practice of minimizing the generation of waste at the source and, when wastes cannot be prevented, utilizing environmentally sound on-site or off-site reuse and recycling. The term includes equipment or technology modifications, process or procedure modifications, product reformulation or redesign, and raw material substitutions. Waste treatment, control, management, and disposal are not considered pollution prevention, per the definitions under Part 143, Waste Minimization, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended.
Work in Progress	A Deliverable that has been partially prepared, but has not been presented to the State for Approval.
Work Product	Refers to any data compilations, reports, and other media, materials, or other objects or works of authorship created or produced by the Contractor as a result of an in furtherance of performing the services required by this Contract.

Article 1 – Statement of Work (SOW)

1.000 Project Identification

1.001 Project Request

The State of Michigan (State), through the Michigan Department of Human Services (DHS), with assistance of the Michigan Department of Technology Management and Budget (DTMB), has issued this Contract for IT professional services to support and maintain the DHS' Eligibility system: Bridges.

The services to be provided include but are not limited to business requirements definition, documentation, validation and verification; applications support and maintenance to include design, development, Quality Assurance Testing, User Acceptance Testing support, application and interface support, in addition to modifications of the existing Bridges application.

1.002 Background

In 2004, the Department of Human Services (DHS), the Department of Community Health (DCH) and the Department of Technology, Management and Budget (DTMB) agreed that the multiple systems that supported eligibility and benefit determination for Michigan's cash assistance, medical assistance, food assistance, and child care assistance programs should be replaced with a single, integrated service delivery system (now known as Bridges). Several business and technical needs drove this decision.

In 2002 DHS had 3,892 eligibility staff allocated. In 2009 the number of allocated eligibility staff was reduced to 3,068. During this time, client demands for all services have increased due to the state of the Michigan economy. The average caseload size for eligibility staff has increased from 320 in 2002 to an average of 710 cases per worker in 2009. The Department of Human Services currently provides at least one public assistance program benefit to approximately 23% of the state's population.

The rising caseloads with fewer experienced staff required the state to replace three primary legacy systems which lacked the integration, consistency and functionality needed for efficient eligibility determination and ongoing caseload processing. To reduce the development time needed to implement a new eligibility system, the state determined that it would modify a transfer solution from another state. After reviewing multiple proposals from bidders offering transfer solutions it was determined that the Texas TIERS system was the best fit for Michigan.

Development work on Bridges began in March 2006 focusing on customizing the TIERS eligibility system to meet Michigan's specific policy, procedural and technical needs. Fast paced joint application development and design sessions led to user acceptance testing being initiated in October 2006. Design, development, testing and implementation activities continued on a rigorous schedule for two additional years. Bridges began a pilot period in August 2008 in a single county and then expanded the pilot to include a total of three additional counties through February 2009. Statewide roll-out began in March 2009 and concluded in August 2009 with all DHS offices in the 83 counties successfully transitioning to Bridges.

Beginning with the initial Bridges pilot and continuing through statewide implementation a number of changes have been implemented, technical problems corrected and user enhancements added. Scheduled system builds occur monthly with immediate break/fix type builds occurring as needed to remedy problems discovered within Bridges requiring immediate action. Items requiring inclusion in system builds are prioritized and scheduled through an ongoing release planning process.

The primary goals of Bridges continue to include the following:

• Improve caseworker ability to serve the client	✓ Streamline and simplify policy and procedure ✓ Data sharing across programs, services, and systems ✓ Increase ability to focus on prevention services
• Improve client access to benefits and services	✓ Increase options for client access ✓ Provide eligible clients the assistance/service for which they qualify
• Improve program accuracy and efficiency	✓ Decrease error rates in all programs ✓ Serve clients in a more timely manner at lower cost to State
• Use technology to improve business operations	✓ Provide efficient and effective adaptation to changing business needs ✓ Easier and less costly to maintain
• Fully automate eligibility and benefits determination	✓ Eliminate manual workarounds ✓ Integrate policy and system ✓ Increase client access to automated processes ✓ Automate support for standardization of processes and codes ✓ Increase automation of eligibility and benefit determination calculations and decisions ✓ Eliminate redundant data entry ✓ Reduce error rates
• Provide rapid IT response to changing business needs	✓ Use rules-based design ✓ Enable easy addition or modification of functionality ✓ Reduce service requests by using configurable rules and parameters that can be easily modified
• Maintain Bridges to accommodate business growth	✓ Maintain system architecture and design to readily handle growth in transaction load ✓ Design components that are compatible and can be easily modified for other DHS programs that may be added in future releases
• Align Bridges with DTMB statutory responsibilities and strategic goals	✓ Use standard technology and reduce the number of technologies ✓ Use standard project and development methodologies ✓ Use an open architecture ✓ Maintain a design that is flexible and easy to maintain ✓ Enable easy addition or modification of interfaces ✓ Move to an updated security infrastructure to support reduced sign-on and improved security standards ✓ Move to a single database ✓ Avoid outdated and high-maintenance hardware, software and programming languages

Bridges is used by approximately 10,000 end users. Approximately one half of these users determine eligibility for public assistance benefits for Michigan residents. There are also a number of users who provide supervision or administrative support to the eligibility staff. Another population of users has “inquiry only” access and utilizes Bridges to retrieve case information or reports from Bridges. The majority of DHS staff is housed in approximately 105 field offices located throughout Michigan as well as the Central Administration building located in Lansing. There are also a small number of staff stationed at community resource centers, hospitals or schools that have the same objective in determining eligibility and issuing assistance benefits to those in need.

In August 2009 DHS introduced a client facing system allowing clients "self-service" capabilities. This system called MiBridges allows clients to screen themselves for potential benefit eligibility, apply on-line for select benefit programs, check the status of their food assistance benefits and report changes to their case worker. This technology has been popular with DHS clientele and may be expanded in the future to support web-based applications for programs other than FAP and LIHEAP State Emergency Relief. In addition to MiBridges, DHS also introduced an Interactive Voice Response (IVR) service in September 2009 allowing clients the ability to call into a toll-free phone number and receive predetermined information about their cases.

Currently DHS provides at least one public assistance benefit to more than 2.2 million people in the state. In addition, field staff complete eligibility determinations on new applications of which a significant portion will not be eligible for benefits. The food assistance program has seen the steepest increase in recipient growth during the last three years. Currently more than $215,000,000 in FAP benefits are issued from Bridges each month.

Active Case and Recipient Counts by Program as of June 2010

	FIP	FAP	SDA	CDC	MA
Active Cases	82,208	894,013	10,514	31,128	1,071,917
Active Clients	223,273	1,822,418	10,591	58,586	1,889,930

Additional key program statistics for DHS can be located at:
http://www.michigan.gov/dhs/0,1607,7-124-5458_7696_10830-209273--,00.html

1.100 Scope of Work and Deliverables

1.101 In Scope

The Contractor will complete Bridges maintenance and operations activities. The Contractor will report to the DTMB Information Officer (IO) or designee. In addition, the Contractor will work closely with DHS and DTMB personnel on a daily basis to identify and improve Bridges functionality as it relates to business users throughout the state. The DTMB Project Management Office (PMO) will work with the Contractor and DHS / DTMB Bridges teams to track project activities and confirm compliance with business, technology and application standards. References to 'the State' throughout this contract are referring to DHS and DTMB.

The development, support, maintenance and enhancement of the Bridges application is an ongoing activity which is triggered by changes in federal and state regulations, evolving business needs, opportunities for improving business processes, continued software and hardware upgrades, and break fixes. The applications developed and maintained using resources from this contract are vital to DHS's day-to-day business operations.

The Contractor will work with the State to coordinate complex policy changes amongst multiple stakeholder groups and will work with DHS to seek system compliance with new regulations while satisfying the service delivery needs across a vast enterprise of stakeholders.

Bridges is a complex environment with many established DHS, DTMB, other State Agencies and 3rd party resources providing support and services that will often overlap with Contractor activities defined in this contract. It is essential to the success of this project that the Contractor collaborate with and support the resources working on activities defined in this contract,.

References to 'Bridges' throughout this contract refer to Bridges as well as the maintenance, operations and support of MiBridges.

1.101.1 Knowledge Transfer and Transition of Key Roles and Responsibilities to DTMB

The Contractor will assist DTMB in expanding their understanding of Bridges functionality, technology and maintenance and operational activities so that DTMB and the Contractor can collaboratively maintain and support the application. Knowledge transfer and transition activities will be documented and tracked to

increase DTMB's participation in the activities where additional experience and training are needed. The Contractor will involve DTMB in everyday release processes, development activities, operational activities and technical meetings.

Members of both the DTMB and the Contractor's teams will work together during each release to analyze and develop work requests for various functional areas. This method of development will facilitate an integrated team, creating an atmosphere conducive to knowledge sharing. DTMB resources will have access to Contractor resources with in-depth knowledge of the business processes, functional and technical details of the Bridges and MiBridges application. To provide efficient knowledge sharing and collaboration, the Contractor will include DTMB resources on the same communication channels they use to share project related issues and new information with their own teams across the project.

To provide the highest quality of services to DHS, the Contractor will include the appropriate DTMB resources on important correspondence with DHS including but not limited to:

- Project issues and action items
- Changes to technical or business processes
- Recommendations
- Business drivers that may impact the scope of work or affect ongoing releases
- Production support
- Business problems occurring in the field
- Steps taken to resolve critical issues in any area of application maintenance and support

These communications will provide DHS with the advantage of feedback from both DTMB and Contractor resources to help them make efficient decisions required to maintain the reliability, availability and quality of services provided by Bridges.. The Contractor will assist the State with the documentation of procedures, processes and tasks that are critical to the successful operation of Bridges. These activities will be directed and tracked by State management based on the availability of resources and ongoing priorities. This knowledge base will improve the Project's CMMI and SUITE compliance, reduce training expenses and greatly improve the ability of the State and Contractor staff to deliver efficient and timely services to DHS.

Initial goals for the knowledge base will focus on documentation that will help establish an accurate baseline of the technical activities and procedures required for successful knowledge transfer and transition. This will help the State to establish processes to measure ongoing transition and identify the areas where additional DTMB resources are needed. This initial documentation will be created by DTMB with the assistance of the Contractor and will include:

- Documentation of technical support activities performed by the Contractor and the high level steps required to complete each activity
- Documentation of software artifact types required for new development, maintenance and support of Bridges including:
    i. List of high level tasks, tools and related processes to follow for development and testing of each artifact type.
    ii. QA measures and impact analysis processes required for each artifact type to minimize risk and improve the quality and maintainability of system modifications.
- Documentation of custom tools and scripts used to maintain and support Bridges including their proper usage and tasks required to utilize, maintain and support these utilities.

The Contractor will work collaboratively with DTMB to transition Bridges operational and maintenance support activities to DTMB resources, subject to available DTMB staffing resources. The target goal will be an annual 20% transition of support and maintenance activities to DTMB as allowable by DTMB staffing resources. The Contractor will work with DTMB will develop metrics to measure transition targets.

A meeting will be held (as identified in Section D.1) between DTMB and the Contractor to document the processes that will be followed for the tracking and reporting of transition progress.

1.101.2 Organization of Project Teams

Contractor staff will function as part of an Application Support team that resides within DTMB/Agency Services and supports DHS. The Contractor staff will work alongside DTMB and DHS employees to develop and maintain DHS's Bridges application, including benefits processing, state and federal reporting, associated interfaces, and batch processes. These resources shall become familiar with DTMB and DHS personnel, DHS's business processes, and DTMB's State Unified Information Technology Environment (SUITE), and function under the direction of the DTMB IO. The anticipated organizational model for providing support and maintenance can be found in Attachment B.

Bridges is an integrated eligibility system utilizing rules engine logic to apply various data inputs across multiple public assistance program rules to determine eligibility for assistance benefits. The characteristics of Bridges at the time the RFP was released are as follows:

Item	Number
User Base	10,000
Trading Partners	31
Financial and Management Reports	242
Reference Tables	1,748
Eligibility Decision Tables	1,890
Data Base Tables	862
End User Screens	475
Total Number of Batch Jobs	736
Daily Batch	215
Weekly Batch	76
Monthly Batch	396
Quarterly Batch	17
Yearly Batch	32

The following IT classifications have been defined to accommodate the needs of DHS and DTMB each requring prescribed minimum experience and skill levels outlined in Attachment A.

- Application Development Manager
- Technical Support Manager
- Production Support Manager
- Testing Manager
- Senior Systems/Business Analyst
- Java Programmer Analyst
- Oracle Database Analyst
- Supportive Software Analyst
- Quality Assurance Testing Analyst

The Scope of work for this project is based on critical business drivers (defined in Article 1, Section 1.104, Work and Deliverables) and includes but is not limited to :

- Application Maintenance
  - Analysis
  - Business Requirements Definition
  - Functional and Technical Design
  - Construction (Development)
  - Testing (see below for scope of Testing services)
  - Implementation of application changes and documentation

- Testing
  - Unit/Integration Testing
  - System Testing (i.e. Quality Assurance Testing)
  - Regression Testing
  - Performance and Load Testing
  - User Acceptance Testing Support

- Batch and Interface Support
- Technical Operations and Communications including system documentation

1.101.3 Detailed Description of in-scope activities

A detailed description of the services (work) and deliverables required for this contract is provided in Article 1, Section 1.104, Work and Deliverables. In addition, Contractor activities related to the support and maintenance of Bridges technical environments are further defined in section 1.103 'Environment'.

1.102 Out Of Scope

Purchase of hardware, software or other commodities is not within the scope of the RFP.

1.103 Environment

The links below provide information on the State's Enterprise IT policies, standards and procedures which includes security policy and procedures, IT strategic plan, eMichigan web development and the State Unified Information Technology Environment (SUITE). The links provided were current at the start of the Contract period and are subject to change as new standards are approved and updated.

The State has methods, policies, standards and procedures that have been developed over the years. Contractors shall provide services that conform to State IT policies and standards. All services and products provided through this contract must comply with all applicable State IT policies and standards. The Contractor must request any exception to State IT policies and standards in accordance with DTMB processes. The State may deny the exception request or seek a policy or standards exception.

The Contractor agrees to adhere to the **State Enterprise IT Policies, Standards and Procedures**.

All software and hardware items provided by the Contractor must run on and be compatible with the DTMB Technology Standard Information Technology Environment. Additionally, the State must be able to maintain software and other items produced as the result of the Contract. Any tools, utilities, or custom software developed by the Contractor for the purposes of maintaining or supporting Bridges must be documented and provided to the State. Non-standard development tools may not be used unless approved by DTMB. The Contractor must request, in writing, approval to use non-standard software development tools, providing justification for the requested change and all costs associated with any change. The State's Project Manager and DTMB must approve any tools, in writing, before use on any information technology project. Any enhancement or incorporation of new technologies for current and subsequent modernization projects needs to fit within the State's standards and must address flexibility, including the ability to integrate with internal and external systems.

It is recognized that technology changes rapidly. The Contractor may request, in writing, a change in the standard environment, providing justification for the requested change and all costs associated with any change. Any changes must be approved, in writing, by the State's Project Manager and DTMB, before work may proceed based on the changed environment

The Contractor agrees to adhere to the **State Enterprise IT Security Policy and Procedures**.

The State's security environment includes but is not limited to:

- DTMB Secured Login.
- DTMB provided SQL security database.
- Secured Socket Layers.
- SecureID (State Security Standard for external network access and high risk Web systems)

DTMB requires that its secured login security environment be used for all new client-server software development. Where software is being converted from an existing package, or a client-server application is being purchased, the security mechanism must be approved in writing by the State's Project Manager and DTMB's Office of Enterprise Security.

The following link identifies key required presentation style elements for all State of Michigan on-line services. These include a consistent and common look and feel across all sites, improved ease of use and overall usability, and reduced time-to-launch through the application of uniform design attributes.

IT eMichigan Web Development Standard Tools:
http://www.michigan.gov/documents/Look_and_Feel_Standards_2006_v3_166408_7.pdf

The State Unified Information Technology Environment (SUITE):
http://www.michigan.gov/suite
The Contractor will follow SUITE / SEM standards for project management, systems engineering and operations, including appropriate documentation using standard forms and templates. The State will direct the Contractor regarding specific processes, forms and templates that are required.

The Contractor will follow CMMI 3 compliant methods and standards to minimize risks, and provide consistency, repeatability, predictability, and measurable means for improvement of a software development project. The model also allows for continuous improvement by allowing projects to capture lessons learned and incorporates changes in subsequent phases of the SDLC process.

Contractor roles, tasks and activities defined in this section may also be further defined in 1.104 Work And Deliverables.

Bridges Environment / Technical Architecture:

A. Maintenance, Support and enhancement of the Bridges FAST4J Framework

1. The Contractor will support and maintain the FAST4J application development framework and framework tools. This will include any changes needed to the Framework components to maintain compatibility, best practices and efficiency as the application code is updated to new versions of Java (JEE). Changes to the framework or framework tools may also be required to support other technology initiatives or Bridges functional changes as directed by the State.
    a. As any new standards or changes to support other approved enhancements are integrated into the framework, the contractor will also update the framework tools so that all generated code is compatible with the application and framework code.
    b. When code generated by the framework tools is impacted by any change to the framework or application code, re-generation of all (impacted) existing code that was previously generated by the framework tools will be required.
2. The Contractor will be responsible for impact analysis before and after framework changes, framework tools changes and resulting changes to code generated by framework tools.
    a. The Contractor will review the results of the impact analysis with DTMB prior to the release of the modified code into upper environments.
    b. The Contractor will develop a test plan that will confirm that the deployment of these changes will not have a negative impact on Bridges functionality or performance. The test plan must include automated regression testing relevant to the changes to minimize the risk of any un-intended functional impact. The test plan will include load testing for any change that has the potential to impact the performance or stability of any part of the application.
        i. The test plan will be reviewed with the State prior to release of the modified code into upper environments.
        ii. The Contractor will complete the required testing and document the results prior to release of the modified code into upper environments.
        iii. Any negative impacts discovered during the testing of these changes will be communicated to The State along with the Contractor's recommendation for how these issues should be resolved.

3. The Contractor will also need to modify and test the framework components to support proper integration with existing 3rd party software used by Bridges when changes or upgrades to the 3rd party API's are made that affect the framework or application code.
    a. In the event that changes to 3rd party software require changes to the code generated by the framework tools, the Contractor will modify the framework tools so that all generated code is compatible with the 3rd party software.
        i. This will require that the contractor adhere to the process in section A.1 and A.2 above to minimize negative impact on Bridges.
4. The Contractor will maintain and support all technical services provided by the framework for this contract including but not limited to the critical services identified in the table below.
5. The Contractor will utilize the appropriate framework services when any new code is added to Bridges or existing code is modified.
6. Due to the extensive re-use of framework services within the application and the potential for impact across multiple areas of the application, changes to the framework or framework tools will require proper communication with all Bridges track leads as well as DHS and DTMB leads.

Framework Services	Bridges Functionality Provided by Framework Services
Navigation (Driver)	Keeps track of the page navigation information, facilitating workers to keep track and continue their case application right where they left even when logging off or switching to a different case.
Data Caching	Capable of performing framework data, xml file, and property file caching into the application server cache upon application startup, which dramatically improves performance and reduces the number of database transactions.
Reference Data Management	All of the reference table data are managed by a common Reference Table Management component that performs necessary data look ups in an efficient manner.
Presentation Components	Includes a set of reusable custom developed tag libraries. Custom tag libraries range from simple button tag to AJAX enabled widgets that do not require a page reload and are able to asynchronously communicate with a server.
Exception and Error Handling	Offers consistent system error handling throughout the applications. Supports both business (expected) and system (unexpected) errors. Provides enhanced troubleshooting by storing relevant system exceptions in log files and database table. Supports scripts to notify appropriate staff in the event of unusual exception activity or pending system outage.
Event Logging	Error logging increases debugging efficiency by reducing the amount of investigation time. Provides additional information about problems beyond stack trace and exception details. Improves ease of code maintenance by allowing developers to better understand problems.
Audit Trails	Provides a history of update actions taken within Bridges. Offers tracking information by collecting user identification, page information, and date and time information regarding when specific actions take place. Used for troubleshooting and detecting devious activity.
Notification	Provides capabilities of initiating system and user generated events that result in triggering a business process or notifications to users or other systems. Provides the delivery of notification messages to systems and end users via various methods such as email and fax.
Monitoring	Business processes, user workflows, and execution of system functionality are monitored to provide reporting on workload, efficiency of processes, statistical information related to death certificates registered in the system,.
Authentication and Authorization	Offers fine-grained authorization to system functionality and the proposed solution data (at the field level) to the end users. Provides a central encapsulation and management of the business rules for entitlements that users have to functionality and data. Offers administrative and user management services that can be accessed via the administrative web application.

B. Presentation (Web) Tier

Also known as the Web tier, or presentation layer, this governs what the users see at their workstation. A HTTP server hosts the display interface. The developed Graphical User Interface (GUI) must be compliant with the Americans with Disabilities Act (ADA) and is geared to those of varying backgrounds, languages and skill levels. The Web tier for Bridges is specifically developed to capture information, not process it. It allows information to pass through it to the Business Tier, or application layer, where multiple processor stacks route the data and link to data.

The contractor will maintain and support all presentation tier components including but not limited to the components that provide the features listed in the Presentation Tier table below. The contractor will confirm that all new and modified code impacting the presentation tier will be in compliance with the current Bridges User Interface standards and properly utilize existing components of the framework and presentation tier.

Due to the extensive re-use of standard presentation tier components and the potential for impact across multiple areas of the application, changes to shared components will require proper communication with all track leads as well as DHS and DTMB leads. Shared presentation tier components include framework components that impact the presentation tier, global JavaScript functions, style sheets, custom tag libraries, JSP Include files, shared page elements and all other components used by more than one screen.

Presentation Tier	
Features / Services	**Functionality Provided by Presentation Tier Components and Services**
User-friendly Interface	Delivers an intuitive interface allowing Bridges users to easily navigate and understand the system
Standardized Templates	Gives a consistent look and feel throughout the system and decreases development time by the use of templates
ADA Accessibility	Provides disabled users with alternative ways to use the system
Dynamic Screen Builder	Makes Bridges screens dynamically configurable catering to the users' needs
Multi-Lingual Capability	Provides an option for the Spanish speaking community to use the MiBridges site to request assistance
Session State Tracking	Allows for a unified identity management and for a user to maintain his or her information throughout multiple systems confirming data integrity
Client and Server-side Validations	An effective mechanism designed to maintain data integrity when incorrect or invalid information is captured by a user
Help Management	Provides support to Bridges users with questions on site navigation
Pagination and Sorting Capability	Helps users to easily read and configure the sort order to facilitate the customization of the presentation of information

The Bridges UI must satisfy the ADA Accessibility Policy for the State's government websites. The Bridges use of the Internet Explorer web browser must support HTML, XHTML, Cascading Style Sheets (CSS), ECMA Script, and the W3C Document Object Model (DOM).

C. Business Tier

The Business Tier is the layer where business logic is run. The complex processing for case management, eligibility and the consequential data exchange among the components of the service and external systems is performed within the Business Tier.

The Bridges business tier receives information from the presentation tier, processes it, and then interacts with the persistence tier through a Data Access Object (DAO) component. The requested data are then returned by the DAO component where the data are then forwarded for presenting to the user after the processing of application logic.

The Contractor will maintain and support all business tier components including but not limited to the components providing the features listed in the Business Tier table below. The contractor will confirm that all new and modified code will be in compliance with the current standards and will properly leverage existing re-usable components to improve maintainability, reliability and minimize impact on other system functionality. Whenever new functionality Is needed in the business tier, it should be designed to be re-usable by other Bridges components.

Due to the extensive re-use of standard business tier components and the potential for impact across multiple areas of the application, changes to shared components will require proper communication with all track leads whose areas may be affected as well as DHS and DTMB leads.

The Contractor will support and maintain the Business Rules Engine (BRE), all tools used to develop, test and debug new business rules and the decision tables used by Bridges. Changes to the BRE or decision tables that impact multiple areas of Bridges will require proper impact analysis and communication with affected track leads and DHS / DTMB leads.

Business Tier Features / Components	
Features / Services	**Functionality Provided by Business Tier Components and Services**
Business Process and Workflow Management	Provides a logical, flexible and reliable system for users which can be easily extended based on future policy and legislative changes.
Core Business Logic	Provides common reusable business objects and methods reducing duplication of code and maximizing unified framework for users to get consistent results through the use
Cross Edits and Data Validations	Bridges provides a highly extensible presentation framework with capabilities such as cross edits and data validations using a variety of mechanisms.
Error and Exception Management	Confirm that users' application is accurate and conforms to the agency's expectations for quicker processing and payment.
Audit Trail and History Management	Confirms that users' application and determinations are documented for accountability and audit ability.
Triggers Business Events	Provides users with a responsive system that are driven based on the user's inputs. Examples include an integrated trigger framework which provides inputs for sending changed information to other agencies.
Code Re-usability between Online, Batch and Functional Modules	Provides users with a consistent, well-tested, and demonstrated benefits system while reducing code duplication and maximizing the State's investment in common business functionality.
Decision Tables	Extensible Rules engine allows decision tables to be developed using business resources.
Address Policy Changes	Contractor understands the constant ever changing nature of Social Welfare especially now in the face of legislative changes and other unplanned Provides updated policy changes to determine users' eligibility.
Driver Queue	Confirm extensibility and a logical queue for caseworkers to only collect information relevant to the programs which clients are applying for. Further, this driver queue is extensible based on the answers provided by the users as well as the process logic which was determined by the State during Joint Application Design Sessions.

D. Persistence (Database) Tier

The first two layers of the solution act like separate components of the overall solution that enable specific activities to occur before allowing the User to access the database where sensitive data resides. The Database Tier is designed to provide the State added security. It will use port 1521 for Oracle or as defined by the technical requirements. Roles providing access to the application are built into the Bridges system. The database environment, where data is read, updated and processed according to the business rules configured for operations, is accessed after a series of approvals and processing functions occur within the previous two layers of the system. Stored procedures and triggers within the Database Tier enable mass updates, deletes and other operations to occur quickly within this layer.

The Contractor shall continue to build upon the existing persistence tier framework to help the State with new initiatives such as an archiving and purging solution, Oracle Partitioning, and ongoing performance optimization efforts.

The Contractor will maintain and support existing components of the persistence tier including but not limited to the components that provide the features in the Persistence Tier table below. The Contractor will confirm that new code released into Bridges follows the established standards and best practices as components of the persistence tier are used.

The Contractor shall enhance the persistence tier framework as directed by the State for initiatives such as an archiving and purging solution, Oracle Partitioning, and ongoing performance optimization efforts.

Persistence Tier	
Features / Services	**Functionality Provided by Persistence Tier Components and Services**
Master Reference Schema	A single unified repository to store reference tables. This allows a single stream of reference tables to be used across environments. Further, Bridges reference tables have components of time and versioning allowing complex business rules to be easily codified. For example, eligibility can run with different decision tables for different periods (based on time as decision tables are affected by legislative changes over time).
Disaster Recovery Streaming	Confirms that users' personal identifiable information and system data can be quickly restored for processing and payment without affecting the claimants.
Managing Database Objects	Provides a reliable means of managing database objects that does not impact the usage of the system by users.
Flexible and Extensible Security Objects	Prevents leakage or tampering of users' personal identifiable information and system data.
Custom and General Data Access Objects (DAO)	Provides a consistent and reliable means that does not impact system logic when users enter their application and the data is processed by the benefits solution.
Data Dictionary Management	Provides a repository of information about users' data and the relationships with the different objects.
Auditing Capabilities	Confirms that determinations and benefits relating to a user's application are documented for accountability and fraud review when necessary.
Archival Solution	Bridges provides a platform for archiving data. An example is archiving of interface files every 30 days.
Application Security	Bridges provides an extensible security framework which has been configured to suit the particular nature of DHS and provide appropriate access levels. This to confirm authorized users with appropriate have access to client's personal identifiable information.

The Contractor will maintain and update the Bridges data dictionary as changes are made to the data model. The Contractor will use enterprise standard modeling tools to define the data dictionary elements such as table and column definitions adhering to naming standards and data creation pertaining to relevance, relationships to other data, source, usage, and format. Detailed descriptions of tables and database fields should provide critical information to help technical resources understand the proper use of tables and tables and columns within the Bridges application. The information provided in the Data Dictionary should be accurate, up to date and of sufficient detail improve maintainability and reduce the risk for future development initiatives.

The Contractor will support and maintain the enhanced history persistence layer that allows capturing time-limited data, and captures audit history for records in the database as an auditing mechanism required by the State to track specific transactions performed by a user. The Contractor will assist the State as needed to provide transaction-level audit data required to comply with state and federal security regulations.

E. Messaging and Integration Services Tier

The Messaging and Integration services Tier supports the interactions between the clients and the servers and includes messaging, transaction, security, synchronization, queuing, event, inter/intra application communications, and resource management services.

It allows for increased flexibility and adaptability and also provides for easier integration between the application and other agency legacy systems. This layer performs core information access and messaging activities for Bridges' online and batch processes.

The Contractor will maintain and support existing components of the Integration tier including but not limited to the components that provide the features and services identified in the table below. Due to the impact that changes to the Messaging and Integration tier can have on multiple areas of Bridges as well as other agencies and 3rd party applications, the contractor will perform impact analysis and testing before these changes are implemented. The contractor shall communicate with all affected Bridges track leads, DHS and DTMB leads and 3rd party contacts allowing all parties sufficient time to test before changes to the messaging and integration layer are committed..

The Contractor will enhance the integration layer as directed by the State to leverage web services to interface with real-time agencies where batch is currently being used. These real time interfaces will provide workload relief and improve service to customers.
The contractor will enhance the integration layer to improve Bridges SOA compliance as directed by the State. These initiatives will provide workload relief by integrating document imaging and text / voice messaging capabilities into Bridges.

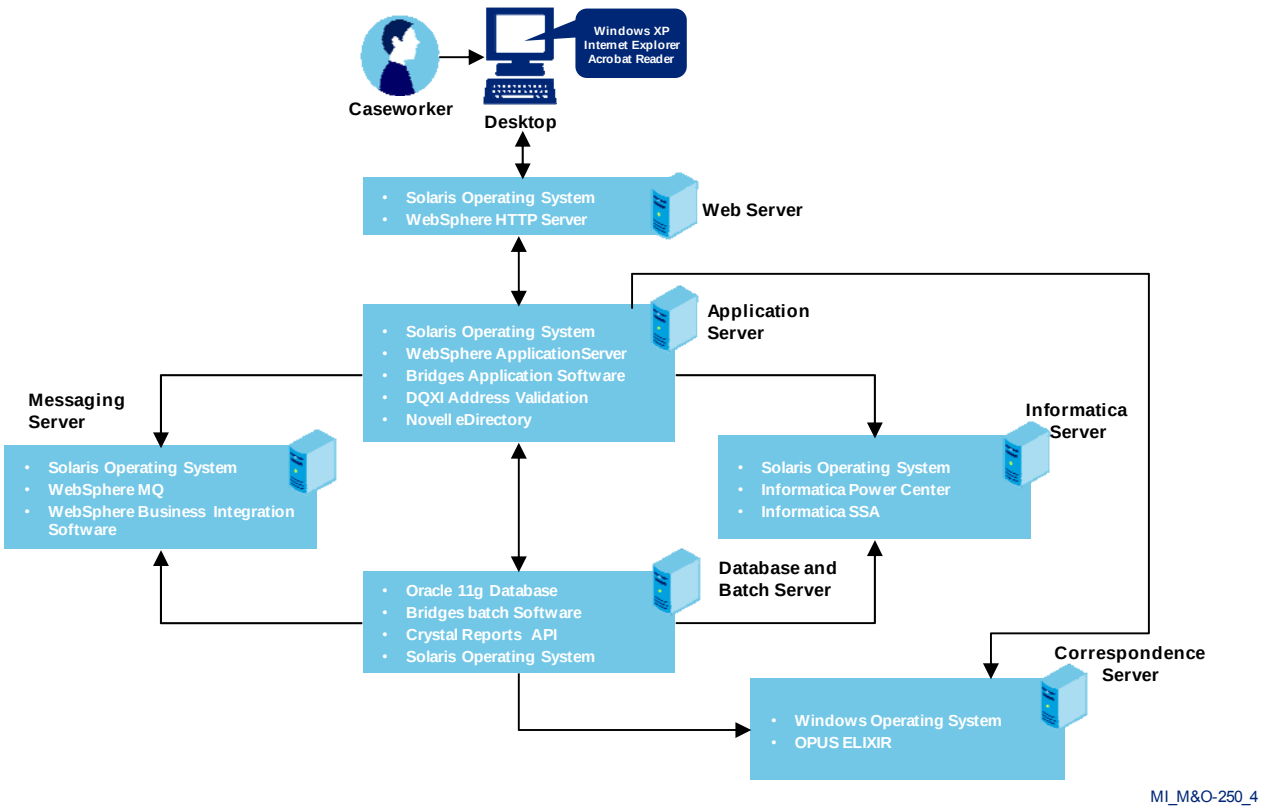
Integration Tier	
Features	**Functionality Provided by Integration Tier Components and Services**
Web Services Frameworks	Web Services framework provides connectivity as well as a base for the State to build its SOA information hub.
Messaging Capability	Messaging framework provides connectivity with other queuing based applications as well as message broker connectivity.
Integration Capability with Various Third-Party Software/Tools	An extensible framework provides for easy integration with 3rd party software and tools using open industry standard protocols.
SOA Foundation	Bridges provides the State with a foundation on which to architect a SOA based information hub.
Multiple Types of Integration Modes	Contractor understands the large and diverse variety of systems with varying platforms and business needs. With this in mind, Bridges provides multiple modes of communication to interact with other agencies and other systems. Bridges communicates with multiple agencies using a mix of Web Services, Batch, Message Queuing, Database links and streams.
Integration Security	Out of the box security using the integrated Bridges Framework allows the State to tailor security and access at a field level for information exchange with agencies. Further transfer mechanisms are also protected through the use of SFTP (Secure File Transfer Protocol) providing file access, file transfer, and file management functionality over a reliable data stream.
VPN Tunnel (SOLQ)	Provides real-time online access to SSA's Social Security Number (SSN) verification service, Title 2 and/or Title 16 data. SOLQ enables State personnel with authorization to rapidly obtain information they need to qualify individuals for programs. Further, a VPN tunnel confirms that personal identifiable information from Social Security Administration is encrypted during transmission across networks.
Database Links	Bridges provides the capability to connect to other databases using database links. This is used by the State to communicate with the Child Welfare System - SWSS as well as the Child Support System – MICSES.
OEDBC Transaction Log Queuing	Detailed audit and trail logs are available which allow the State to effectively playback what operations a user performed.

F. Software Architecture

The Contractor shall maintain and support the current Bridges Software Architecture. The Contractor will provide recommendations to the State to help achieve the IT Strategic goals of reducing costs and increasing the availability of services to citizens. The State reserves the right to change software based on business needs and would require Contractor assistance to support any changes and minimize negative impacts on Bridges maintenance, support or Operations.

The illustration below provides a basic understand of the Bridges Software Architecture and the servers required to support various components. Technical upgrades and migrations to new platforms require frequent changes to the 'Application Architecture Guide' so that it reflects that current servers, software and infrastructure in use. The Contractor will assist the State with these updates as changes are made to the Bridges technical environments.

Software Architecture



Component	Description
Microsoft Windows XP	Desktop Operating system for the end users of Bridges as well as the State and Contractor Staff who support and maintain Bridges.
Microsoft Internet Explorer	The Contractor will work with the State to confirm that Internet Explorer patches and upgrades to the State supported version of IE are thoroughly tested and pushed to Bridges users without affecting application functionality.
Adobe Acrobat Reader	State standard for documents that Contractor will use and support in Bridges for displaying and printing correspondence and reports.
Bridges Application	Core Bridges Application including all requried Software Artifacts
Oracle Database	Bridges Database
IBM WebSphere Application Server	Bridges Application Server and supporting configuration
IBM HTTP Server	Bridges Web Server and supporting configuration
Crystal Reports	Reports Engine essential for generating reports for Bridges users.
IBM WebSphere MQ Messaging Software	Key component of the Messaging and Integration Layer
IBM WebSphere Business Integration Software	Key component of the Messaging and Integration Layer supporting SOA (Services Oriented Architecture).
Novell eDirectory	State standard for Lightweight Directory Access Protocol (LDAP) for storing user names and password for Bridges users as well as for purposes of Single-Sign-On (SSO).
Opus	Software for Bridges Correspondence and supporting configuration
Informatica PowerCenter	Informatica is used for data conversion and reporting extracts.

Component	Description
IQ8	Address Validation Software
Search Software America (SSA)	Bridges uses a customized version of SSA to search for individuals in Bridges using Soundex search.
Tools	Description
Rational Requisite Pro	Requirements management tool helping the State manage the Bridges and MiBridges requirements, improve traceability, strengthen collaboration, and integrate requirements to design documentation.
Rational ClearQuest	Change and Configuration management tool essential to Development, testing and build and Deployment of Software
Rational ClearCase	Version control for system source files, configuration files and documentation.
Metallect IQ Server	Metallect IQ Server was planned for detailed dependency discovery and analysis capabilities. This Tool is no longer supported and the Contractor will work with the Sate to implement a new Impact Analysis tool
Eclipse	Used in the RAD IDE.
ANT	This tool offer a customized build process tool using COTS tools allowing the State to build components of Bridges using a unified build process.
Crystal Reports	Create reports that are viewed in Bridges by end users to view, print, and export reports with less effort.
Message Broker Tool Kit	Message Broker allows for universal data transformation using adapters allowing Bridges to communicate with other agencies such as MICSES and DELEG.
WTX (WebSphere Transformation Extender) Toolkit	Allows data transformation and validation specifically with legacy systems like DELEG, and MICSES.
Opus Elixir	Opus allows for complete production system for managing print output devices and electronic delivery via a graphical user interface.
UNIX Script	The Collection of UNIX scripts required for the maintenance, support and operations of Bridges. The Contractor will assist the State with the organization, documentation and versioning in compliance with SUITE / SEM standards for verified and repeatable processes
PERL Script	Perl is used in Bridges for processing text and for use in ClearCase and ClearQuest scripting.
DML/DDL SQL Script	DDL statements are used to build and modify the structure of tables and other objects in the database. DML statements are used to work with the data in tables. Bridges follows a specified set of standards for DDL and DML statements.
PL/SQL	PL/SQL is used on an everyday basis to write Oracle stored procedures and connect to Bridges database for understanding Oracle tables and their relationships.
TOAD/SQL Developer	Development tool for testing SQL for data Access and analyzing issues in lower environments.
Mercury LoadRunner	Load testing tool used for performance testing in Bridges
Mercury Diagnostics for J2EE	Mercury Diagnostics is a tool which isolates application performance problems and reduces the mean time to resolution (MTTR) of an application's performance bottlenecks.
Mercury TestDirector	Mercury TestDirector is a test management suite that provides a consistent, repeatable process for planning and scheduling tests andanalyzing results.
Mercury QuickTest Professional	Regression testing tool used for QAT and UAT regression testing
Identity Search Server/SSA-Name	SSA is the software to search and match the identity data stored in Bridges. ISS/SSA-Name3 is primarily used to identify the potential match of new individuals entered into the system.
AllFusion ERwin Data Modeler	Used to access and create Data Models. These are Entity Relationship Diagrams (ERD) and show the relationships between tables in the Bridges database. These ERD files are being provided as part of the database documentation and are stored in ClearCase. The Contractor will use the Data modeler for generating the DDL scripts from a data model or by creating data models from the existing database by reverse engineering.
AuthorIT	Tool to create professional Help systems and documentation for desktop and Web-based applications. To assist in the standardization of documentation, both

Component	Description
	on-demand and in print, the Contractor Training Team will leverage ASC Author-it.
Macromedia Studio	Studio 8 software suite is used to develop interactive WBT courses. Contractor will support a customized version of Macromedia's Studio for training purposes. Since most of the caseworker staff does not have the capability of installing software to their PCs because of security reasons, we provide them with the Macromedia tools feature to support caseworker's access to Web-based Tutorials (WBT) without requiring the coordination of thousands of software installs that other WBT products may require.
Macromedia Captivate	Captivate is used to incorporate software simulations and demonstrations into the Web-based training. Captivate can be used by trainers who may not have programming backgrounds.

G. Servers, Network and Environments

a. Servers

The State relies on multiple web, application, database and software / tools servers for the maintenance, support and operations of Bridges. For each server, different configurations of processors and memory are required depending on the environment in which it resides. All servers are updated to the most recent patch level required by the hardware contractor and contain the necessary anti-virus software as defined by the State. Due to the rapid changes in technology, the specific servers and their configurations will be documented in the established 'Application Architecture Guide' which the Contractor will assist the State in updating as changes are made to Bridges software, hardware, environments or Infrastructure.

The Contractor with work with DTMB to assess the applicability of architectural changes that could improve system performance when performance opportunities are identified. The Contractor will assist in an evaluation of the potential impacts to the applications and whether the current infrastructure can support the proposed change before undertaking any of these solutions within Bridges. The Contractor will work with the State to standardize an implementation approach. Load testing will be conducted for any change that has the potential to impact system performance or stability.

Once server upgrades, patches, or hot fixes are approved, they are analyzed and resolved in the lower environments. The Contractor will work with DTMB to deploy the security software upgrade into the higher environments. If additional application modifications or software configuration changes are required, the Contractor will coordinate with DTMB and application teams to incorporate the changes in a prioritized release. The Contractor will conduct detailed regression tests with DHS before changes are made to production servers to confirm that none of the proposed changes impact the functionality of the application.

Additional standards and Contractor activities for the maintenance, support and operations of the Servers, Network and Environment are found in the Work and Deliverables section of this contract.

b. Rational Tools and Build Workstation

The Bridges SDLC makes extensive use of the Rational Tools, including ClearCase (Version Control) and ClearQuest (Change/ Configuration Management). ClearQuest is a critical development, testing, and issue tracking tool used by technical and business resources supporting Bridges. ClearQuest is driven by its central schema repository, which manifests itself as a database schema hosted on one of the Bridges Oracle database servers.

c. Bridges Network Infrastructure

The Bridges application is accessed via a wide-area TCP/IP compliant network infrastructure that is provided and maintained by the State. The infrastructure includes firewalls, fiber connections, SAN connections, workstation LANs, project file systems, etc.

Bridges physical environments will be housed within State facilities and use the existing State network infrastructure. Thus the architecture depends on this infrastructure to be the primary channel to deliver the Bridges application to users throughout the State.

The Contractor will assist the State in the following areas of the Network Infrastructure:

- Bandwidth testing
- Load balancing
- Configuring firewall rules and Web-based training specifically on security rules and certificates

The Contractor will review issues related to the Bridges application that may be identified by the State during the evaluation of network monitoring.

d. Tool Support Servers

The Contractor will use and support dedicated tools and tool servers to increase developer productivity, efficiency, and reliability including:

- OpCon Server for Development
- OpCon Server for QA
- FAST4J Tool Server for Development
- Rational Tool Server for Development

e. OpCon Scheduling Tool (OpCon Server for Development/OpCon Server for QA)

The Contractor will use and support the OpCon Server for Development/OpCon Server for QA.

f. FAST4J Productivity Tools

The FAST4J Framework provides a set of code generation tools that is used to automatically render several critical Bridges components based on the schema of the database.
The following code artifacts, configuration items, and assets are generated by the framework tools:

- Database Access Code (Cargoes, Collections and DAOs)
- Messaging and Web-Services Framework
- Page Queuing and Page Flow Framework

The Contractor will support and maintain the tool servers and the Framework productivity tools. The contractor will assist the State with the documentation of processes and procedures related to the support and maintenance of the framework tools.

g. Technology Environments

The overall setup allows for multiple extended development projects to occur concurrently, and operate on different schedules. Maintaining multiple environments allows the technology team to support different groups *(development team, testing team, external trading partners, etc.),* that have varying testing requirements and timelines.

At times, special environments may be needed to allow for the development and testing of release items that will span multiple releases or have testing requirements that cannot be provided by the standard environments. The contractor will assist in the creation and support of these environments as directed by the State. Changes in the special release will be correctly merged into the standard environment when the special release is completed.

The technical environments necessary to develop, test, train and support a scalable, n-tier Web based architecture consist of the following individual physical environments.

- **Experimental:** An environment for testing new processes, software upgrades, and any other purposes deemed necessary by the Contractor or State. Standard releases are not delivered to the Experimental environment.
- **Development:** The environment used by the developers to implement, customize and extend the solution required.
- **Integration:** The environment where all of the release modules are compiled and tested as a single configuration by the Contractor.
- **QA Testing:** The environment for Quality Assurance Testing and Performance Testing of the release by the Contractor prior to release to promotion to UAT.
- **UA Testing:** The environment for User Acceptance Testing the release prior to implementing the system in production. At times multiple environments are required should more than one UAT environment be necessary to support development tasks, including the ability to simulate the advancing of time during multi-event, end-to-end test scenario execution

- **UA Time Travel Testing:** Multiple environments that enable testing of functionality where time progression with the integration of processes that occur in the future or have occurred in the past.
- **UAT Patch:** The environment used to test and promote interim urgent fixes into UAT contingent upon UAT Team's approval. This environment is available only upon request
- **Training:** A test/demo area for training users that needs to be updated and rebuilt on demand with a standardized base set of data.
- **Production Staging:** A test builds area used by the State's technical control group to prepare and validate the build that is deployed to production.
- **Production Patch:** The environment used to test and promote interim emergency fixes into Production contingent upon approval. This environment is available only upon request.
- **Production:** The end user or final environment that is available throughout the defined business hours, with minimal windows of downtime for system maintenance and upgrades. Additionally, some minimal data is required to be available 24/7/365 for query only.

1.104 Work And Deliverable

Throughout the duration of this contract, application enhancements will be required to advance the State's technology goals of improving worker usability, system accuracy, and data quality. Enhancements exist when program source code, reference tables, business rules, configuration or data elements must be changed to implement a system, functional, or performance requirement, and may include (but are not limited to):

- Implementation of new or modified functionality required to support programmatic or policy changes and/or new state or federal statutes or regulations
- Enhancements to support operational improvements and / or efficiencies prioritized by the State.
- Major upgrades and / or replacement of one or more application components prioritized by the State as a result of DHS, DCH, or DTMB vision

The critical nature of the Bridges application demands corrective, adaptive, and preventive software maintenance across each of the component parts of Bridges, in addition to implementing the enhancements from needed initiatives and changes in policy. The scope of services defined for Bridges maintenance and operations would include maintenance work requests such as source code changes for identified issues, screen modifications, addition, deletion, or modification of data elements or system reference tables.

A APPLICATION MAINTENANCE AND SUPPORT ACTIVITIES

SUITE / SEM Phases of Application Maintenance and Support

The Contractor will perform systems maintenance activities using the State's PMM and SEM methodologies within SUITE to create a structured approach to the Software Development Life Cycle (SDLC) and the validation of proper systems operations. Maintenance incorporates the phases of the SEM, typically repeated at standard intervals in the form of maintenance releases, which allow for the implementation of a SEM discipline combined with the use of the Project Management Methodology (PMM). The Contractor will follow the SEM phases and appropriate standards for work items scheduled in regular releases.

The DTMB PMO will provide abbreviated SEM processes and templates for minor modifications that do not require full documentation for requirements, design and testing. DHS, DTMB and the Contractor will work together with the PMO as part of the Project initiation phase to define terms for a system change to be considered a '*minor modification'*.

The Contractor will use the expedited immediate system maintenance process (See Section **A.1.3.6)** for emergency fixes that require immediate attention and then complete the remaining SEM phases as the fix later progresses through the standard release cycle. This will include design, documentation and additional development (*if required to meet application standards*). The short term objective is to return the application to operating condition. After the immediate issue is resolved, the Contractor must document the fixes incorporated and perform additional testing *(functional, regression, performance, etc.)* as needed. *Based on the complexity of individual maintenance requests, the Contractor may expedite some of the SEM phases with the approval of the State.*

The Contractor shall work with the State to plan for modifications with consideration of the size and scope of the Bridges system identified below (*to confirm that all system changes meet the performance, reliability and availability standards*). The following estimated maintenance statistics are accurate as of the start date of this contract:

Lines of Code	10 million
Database Tables	3700
Database Columns	86168
External Data Exchanges	6848
Screens	475
Interfaces	110
Reports	242
Number of Batch Jobs	1253
Correspondence Forms	250
Average Daily Database Transaction Volume	5 million
Average Daily Online Transaction Volume	4 million

The following list provides an example of key maintenance activities across the application. Detailed sections follow for each of these areas and identify the Contractor roles and responsibilities. Additional Contractor tasks and activities are defined in the 'Environment' and 'Technical Operations' sections of this document.

1. Application Maintenance and Support
    a. SEM Phases of Maintenance and Support
        i. Initiation and Release Planning
        ii. Requirements
        iii. Design
        iv. Construction
        v. Testing
        vi. Implementation
        vii. Post-Implementation

2. Ticket Resolution and Help Desk Support
3. Break Fixes
4. Batch Management
5. Reports Assessment
6. Functional and Technical Support
7. Annual Maintenance Activities
8. Status Reporting
9. Staffing and Functional Areas

Additional Planned Business and Technology Initiatives

The Contractor will provide resources to concurrently work on Bridges and collaborate with the State and other vendors to define and implement the appropriate changes within the Bridges application to support critical business and technology initiatives.

This will include the integration with other applications and ongoing projects such as the MiBridges Self Service Expansion, MiCSES and SACWIS initiatives. The following are examples of known projects and technology initiatives with critical impact and do not represent the full scope of required activities for this contract as this will be determined by business needs and directed by State management:

MiBridges Self Service Expansion: Example of enhancements required for integration.

These enhancements have a proposed timeline which must be accommodated in Bridges release planning, since many of the enhancements will involve Bridges changes and support, over a period of 18 months the impact of the expansion project on Bridges will include activities such as:

- A one-time synchronization activity between Bridges and CMB to populate the Self Service application with Cash, Medicaid, CDC and non-energy SER data. This includes benefit issuance data and VCL data.
- Daily synchronization of the delta of data that has been changed in Bridges. Testing of this functionality will be achieved by making changes in Bridges, such as running issuance, and verifying that the corresponding data is updated on the CMB pages.
- Retrieval of correspondence for all of the notices that the State has indicated in their MiBridges Self Service Expansion RFP, achieved by sending key indexing information from Bridges to the Check My Benefits feature of MiBridges, and then having the MiBridges application reach through web services back to Bridges to retrieve the original correspondence.
- Updates to the staging tables between MiBridges and Bridges, and retrieval of the data from these tables for the newly added programs, and creation of cases in Bridges for the new programs when the client makes an application through the Apply for Benefits feature of MiBridges.
- Exchange of data between MiBridges and Bridges to support the Report My Changes functionality in which Bridges sends changeable data to MiBridges through both real-time submission and batch submission, and changed data from the client flows back into Bridges where it is incorporated in the Bridges case.
- Exchange of data between MiBridges and Bridges to support the Renew My Benefits functionality in which clients will complete standard renewal, semi-annual renewal, and mid-cert renewal, including specialized renewals such as those seen with the DHS-2240-A for 24 month certification of certain FAP or Medicaid clients, and this data will be incorporated in the Bridges case to complete the program renewal.
- Document Upload Capability functionality in MiBridges which will involve the transfer of PDF, TXT and JPG files into Bridges, and availability for worker review via the same document inbox functionality that will be part of EDM.

Software and Architecture Upgrades: Examples of Required Technology Initiatives

- The current version of WebSphere, RAD Application Development tools and the version of Java / J2EE used by Bridges are all outdated. This is an extensive upgrade to Bridges that will require a large effort for impact analysis, development and testing. These upgrades are critical so that the core components of the Bridges architecture continue to have vendor support.
- The current version (2.7) of the SSA name search software will be unsupported after 2010. The SSA upgrade will require a combination of functional and technical changes. This is a critical component of Bridges that needs to be upgraded and implemented in parallel with ongoing system maintenance activities and scheduled release activities
- The current version of Infomatica is reaching the end of its life cycle This tool is critical for the ongoing development and support of Bridges reports.
- Changes to multiple components of the Bridges Presentation layer are required to make Bridges compatible with the latest version of Internet Explorer. These changes are critical so that there are no negative impacts on the user interface when the State implements the rollout of the next version.

A.1. Application Maintenance and Support

Contractor Key Responsibilities

The Contractor will proactively monitor and identify Bridges functional and technical issues and report them to The State management.

The Contractor will follow the State's current release management process, working closely with The State to scope and manage items for scheduled and immediate releases that are essential to maintain, support and enhance Bridges

The Contractor will follow the State's current Bridges code standards and perform proper unit testing, QA review, integration and QA testing to deliver high quality release items.

Description of Activities and Contractor Roles and Responsibilities

A.1.1 Enhancements and ongoing Application Maintenance and Support

Bridges will continue to change in reaction to business needs, and new enhancements will be added through the application maintenance process. This constant change means that the Contractor must provide maintenance processes that support the implementation of enhancements without disrupting the day-to-day operations of Bridges.

A.1.2 Production Support: Bridges Problem Identification and Reporting

The Contractor assumes responsibility for the monitoring and support of the online environment during hours of online availability, including weekends, by proactively diagnosing, resolving, and reporting the status of the issues to the State. The Contractor will provide immediate support for critical production incidents through various escalation sources. These include making an immediate phone call to key stakeholders, when required, collecting the incident information and durations from sources such as error logs, help desk staff, and Remedy tool statistics, and then reporting to the State to provide a holistic view of the interruptions and the overall user experience of the Bridges application.

The Contractor will provide ongoing production application support in two key areas – technical services and managerial services. The technical services role covers areas of issue monitoring, identification, analysis, and resolution while the managerial services role covers escalation, reporting, and communications required independent of the system issue. The Contractor will work with the State to identify problems, develop a corrective action plan to prioritize resolution activities, take the needed actions to resolve issues, and review the status and outcome.

The Contractor and DTMB will work together to confirm that their teams adhere to a standard process for providing detailed analysis of issues, which are properly documented so the information is consistently provided to the State Management's decision-making process and can be applied in the future for lessons learned and issue prevention.

The production environment will be operational during defined business hours, with minimal windows of planned downtime for system maintenance and upgrades. Additionally, some data is required to be available 24/7/365 for query only.

A.1.2.1 Monitoring and Identification

The Contractor will work to proactively identify any issues within the production application environment during hours of online availability. The Contractor will actively monitor the production environment and application error logs. The Contractor will work closely with The State and help desk support staff, as well as monitoring Remedy ticket trends, to identify issues that may be affecting users in the production environment.

A.1.2.2 Analysis

During analysis, the Contractor will research potential system problems. They will identify anomalies, and work closely with The State to investigate the issue. When a potential system problem is discovered, the Contractor will conduct research to minimize system impact and improve the stability and accuracy of the Bridges application.

A.1.2.3 Notify and Remediate

The Contractor will rapidly communicate a detailed status to project stakeholders. Collaboration is crucial during this early stage to confirm that the appropriate staff and management are aware of the issue and engaged to facilitate the proper resolution and communication to the field workers.

Upon notification of the potential or immediate problem, The Contractor will provide a detailed analysis and communicate an applicable corrective action plan to the State. This communication includes a description of the problem, the expected impact on operational functions, a corrective action plan, and the expected time of problem resolution. In addition to communicating via emails, for any critical issues such as those that impact a large user base of Bridges, or affect a population of client benefits, Project stakeholders will be notified directly with a phone call.

Once the Contractor determines an appropriate resolution, they will use the same communication channel to notify State staff of the proposed issue resolution. In the event of an incident that requires external agency involvement, the Contractor will communicate and escalate with that agency through the primary contact for that agency from the State team.

A.1.3 Systems Maintenance Activities

The Contractor will make software changes and enhancements using the Systems Engineering Methodology to seamlessly implement change requests, enhancements, and strategic incremental renewal solutions to the Bridges system, working in close collaboration with the State.

For the maintenance tasks, which are included as part of a regular scheduled release, the Contractor will leverage the Systems Engineering Methodology (SEM) process defined by the State. This process will follow the SEM phases of the SDLC which include:

- Initiation and Planning
- Requirements Gathering and Validation
- Functional Design
- Construction
- Testing
- Implementation

A.1.3.1 Initiation and Planning

The Contractor will work with the State to identify and finalize the scope of a release considering factors that include criticality of the fix, impact to business users and clients, available resources and effort level.

Refer to Section A.1 for Release planning and Management details and Contractor roles and responsibilities for this phase.

A.1.3.2 Requirements Gathering and Validation

The Contractor will work with the State to identify the necessary stakeholders for inclusion in the requirements gathering process. Following the State's SUITE methodology, specifically the SEM, the requirements gathering process will include:

- Joint Application Design (JAD) sessions
- Stakeholder interviews
- Prototyping

During requirements gathering and validation, The Contractor will collaborate with The State to elicit business needs from stakeholders and document system requirements. The Contractor will include the necessary Federal agencies or business partners in the requirements sessions to confirm that all stakeholders' concerns are addressed.

Contractor Key Responsibilities

A.1.3.2.1 Plan and Conduct Requirements Sessions

The Contractor will work with all project stakeholders to identify, review and validate the business needs for the proposed changes to the application. The Contractor will provide experienced resources with extensive knowledge of the functional areas impacted by the project to coordinate and facilitate the requirements sessions. Requirements sessions may also be led by DTMB Business analysts and the contractor may be requested to provide assistance.

A.1.3.2.2 Document System Requirements

Throughout the requirements sessions, the Contractor will conduct detailed systems analysis and document:

- The goals and objectives for the initiative
- All requirements necessary to complete the proposed modifications to Bridges
- Any dependencies which need to be addressed for successful delivery of the initiative
- The impact of the proposed changes on other functional and technical components of Bridges
- The impact of proposed changes on 3rd party applications or users who depend on Bridges

Throughout the requirements gathering process, the Contractor will publish meeting minutes which will communicate action items and any issues that may impact the ability to deliver the initiative for the scheduled release.

At the conclusion of requirements gathering and validation, the Contractor will provide a detailed requirements document to the State for review and approval. This document serves as the basis for future steps of the system development life cycle, including design sessions, design review, development, and test scenario creation. The detailed requirements document includes the following components in addition to any other references and supporting documents:

- **System Requirements.** This component defines the business needs identified during the requirements gathering phase of the modification initiative and the associated system modifications proposed to address the identified business needs.
- **Traceability Matrix.** Includes the functional and technical requirements gathered during the requirement sessions and identifies each requirement as In Scope or Out of Scope. This matrix is used to trace the newly added or modified requirements to Use Cases.
- **Use Cases.** This component outlines the business processes impacted and specifies how the user interfaces with the system or any other external systems during those business processes.
- **Testing Requirements.** Documents preliminary testing requirements that need to be considered during test planning.

A.1.3.2.3 Facilitate Structured Walkthroughs of the Requirements Document

During this activity, The Contractor, in collaboration with the State, will present the proposed functional and technical requirements. This is an opportunity for stakeholders to understand the business imperatives driving the initiative and make early assessments of additional impacts, such as modified business processes, that might stem from the initiative.
The main elements of a Structured Walkthrough are:

- Background of the initiative
- Scope
- Functional Requirements

- Visual Process and/or Architecture Overview of Major Processes
- Known dependencies including reporting, batch, or security Implications
- Other important issues, action items and non functional requirements

The Contractor will follow the State's established process for creating, validating, and updating the traceability between key design, development, and testing artifacts and the requirements they realize or support.

A.1.3.3 Functional Design

The Contractor will follow the State's established approach for the creation, review and approval of the functional design that accurately provides all of the business functionality and meets the system requirements defined in requirements gathering phase.

The Contractor will confirm that the functional design leverages existing application functionality, architecture, and technology wherever possible to reduce risk and reduce the time and resources required for development and testing of the modified functionality.

The Contractor will document any known constraints that influence the design and any risks that have been identified along with recommendations to mitigate risk.

The key activities for the functional design phase are:

A.1.3.3.1 Plan and Conduct JAD Sessions

The Contractor will work with the State to identify and include the necessary subject matter experts, functional and technical resources in the functional design phase.

Joint Application Design (JAD) sessions will be conducted by a Senior System/Business Analysts to collaboratively construct a functional design that addresses each requirement of the initiative. The Contractor will perform impact analysis to include cross-functional and downstream impacts in the design.

A.1.3.3.2 Develop the Functional Design

Using input from JAD sessions and expanding upon requirements, the Contractor will construct a functional design that addresses each Bridges functional area impacted by the proposed changes providing sufficient detail for the developers to accurately implement the approved changes. The Contractor will work with the State and appropriate business and technical leads to identify a data migration approach (if necessary) and high-level test conditions providing valuable inputs for subsequent phases of the system development life cycle.

A.1.3.3.3 Create Use Cases

Use Case documents depicting the business processes impacted by the initiative are created in the State's established format which includes:

- Title that provides a summary description of the process covered by the Use Case
- Diagram that provides a pictorial view of the Actors relationship for the Use Case
- Actors that identify the individuals or systems that interact in the Use Case
- Pre-conditions required for initiating the Use Case
- Main Scenario describing the steps or interim processes performed by the Actors
- Post-conditions which document the result of the Use Case
- Requirement Reference to identify the BRIDGES requirements satisfied by the Use Case

A.1.3.3.4 Develop and Review Logical Data Model

The Contractor will collaborate with DTMB technical staff to develop the Logical Data Model for the in-scope functionality. The Logical Data Model is first internally reviewed and approved by the Contractor DBA and then it is presented to The State (DBAs), along with the business requirements, for review and approval.

A.1.3.3.5 Create Storyboards

Using a screen change as an example, The Contractor will develop screen mockups for new screens or updates existing screens. The storyboards identify the data elements on each screen and define data type and length, maps the screen fields to database elements and reference tables, and documents cross validation rules. Additionally, storyboards will be created for interfaces, reports, and correspondence.

A.1.3.3.6 Develop Activity Diagrams and/or Higher Level Business Process Flow Diagrams

The Contractor will develop activity diagrams which are graphical representations of workflows, stepwise activities, and actions pertaining to the modified functionality. The process flow diagrams are used to describe the business and operational step-by-step workflows of the system.

A.1.3.3.7 Document Key Considerations

The Contractor updates the design throughout the JAD sessions to include key decision areas of the initiative's functional design that were discussed and agreed upon with project stakeholders during the design meetings.

A.1.3.3.8 Document Required Decision Tables

The contractor will include documentation of new or modified decision tables based on changes or enhancements that result in changes to the business rules.

A.1.3.3.9 Update Traceability Matrix

The Contractor will update the requirements traceability matrix to map the requirements to the newly created or updated Uses Cases, Activity Diagrams, and Storyboards.

A.1.3.3.10 Facilitate Design Walkthroughs

The Contractor will work with the State to facilitate design walkthroughs.

A.1.3.3.11 State Approval of Functional Design

After review, the functional design will be finalized, approved by the State. The Requirements and Design documents will be checked into version control and attached to the Work Request in ClearQuest for tracking and traceability.

A.1.3.4 Construction

A.1.3.4.1 Bridges Development Approach

The Contractor will assign appropriate development resources to approved Work Requests (WRs) using ClearQuest (CQ). The developers and track leads will update the status of each assigned work request throughout the development life cycle. The Project management team will utilize these WR's to track resource utilization and provide accurate status reporting to Contractor and State management. The CQ WR will provide developers with links to supporting requirement and design documentation providing the detailed specifications to complete the work defined by the WR.

The Release Planning Management team utilizes CQ to group WRs into scheduled releases, where similar or dependent functionality can be logically grouped for the purposes of development, testing assignments, and code migration through the environments. The Contractor's Senior Systems/Business Analysts will monitor WR status and, following completion of peer reviews, code reviews and quality assurance checks, promote the WR and its attached components to the appropriate test environment.

The CQ activity structure identifies the required activities for each Bridges functional area impacted by a WR. The development activities are organized by types, including code changes, database changes, reference table changes, documentation updates, and day zero data scripts. This structure groups the required development activities for each WR into a package and enforces the completion and review of each component prior to promotion from development to integration and testing environments.

The Contractor will provide knowledgeable, experienced and well trained staff to perform the key activities of the development phase required to deliver WR's approved for scheduled or immediate release. The development teams of each functional area of Bridges will be expected to produce accurate and efficient software artifacts that meet the established business and technical standards and contribute to a high performing, accurate and reliable production application.

The Construction phase commences only when documentation of the requirements and design for a work item are completed by the Contractor and approved by the State. The State may conditionally approve the initial construction of release items based on a partial design or other approved documents to meet critical business needs with the understanding that the final documentation will be completed by the Contractor as soon as possible.

The Contractor will provide resources with relevant skill and knowledge (as identified in Article 1, Attachment A) to perform the key activities of the Development Phase including:

Note: In addition to the activities defined below, the Contractor's development team leads will work closely with the Application Architecture Management team as defined in Section B.6, technical testing teams and DTMB technical leads and management to regularly evaluate that the processes and procedures in place are accurately documented and effective to provide maintainable, high quality software artifacts..

Key Activities	Description / Contractor Roles and Responsibilities
Technical Design Walkthrough	Senior Systems/Business Analysts review requirements and design artifacts with the development team, explaining the development approach. **Impact analysis is completed in this phase to determine cross-functional dependencies. Any issues identified during this activity will be documented in the WR and communicated to State and contractor management as well as the track leads of the impacted functional areas.** To complete this activity, pseudo-code is written, unit test scenarios are defined, and a development work plan is finalized. **The details of this development work plan will be documented in the CQ Development Request QA tab.**

Key Activities	Description / Contractor Roles and Responsibilities
Develop Work Request	The activity involves creating and modifying source and object code, executables, and scripts for the software modifications required by the WR. Developers will write the source code in accordance with the programming standards established in collaboration with the State and according to the specifications documented in design artifacts. Code development must adhere to a consistent set of programming, project and error prevention standards, processes and procedures. Processes, procedures and standards must support accurate, reliable and maintainable code, developed in the most efficient and cost-effective manner. Development staff also coordinates the following activities as required for completion of functionality identified by the assigned WR: (*The list below identifies common development activities, the Contractor will support and maintain activities and tasks required for all Bridges software artifacts.)* o New Reference Tables or changes to existing reference tables o Database Changes including new tables and modifications to existing tables o New or modified Opus Elixir Templates (for client correspondence) o New or modified Crystal Reports templates o New or modified Decision tables (changes to application business rules) o Supporting code generated by the framework tools such as; page scripts, data access components, page elements, etc. o Scripts and Scheduling information required for new Batch jobs o Additional software artifacts and activities required to maintain and support the Bridges application All modifications made by developers and delivered to upper environments for testing must be related to a business or technical requirement defined and approved by the State and supported by the functional design related to an approved WR.

Key Activities	Description / Contractor Roles and Responsibilities
Conduct Unit Testing	Unit testing will meet the objectives defined below as well as those defined in Section A.1.3.5.1. Prior to Unit Testing, the appropriate Unit Test checklist for the type of software artifact being developed is completed and attached to the code change activity in CQ. Unit testing is used to verify the input and output for each module. Successful testing indicates the validity of the function or sub-function performed by the module and confirms traceability to the approved requirements and design. During unit testing, the developer tests each module individually and verifies the module interfaces for consistency with the design specification. During Unit Testing, actual results of the *important* ****** processing paths through the module are compared with expected results. In addition, the developer tests system exception and business error handling. *** The developer will perform Unit Testing for all functions or conditional paths that were either directly modified or may have been functionally impacted by other changes made within the same unit of work.* Before completion of Unit Testing and promotion to Integration, each new or modified component will require a peer review that validates a number of standards including: • The new or modified component meets the coding standards and conventions and is properly developed to utilize existing application components and services. • The modifications made meet the business requirements and can be verified in the development environment by the application for online changes or resulting output files for batch programs. • The modifications made are properly documented following State established standards for JavaDoc and internal method comments. .(See Java Code Standards in 1.3.4.4A) • The component being evaluated contains only modifications that are supported by an approved requirement and are in alignment with the approved functional design. • The documented Unit Test Checklists, results from code validation tools and integration test plan are completed and do not identify significant risks or issues. • Proper documentation as defined by the track leads of the Unit testing and development details are found in the CQ QA tab.
Manage Requirements	Contractor Senior System/Business Analysts review the components developed and cross-reference then with those in the Requirements Traceability Matrix.
Conduct Integration Testing	Integration testing is the responsibility of Contractor Senior System/Business Analysts following the successful completion of unit testing and the integration of newly created or modified code with the existing Bridges code base. We perform end to end testing of the code changes in relation to the business process and technical coordination of individual units or modules with the larger system.
QA Review	To confirm the highest quality software artifacts, the Contractor will document and follow a defined QA review process and provide the State with a detailed list of standards. Control measures and expected output from the QA review process. The Contractor and State will work together to improve the QA review process throughout the duration of the contract to reduce the number of common issues that are found in upper environments.
Develop System Test Scenarios	The development team coordinates with the testing team to review requirements and design documents for each WR and create test scenarios. Test scenarios are used to control the test cases to be processed and document how to process them. The test scenarios created identify likely production situations. The Test Scenarios are recorded within CQ. These test scenarios will support QAT testing and improve the efficiency of UAT testing by resolving issues before they are scheduled for UAT.

Software artifacts and design documents created or modified during the development phase are checked in to ClearCase, the version control software utilized by State. ClearCase provides an audit trail of the changes between code versions. A detailed version tree provides development staff with a historical view of file changes and links to the related CQ activities documenting the business and technical requirements associated with each system modification.

A.1.3.4.2 Modular Design Using the Bridges Framework

The Contractor's development team, following the SUITE / SEM approach, identifies opportunities to enhance application code reusability through modular design, maintaining the overall quality and maintainability of the application. The Bridges framework consists of essential components routinely used by the application.

The Contractor will assist the State in the identification of the most commonly used components and recommend initiatives to integrate them into the framework and framework tools facilitate code reuse and improve maintainability.

The Contractor's development teams will collaborate with the State to develop software artifacts that follow a modular design and properly leverage the Bridges framework and existing shared code libraries in each of the application layers. Compliance with these standards and processes is critical to avoid redundant code, improve software quality, and increase the maintainability of the application.

A.1.3.4.3 Quality Control Standards for Software Artifacts

Developers will provide detailed documentation for their new and modified code within the source code using the State's established standard for JavaDoc comments.(See Java Code Standards in **1.3.4.4A)** Internal code documentation will be required regardless of the scale and effort of the development task to improve the maintainability of the application and support detailed tracking of the modifications that are made over time.

After developing individual components, developers assess their source code objects to determine adherence of structural code changes to coding and programming standards that are documented and approved for the Bridges project. This inspection improves compliance with QA guidelines and increases code readability and maintainability.

The contractor will adhere to established standards and guidelines for continuously improving the development process through the consistent use of peer reviews, automated quality assessment tools, QA reviews and code reviews.

On completion of the unit test, members from the architecture support team review the individual code components. These code reviews verify that framework components are being re-used where required to minimize development of redundant code. Additional standards for proper use of Framework and core application components are included in the 'Environment' section of this contract.

Also, as part of the code review, the Database specialists review the SQL queries used in the code to make any suggestions for improving performance of the application. Detailed specifications for review of data access code are provided in the 'Technical Operations' section of this contract.

QA Review / Code Review by Senior Systems Business Analysts

The Contractor will collaborate with the State to establish and leverage a Quality Assurance team that will review design documents, conduct code reviews and confirm that application development follows established standards and processes. The Standard process and evaluation criteria for QA review and code review will be documented and versioned to comply with the SUITE / SEM requirements for verifiable and repeatable processes.

A.1.3.4.4 Bridges Development / QA Review Standards

The Contractor will adhere to the established and documented standards for Development, Unit Testing, Peer review, Quality Assurance review and QA Code Review. The Contractor will work with the State to update Bridges standards and QA documents with an objective of improving the overall quality of the software artifacts delivered for each release.

The Following Standards documents will be used in the Construction phase:
1.3.4.4A : Standards Documents

Category	Standards / Process Document
Unit Test Checklists	Batch Checklist.doc Decision Tables CheckList.doc Informatica Checklist.doc Java Source Code Checklist.doc JSP Checklist.doc
Code Review Standards	Bridges Code Review - Batch Checklist.doc Bridges Code Review - Java Checklist.doc Bridges Code Review - JSP Checklist.doc
User Interface Standards	BRIDGES JavaScript Development Guidelines.doc BRIDGES JSP Custom Tag Guidelines.doc BRIDGES_User_Interface_Guidelines.doc ADA *(Americans with Disabilities Act)* COMPLIANCE GUIDELINES.doc
Report Design Standards	BRIDGES Report Design Guidelines.doc
Java Code Standards	BRIDGES Java Standards and Guidelines.doc
Workspace Setup and maintenance	Creating a Bridges development workspace.doc Maintaining a Bridges development workspace.doc
Technology and Architecture	DL-001 Technical Architecture Plan
Standard Development Templates	Screen Template BRIDGES JSP TEMPLATE.doc *Report Template* Starter_template.rpt

A.1.3.5 Testing

The Contractor will follow the State's established testing approach for Bridges that:

- Follows the testing stages defined by the State's SUITE standard

The Contractor will provide testers who have significant understanding of the Bridges and MiBridges technical and functional business logic, Michigan policy and local office business operations, and downstream impacts to provide:

- Realistic, business-oriented scenarios
- Early identification and discovery of system anomalies in lower test environments
- Resolution of the majority of system issues in the early lower environment level testing

The Contractor will work closely with the State Business and Testing Teams to:

- Communicate identified system anomalies early in the testing phase
- Improve State management awareness of testing progress and issues

The Contractor and State test teams will use Mercury QuickTest Pro and an automated test suite that:

- Produces repeatable test scripts for regression testing
- Produces clear and concise reporting of test results
- Lowers deployment risk
- Decreases the need for re-testing and re-development

The Contractor will provide resources from their testing team to participate in requirements and design sessions to understand the attributes and impacts of system changes The Contractor will provide the State with test plans early in the SDLC to afford sufficient review time and allowing the State staff an opportunity to provide early feedback on the expected testing process for an initiative.

The Contractor will integrate requirements management with test planning, execution, results validation, and issue tracking that achieves the entrance and exit criteria of each test.

The Contractor will follow well-defined testing standards to better identify requirements and/or design issues earlier in the SDLC process, maintain requirements traceability, and provide support to Bridges testing activities that reduce re-work and increase the stability of the release.

A.1.3.5.1 Unit Testing

The objective of unit testing is to exercise single units of code in isolation. Executing tests in isolation prior to integrating components removes variables and allows the validation to focus on the function of one unit of code facilitating validation of the specific change being implemented.

The Contractor will adhere to the State's SUITE defined entrance criteria, artifacts to be provided, and exit criteria for this phase of testing.

The Contractor's development team will create and execute unit test scripts as they complete components so that they fully exercise each individual component in isolation in both positive and negative test modes.

The Contractor will correct issues discovered in unit test with an iterative process, reassessing the unit test case. The development team will document issues discovered in unit test in ClearQuest with problem statements, root cause, and resolutions providing insight to the State as to the types of issues found in this stage of testing.

The Contractor will use standard unit test checklists specific to the type of component being developed and code standards and guidelines adherence. Unit test checklists will be completed and attached to the code change activities associated with each work request in ClearQuest.

The Contractor will conduct a peer review in which they assign senior developers to assess code conformance to function, standards, and performance.

Before deployment to upper environments, the Contractor will conduct quality control audits to assess completeness of the preceding tasks. Issues discovered in the quality control audit will be documented in the Work Request and resolved prior to delivery.

The Detailed unit test conditions and results will be documented in ClearQuest to provide traceability between unit test results, business needs, and system requirements. This Documentation will provide the steps executed, test cases used, expected results, and actual results.

A.1.3.5.2 Software Artifact Quality Assurance (QA) Review

Once a unit of work is successfully reviewed by the code quality assurance team and functional leads, it is built into the QAT environment where it is tested based on test scenarios identified during the analysis/development phase.

A.1.3.5.3 Integration Testing

Following successful unit testing, code changes will be promoted from the development environment to the integration environment and undergo integration testing.

The Contractor will conduct end to end testing of the code changes in relation to the business process and technical coordination of individual units or modules within the larger system. The integration environment's system functionality can only be modified by approved code changes promoted to from the Development environment. If integration testing is not successful, then the code changes are not promoted beyond the integration environment, this maintains the stability of the upper environments.

The Contractor will use ClearQuest to document testing scenarios completed during integration testing.

The Contractor will conduct both manual and automated testing during integration testing. Manual testing occurs as code is first integrated. Contractor testing staff will use Mercury QuickTest Pro for automated testing and continually create and update scripts into a master test suite. The Contractor will execute this master suite for integration test needs throughout the remainder of the release.

A.1.3.5.4 System Testing (Quality Assurance)

The Contractor will conduct Quality Assurance (QA) testing performed in accordance with the Quality Assurance Test (QAT) Plan established for each scheduled Bridges release. The QA Testing Team focuses on confirming that functionality that has passed unit and integration testing will perform correctly when subjected to user perspective and scenarios covering the end-to-end business process. This testing phase provides the first business oriented review of the application and qualifies the readiness of the release for User Acceptance Testing by the State.

The Contractor will base the system testing scope on the requirements and design artifacts upon which the changes are based. The Contractor will link requirements into cohesive test scripts that span business processes, some of which may require testing sequences that span multiple areas of functionality.

The Contractor will create and follow a Quality Assurance Test Plan to track the progression of quality assurance testing for a release and report on the status of that testing at various points in the release.

The Contractor will conduct the following types of QA tests:

Type of Testing	Expected Results	Purpose / Outcome
Audit and Control	Targeted system outputs conform to required controls.	**Example**: For *changes to client income and asset data, circumstances, report and change dates.* Progressive collection of data across system functions such as data collection, eligibility, correspondence, interfaces, and benefit management Over issuance avoidance

Type of Testing	Expected Results	Purpose / Outcome
Transaction Flow	Online screen driver flows function properly End to end transactions stream properly Batch processing sequence is correct	Proper sequence of system processes that closely aligns with local office day-to-day business processes Avoidance and or prevention of data anomalies and integrity issues
Usability	Online processing is intuitive User interface is readable and user friendly features are incorporated	Efficient case processing Worker relief Avoidance of worker data entry issues
Documentation and Procedure	Alignment of Requirement and Design artifacts Process flows reflect newly updated functionality Batch sequence instructions reflect any newly created or modified batch process flow(s)	Detailed and current Bridges and MiBridges documentation DHS and DCH SMEs and DTMB business and technical leads have accessible resources when processing questions arise
Parallel	Similar results are obtained when exercising the same component concurrently.	Performance code change validation Synchronization of web services with online logical units of work Maintenance of data integrity
Batch	Batch sequence processing is correct	System availability is not affected Uninterrupted batch processing
Functions/Requirements	Bridges functions per existing and new requirements	Reduced error rates and improved accuracy
Operational	System availability in the production environment	Bridges is fully operational after every release
Installation (Implementation)	Testing of installation capabilities on required platforms	Successful deployments
Interface/Inter-System	Incoming files are processed successfully Source and staging tables are correctly populated by Bridges application Interface batch processing is completing successfully Creation of external files with detailed data Exceptions handling is correct Batch framework tables are detailed	Correct demographic and eligibility data is processed via interface files (incoming and outgoing) Correct reflection of summary interface processing data
Security	New security roles are correct per specifications Existing system security enforces appropriate authentication routines	Sensitive client data is secure Bridges end users are able to access information as prescribed by their roles

Adhering to the SUITE and CMMI frameworks, the QA test phase validates QA response timing, performance, security, and the functional accuracy of logic and numerical calculations under normal and high-load conditions. Query and report capabilities are exercised and validated. Operating documentation is verified for completeness and accuracy.

QA test scenarios and results will be documented in ClearQuest and linked to the Work Request and Change Implementation records, enforcing traceability to the requirements and development items for the activity. Where necessary, these scenarios will include complex case compositions, case life cycle execution, interface validation, and case processing sequences.

The Contractor will follow SUITE processes to identify, triage, and resolve issues identified during QA testing. The Contractor's testing team will collaborate with the State to evaluate failed test scenarios, determine the appropriate resolution, consult subject matter experts (*as required for clarification*), and allocate the necessary development resources to expedite issue resolution.

A.1.3.5.5 Regression Testing

Regression testing verifies that system modifications have not caused unintended effects and that the existing software or system components still comply with specified requirements. The Contractor will conduct regression testing by means of automated test scripts executed by the Mercury QuickTest Pro tool to evaluate numerous aspects of the application that may be impacted by the work requests of any given release. Issues identified during the regression testing phase will be documented and resolved prior to the production release.

The Contractor will create and maintain manual test scripts when the automated tool cannot be utilized allowing common areas, such as interfaces that receive files from trading partners to be regression tested. Test scripts will be reviewed and shared between the Contractor and State to confirm compliance with policy and business processes. The same scripts and scenarios will be executed in all upper test environments after every build. Regression test results are communicated to the Release Planning Management committee and reported in each release status report.

Regression testing will be performed in the QAT environment in conjunction with system test scenarios. As the release is delivered as a baseline, grouping all system functionality related to the changes made for the release into a consolidated package for subsequent testing phases, the success of regression tests in the QAT environment is critical to confirm that a stable build is delivered to UAT and eventually the Production environment.

Regular regression testing will also be performed in UAT to improve the stability and integrity of this environment and reduce the risk of unintended changes being deployed to production.

A.1.3.5.6 Load Testing

The objective of load testing is to exercise the Bridges application under load and stress conditions, to observe and analyze performance characteristics, and to identify load-related problems. A secondary objective of load testing is to test the system following changes to third party software, such as WebSphere, Oracle, Solaris, and MQ Series.

Load testing uses normal and/or high volumes of data, numbers of cases, or numbers of users to validate continuous availability of system functionality for end users.

The Contractor will follow the load testing approach as indicated below and report issues and recommended application modifications to the release planning team:

Load Testing Approach	Objective / Outcome
Design and Create Load Tests Scenarios Based on:	Produces reliable test results through Load tests that closely models actual production Bridges use
Current Bridges usage patterns	Helps to identify and plan for future projected usage patterns
Analysis of production performance metrics	Reduces risk downstream through the identification of performance leaks prior to a release being deployed to production
Changes to application components	
Load and Stress Test Modeling Criteria	Identifies performance issues based on production usage patterns before the release deployment to production
Anticipated production case load	Verify that the State's infrastructure can support the release
Caseworker usage behavior	
Execute Load and Stress Tests	Provides more precise results through iterative tests
Confirm meeting of entrance criteria	Enables the State to estimate Bridges infrastructure requirements as the application grows in size and complexity
Execute first iteration	
Resolve pending issues	
Create Test Report	Enables the State to better plan for future growth through accurate test data
Describe Test Scenarios	Provides the State with tangible performance enhancements for future release planning
Provide summary of Test Results	
Identify impact on capacity plan	
Provide recommendations for areas of intervention	

The Contractor will load test Bridges applications by simulating production sized transaction volumes and mix as allowable by available environments. The Contractor will initiate a stress test to the Bridges systems to measure the performance under peak load. Capacity planning will use these stress tests as inputs into a capacity plan that helps recalibrate the Bridges capacity model.

For online load and stress testing, the caseworkers' Bridges usage behavior will be simulated by recreating attributes such as simultaneous transactions by different users for the same process (e.g., running eligibility on a case), think time, number of transactions, and type of transactions processed during regular business hours.

Batch performance is critical to the overall communication of demographic and eligibility information to external partners. Many batch processes also drive the availability of online functions each day, necessary for end users to process clients' cases. The Contractor will perform load and stress tests on batch components by simulating month-end and negative action date runs as these are typically the most intensive batch schedules in Bridges.

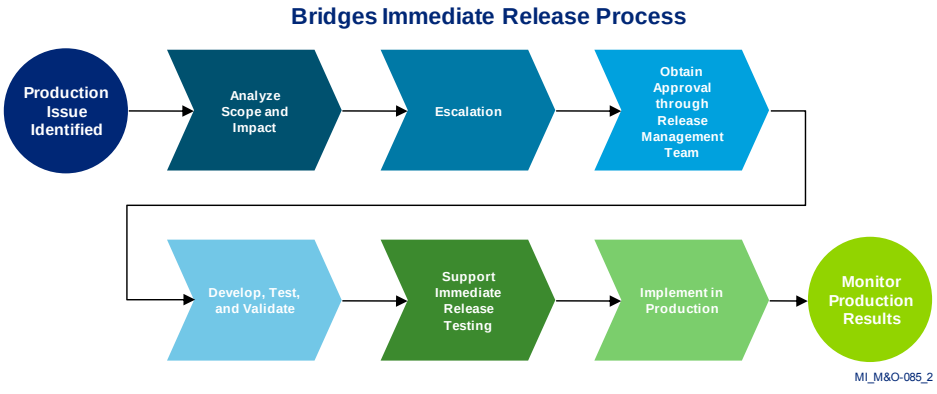
The Contractor will conduct load testing of online and batch components related to a release as applicable. In addition, the Contractor will work with the State to conduct load testing for any changes to third party software prior to the production implementation of these changes.

A.1.3.5.7 User Acceptance Testing Support

Collaboration, open communication, and knowledge sharing between State testing resources and Contractor project staff will support user acceptance testing. The Contractor's Senior Systems/Business Analysts and testing resources will be available to assist UAT staff in completing testing activities, reviewing scenario results, and/or addressing concerns regarding Bridges functionality

The Contractor will identify test cases for scenario processing and provide valuable insights gained from development and QA testing. Contractor technical staff will collaborate closely with UAT testers and DTMB technical leads to confirm release builds are migrated promptly to the UAT environment and batch jobs are executed following the production schedules to confirm the expected end-to-end functionality of each work request. As tests are completed, Contractor staff assists the State with the creation of training materials and release notes to help expedite the adoption and understanding of enhanced or modified system functionality by field users following a release.

A.1.3.6 Bridges Immediate Release Process



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The Contractor and DTMB development teams will use the same process as defined below for all issues requiring immediate release.

A.1.3.6.1 Analyze Scope and Impact

Analyze the reported issues/changes to determine the scope, the impact to the Bridges, and the level of effort required to implement the fix or change. This step is critical as failure to

understand the root cause of an issue or the scope of a change can have broad-ranging negative effects on other areas of the application.

A.1.3.6.2 Escalate Issue to Management

Open and transparent communication must be practiced to facilitate State and Contractor management making the right decisions and staying informed at all points in this process. Issues identified as having a significant impact on production (*that may require an immediate fix*) must be communicated to State and Contractor management promptly to create awareness of the issue and avoid duplication of effort from other teams that may be researching the same issue. This notification is also essential to State management so that proper communication can be provided to the field workers and operation status can be updated if needed.

A.1.3.6.3 Obtain Approval for Immediate Release

Potential immediate release items must be presented to the release planning and management team to get approval for promoting the fix through an immediate release. The contractor and DTMB will work together to provide recommendations to DHS on the criticality of the issue and identify the impacted areas of the application..

A.1.3.6.4 Develop, Test, and Validate

Once approval is obtained for an immediate release, development of the fix or change will proceed. The Contractor testing team will validate the change and confirm that no unexpected impacts have been introduced into the application. For data fixes, logs of the SQL will be analyzed and attached to the environment request that will be assigned to the State's Technical Control Group.

A.1.3.6.5 Support Immediate Testing by DHS

The Contractor will also work simultaneously with the UAT team to test and validate the change and to help confirm that the fix addresses the issue reported with no negative impact on the application. Testing results will be provided to the appropriate DHS stakeholders to facilitate the approval process.

A.1.3.6.6 Obtain Approval from DHS

Following successful testing, The Contractor collaborates with the State to evaluate the stability of the immediate release package being put in production.

A.1.3.6.7 Implement Immediate Release into Production

Once the immediate release is approved, The Contractor (*And / Or DTMB*) coordinates with the build team and THE STATE'S TECHNICAL CONTROL GROUP to promote the immediate release into production in the next available immediate release build.

A.1.3.6.8 Monitor Results

The Contractor also supports the State in verifying that they have correctly deployed the fix or change in production and that it is operating as intended.

A.1.3.6.9 Merge Process

Finally, any code change that is deployed through immediate release must be introduced into the standard development stream so that it will go through the normal development and test cycle. For data fixes that were required due to an issue in the application, a permanent fix will be proposed in release planning.

As the code change moves through the development cycle, the standard SEM phases should be completed as indicated in section A.1.

A.1.3.6 Implementation

See Article 1, Section 1.104 Section C.4.6

A.2. Ticket Resolution and Help Desk Support

Contractor Key Responsibilities

- The Contractor will follow the State's established process for resolving emergent and non-emergent tickets to help the State achieve goals of high worker satisfaction, reduced workload and the issuance of timely and accurate benefits to clients.
- The Contractor will support the DHS by helping them respond to worker questions in urgent situations and avoid delay in their case processing

Description of Activity and State and Contractor Roles and Responsibilities

The Contractor will follow the States existing ticket resolution approach that involves close coordination among the State, and field workers, and will use the Remedy tool to drive that activity. The Contractor will perform an initial investigation and gather information to evaluate if additional resources from the State are required to identify the resolution.

The Contractor will work with the State to prioritize/resolve tickets that are most problematic to users or have the largest business/client impacts.

The Contractor will work with the State to review options for a temporary resolution or provisions or establish business processes for ticket resolution. The Contractor will follow the States defined communications process to inform the user community of established business process provisions. The resolution in some cases may consist of both a short-term solution to work around the issue in production and a long-term solution to fully address the problem. For tickets that require application maintenance, appropriate records must be created in ClearQuest so that the technical team can fix these issues once prioritized through the release management process.

The Contractor will meet regularly with DHS and DTMB staff, at the State's request, to expand their system functionality knowledge and equip them with the tools to resolve both emergent and non-emergent tickets more effectively and efficiently.

The Contractor will use the reporting features of the Remedy tool as well as documentation from the status reports to evaluate trends on incidents reported, the turnaround time of incident investigation, and the nature of incidents to identify opportunities for process improvements. The following steps summarize key steps that the Contractor will follow for effective ticket resolution after the remedy ticket has been entered in the Remedy tool and assigned an initial severity level based on business impact:

- **Gather additional information,** which may be required to resolve the ticket by contacting the initiator and functional and business leads
- **Analyze the problem** to understand what is causing the initiator from achieving the expected results
- **Assign the ticket to the appropriate team**
- **Revisit severity** to dial up or dial down the severity based on input and the mutual decision of reviewers of the ticket from Contractor and State teams
- **Assign category** to the ticket based on a defined set of standard categories that help establish trends for management review
- **Resolve or develop a Corrective Action Plan** for resolution and track the ticket until it is resolved
- **Evaluate if a long-term solution is required** and route the ticket post resolution to the development team

A.2.1 Addressing Emergent Tickets

A quick, effective resolution of Emergent tickets is critical to supporting the ongoing business of the State. To give these tickets the prompt attention that they require, the Contractor will use a dedicated team of professionals who possess in-depth knowledge of the Bridges application, and a follow a structured remedy response process.

The contractor will work with the State to respond to the tickets assigned to them within a timeframe mutually agreed upon between the State and the Contractor. When an Emergent ticket is reported, the Contractor will review the ticket, and if necessary, gather additional information from the initiator. The Contractor will identify and test the potential resolution to address the expected result by the user in a lower Bridges environment, if possible, to confirm that it achieves the end result expected by the initiator.

The resolution provided that could be a worker action, a script to update any inconsistent data, or an override action by central office staff. If there is no interim resolution available to meet the user's expectations, and a system fix is the only possible resolution, the item will be escalated to the release management team for prioritization for an immediate release.

A status report of all outstanding emergent remedy tickets provides management with a status of the health of the system so they may take appropriate actions.

A.2.2 Addressing Non-Emergent Tickets

To provide for the efficient resolution of non-emergent tickets, the Contractor will use a dedicated team of professionals who possess in-depth knowledge of the Bridges application, and a follow a structured remedy response process.

The Contractor will utilize this team to resolve the tickets assigned to them with severity lower than emergent.
The Contractor will identify the root cause of the issue and refer actions that require application maintenance to the release planning team.

A.2.3 Help Desk Support

The Contractor will offer their knowledge and experience of Bridges to assist the Help Desk staff with their daily activities by providing high standards of support and facilitating the flow of issues, incidents, and requests for rapid and effective resolution to provide broad coverage and inclusive responses.

The Contractor will leverage their experience and knowledge of the Bridges system to assist DHS and DTMB staff with the resolution of second line support remedy tickets which enhances the knowledge and ability of the State resources to provide improved customer service.

The Contractor will proactively monitor and respond to Bridges users' processes or issues related to the ticket resolution process. They shall work closely with the State to refine processes that enable:

- More efficient ticket resolution processes
- Useful training materials that are made available to the Bridges users
- Prioritization of issues that the local offices are most concerned about

The Contractor will monitor both emergent and non-emergent tickets to confirm that they have the appropriate number of staff dedicated to resolving these tickets in a timely manner. The contractor will shift other resources to their Remedy support teams as necessary to improve Bridges application stability and work towards a gradual decline in remedy tickets.

The Contractor's functional leads will work with the State to prioritize the issues that result in the highest number of remedy tickets, therefore providing the ability to permanently resolve critical issues and improve the overall accuracy and stability of Bridges.

The Contractor will monitor the issue trends for remedy tickets that are resolved to categorize and group the issues. These issues will be sent to the application development functional leads for analysis. Issues that require application maintenance will be referred to the release planning team for prioritization in an emergency or scheduled release.

Due to the critical need for the reduction in outstanding work requests, break-fix activities and remedy tickets, the Contractor will work with the State to allocate appropriate resources to their ticket resolution teams. The Contractor will assist the State in developing a process for the categorization of tickets. This will improve the ability to target resources in the areas needed to control backlog growth.

To reduce tickets related to user error, the Contractor will work with DHS and DTMB as well as local office management to understand the needs of Bridges users. The Contractor will recommend and assist with the design of training solutions centered around these items. These initiatives will account for the workflow issues and knowledge gaps that will provide the most benefit and relief to end user of Bridges.

The Contractor will offer additional support to the help desk by communicating changes to Bridges functionality or identification of application issues. By keeping the help desk informed, they can then convey this information to the field and better assist Bridges users with issues, which in turn will help to reduce the overall number of remedy tickets that are created.

The Contractor will monitor the influx of remedy tickets and track any trends that are seen from the review of these tickets. While the individual tickets are resolved, identified issues are tracked and communicated to DHS, DTMB, Contractor functional leads and Contractor management so that they can go through the process of release prioritization. The permanent solution to the issue is then scoped for either an immediate or scheduled release The main objective of this process is to confirm that identified trends are communicated to The State so that they can be addressed, which ultimately promotes application stability and benefits the Bridges end users.

A.3. Break Fixes

Contractor Key Responsibilities

The Contractor will follow the State's well-established process workflow for each data modification approved by DTMB and DHS submitted to the State's Technical Control Group for production implementation.

The Contractor will work towards consistently reducing the number of break-fixes required.

The Contractor will report on the root-causes of problems requiring break-fixes so that related application fixes can move through release planning and result in permanent fixes to the application.

Description of Activity and State and Contractor Roles and Responsibilities

Given the number of functional modules and external agency systems that Bridges interfaces with, the complexity of the system, and policies around which the system is built, there is, occasionally, a need to correct data anomalies in production to support data quality and reliability requests.

The Contractor will follow the State's current break fix process and collectively work with The State staff.

The Contractor will monitor the Bridges batch exceptions and application error log statistics on a regular basis to identify and report on any trends that can potentially result in system-wide issues or negatively impact the project progress. These types of issues are potential candidates for a break fix.

The Contractor will monitor remedy tickets and other communication channels to resolve emergency situations or cases that contain data inconsistencies

A.3.1 Types of Break Fixes

The Contractor will support the following types of break fixes submitted in production below. For issues that require application maintenance, the contractor will submit the proper documentation of the root-cause and recommended fix to the release planning team with an objective of implementing permanent solutions to achieve an increase in system stability and the reduce the number of break-fixes required going forward.

A.3.1.1 One-Time Data Modification

These are data modifications that address data related to a specific case that has an identified and approved need for a correction or cases that require clean up for an issue that has already been resolved in production through a permanent fix.

A.3.1.2 Recurring Data Modification.

Data modifications are sometimes executed repeatedly (recurring) until a Bridges immediate or scheduled build, addresses the root cause of the issue.

A.3.1.3 Event-Driven Data Modification

These are proactively submitted to address issues that are identified by The Contractor, State or third parties.

- Corrections to avoid application errors resulting from data inconsistencies created in production data
- Case or program specific corrections to avoid delays with case processing, client benefits, and other services critical to serving Bridges clients.
- Correction of inaccurate data from issues identified with trading partner interfaces.

A.3.2 Break Fix Process

The following Break-Fix process will be followed by the contractor:

- The Contractor and the State add items to the Break Fix master list as data inconsistencies are identified during Bridges triage and emergent ticket processes.
- The Contractor and the State research and develop, short-term and long-term solutions (i.e., data modification and associated code fix, where applicable)
- The Contractor and the State deliver data modifications to break fix and infrastructure teams for testing
- The Contractor and the State will coordinates the build and testing of Break Fix build items
- The Contractor , State and Infrastructure teams test data modifications
- Environment Requests (ER) for each break fix are delivered to the Infrastructure team
- ERs are associated with ClearQuest Work Requests. The contractor will provide detailed documentation of the purpose of the Break-fix, frequency, dependencies and other information required by the State for approval in the Work Request.
- ERs must include test logs from testing in lower environments before they are submitted to the Infrastructure team. These logs must document the number of records affected by any data modification.
- The Infrastructure team tests the data modifications in the Production Patch environment
- The Contractor, State and Infrastructure teams will complete testing of any Break-fix proposed for the same day no later than the agreed upon deadline.
- The Contractor and the State will make final modifications to the Break Fix master list each day by the agreed upon deadline.
- The Contractor and the State will review DHS critical items for processing
- The Contractor and the State will review business impacts of new break fix items and obtain State approval for each proposed break fix item.
- The Contractor will work with the State to get approval and complete a scheduling plan for successfully tested items
- The Contractor and the State will evaluate the impact of the schedule on trading partners, batch schedules and any other applications or processes that depend on the completion of the schedule.
- Data modifications/break fixes will be applied to Bridges Production by the Infrastructure team
- The Infrastructure team notifies Bridges Batch Team once data modifications have been
- successfully applied
- The Infrastructure team sends notice to Break Fix Production Distribution list on status of completed
- break fixes

- Bridges nightly batch processing begins
- The Contractor will review the results from the previous day's Break fix process

Based on the criticality and impact of correcting production data through break fixes the Contractor will work closely with DHS, DTMB and Infrastructure teams with the objective that break fix items meet the quality standards expected by the State. The Contractor will work with the State to reduce the number of break fixes as needed by implementing permanent solutions.

A.3.3 Break-Fix Tools and Reporting

The Contractor will use the Rational ClearQuest tool to track and submit the environment requests (ER) for data modifications. These ERs are associated to a Work Request for tracking purpose and to identify and prioritize a long-term fix to prevent similar data modifications in the future.

A.4. Batch Management

Batch operation is one of the key components of an Integrated Eligibility system and it affects each facet of the Bridges application that delivers services to the citizens of Michigan. Many critical Bridges processes such as benefit issuance to clients, correspondence and report generation, eligibility mass updates, and provider payrolls depend on the successful and timely completion of batch operations.

The Contractor will assist the State by providing qualified resources with experience and knowledge of batch job scheduling, assessing batch reports, optimizing batch cycles to increase operating efficiencies, monitoring nightly batch runs, and resolving any emergency issues within the batch cycle.

Contractor Key Responsibilities

- Scheduling and assisting in monitoring batch runs in production and lower environments
- Proactively identifying and resolving problems with batch jobs
- Batch cycle scheduling specifications, including job turnaround time, monitoring, and quality management
- Review of batch schedules to make recommendations for improving efficiency and streamlining performance
- Produce and review batch reports to provide timely feedback and recommendations to the State for any issues

Description of Activities and Contractor Roles and Responsibilities

A.4.1 Batch Support and Monitoring

The Contractor will:

- Work with the State and other Bridges trading partners as needed, to monitor and collectively plan scheduled nightly batch cycles well in advance to identify potential days that could result in longer batch executions that allow us to realign batch processing on critical days so that execution can be completed in a timely manner.
  - Assist the State in establishing contingency processes for evenings that are considered as "tight" batch windows from a batch operations perspective.
- Assist the state to optimize the batch schedule during critical periods such as cut-off and month-end to maintain timely issuance of benefits to citizens and maintain full availability of the Bridges online application during agreed upon operational hours.
- Provide knowledgeable on-call staff to assist with management and completion of the daily batch schedule.
- Monitor performance, logs and exception reports and work with DHS, DTMB to diagnose and address any batch incidents that may potentially occur during the nightly batch schedule and perform necessary production support activities.
- Provide resources from the application maintenance team with appropriate experience and functional knowledge of batch operations as needed to support batch operations.
- Collaborate with the State to maintain and support all required OpCon environments
- Work with the State to schedule new batch processes introduced to the batch schedule.

- Work with the State to confirm batch scheduling will be based on job dependencies, business criticality and impact to the end users and citizens.
- Work with the State to optimize the batch schedule to accommodate any new processes that may need to be re-scheduled based on their criticality.
- Monitor newly introduced batch processes to address any unforeseen failures or downstream impacts to other batch jobs.
- Provide functional and monitoring support for critical batch operations to avoid any potential issues or interruption of services that could occur. Examples of critical operations include but are not limited to: Benefit issuances, payrolls and critical third party interfaces
- Monitor system resources for CPU, I/O, and memory usage while batch jobs are executing and identify any remedial actions that may need to be taken if any adverse impacts are detected.

A.4.2 Batch Issue Management

Emergency maintenance is critical to the success of the Bridges project to enable business continuity for daily activities such as eligibility determination, benefit issuance, and data sharing with other agencies.

During the nightly batch process, there are four key groups who play an important part in resolving batch related emergencies. These members include:

- **DTMB and Contractor Batch Support Teams.** Monitor and support batch operations and identify emergency situations that occur during the processing of nightly batch schedules
- **Track Manager.** Manager(s)within the corresponding Bridges and MiBridges functional module(s) to which the batch job encountering issues belongs
- **Track Analyst.** Analyst(s) within the corresponding Bridges functional module(s) affected
- **DHS, Contractor, and DTMB Management.** Management is kept informed at all times through email and when necessary, a phone call, depending on criticality and impact of the batch job on the business. Recommendations and decisions from State management drive the resolution process

The Contractor will work closely with DTMB so that the appropriate track analysts, track manager(s) and Contractor management are available by phone in the event of a batch related emergency.

The Contractor Batch Support team will work closely with The State to monitor the Bridges batch cycles, and in the event of a problem, follow the documented procedures for problem identification, escalation and resolution to minimize the potential impact to the Bridges online start time and deliver critical files to trading partners on time.

A.4.2.1 Problem Identification

The batch support team will respond to any nightly batch emergency and work to identify the cause of problems as soon as they are identified. The problem could be anything from a job failure due to resource constraints, program contentions or something that is more complex and requires additional investigation. In the event that the problem is more serious and has implications on the remaining nightly batch operations, the batch support team gathers relevant information and initiates the problem escalation process.

A.4.2.2 Problem Escalation

The escalation process begins following the problem identification and the Contractor will follow the standard processes including:

1. Track manager(s) associated with the impacted functional module is contacted.
2. Managers engage the analysts assigned to support batch operations to review the problem and identify a solution.
3. Track managers evaluate the business impact and provide timely updates to The State detailing the impact to the end users and clients.

a. The Track manager will coordinate with the State to identify impacts related to the problem and perform applicable impact analysis, validation and testing on any proposed solution before it is implemented.
b. Solutions that require changes to the normal business processes require State approval.

4. While the problem is being identified and researched, the batch team will work to restore batch operations with the intent of completing as much of the nightly schedule as possible.
    a. In the event that there is not sufficient time to complete the batch schedule, the batch team and supporting management will work with DTMB and DHS management to establish the short term priorities for the completion of the most critical jobs.
5. The analyst and track manager work with the development team and trading partner contacts as needed to identify the solution with the least immediate and downstream impact.

The Contractor must be available to respond to critical issues that may occur for a variety of reasons including programmatic issues, network issues, hardware / software issues, or any issue that prevents the completion of critical business processes.

A.4.2.3 Problem Solution Identification

1. The track analyst investigates the problem and identifies the corresponding required fix. If the manager determines that the solution is acceptable, the information is relayed back to the batch support team.
2. Should the problem continue to be unresolved within an acceptable window, key project stakeholders are notified promptly and additional support staff with the necessary skill set are contacted and brought on site promptly.
3. In the rare situation where the only resolution is a code fix, a work request is entered and sent to the immediate release management process for immediate prioritization.

A.4.2.4 Follow up Activities

After the problem is resolved and normal batch operations have been restored, problems that required escalation will be entered into the issue tracking software. The Contractor will work with the State to analyze trends and common problems with the following objectives:

1. Communicate with third party contacts to coordinate permanent solutions for problems related to source files or the timing of third party dependencies
2. Communicate details of commonly occurring problems to the QA review, technical architecture and technical testing teams to establish preventative processes and procedures or improvements in the Bridges framework to reduce specific types of errors.
3. Communicate problems related to resource contention and system performance to the Technical support and Database management teams so that permanent fixes can be proposed
4. Provide sufficient detail in the issue tracker notes so that trends can be analyzed and the problem and corresponding resolution can be used to further required knowledge transfer to DTMB technical resources

A.4.3 Batch Quality Management

After implementing functional changes, the Contractor and State batch operation teams validate the stability and accuracy of batch processes through several stages of testing (following the SEM phases) including unit, integration, quality assurance, user acceptance, and load / stress tests.

- Batch load testing is essential to quality batch processing management as it allows for identification of batch performance optimization opportunities before migration into the higher environments. To accurately evaluate the performance of a batch job, it must be run against a database with production volume data.

- Upon completion of technical testing, the Contractor analyzes batch key performance indicators (KPIs), such as total runtime, database query performance, and resource usage statistics from the server infrastructure, and based on this analysis, provides recommendations for performance improvements to the Maintenance and Operation team.

A.4.4 Post Batch Validations

- In addition to the many QA checks in place to facilitate smooth batch operations, additional checks are put in place after the batch execution for critical programs to validate its accuracy as per the Bridges Batch Playbook.
- The Contractor will proactively validate batch output against expected results. This step identifies batch exceptions, increased run-times and issues with data accuracy.

A.4.5 Batch Process and Performance Improvements

The Bridges application is continually evolving in response to architectural and policy changes and the caseload and data exchanges with trading partners are on the rise, along with a corresponding growth in data in the Bridges database.

The Contractor will utilize standard tools and documented processes to track and record the performance of batch jobs with the objective of identifying ways to improve the execution of batch processes further and target any required programmatic enhancements for upcoming releases.

A.4.6 Batch Calendar

- The Contractor will provide the State with information related to Bridges production operations, issues, problems, and corrective actions through structured management reports. The Bridges Monthly Batch Calendar provides critical production schedule information to key internal and external project stakeholders and serves to improve Bridges availability during business and non-business hours for each day throughout the month.
- The Batch Calendar identifies schedules followed during nightly batch processing and outlines the regular Bridges maintenance activities that occur to provide a multi-dimensional view to key stakeholders with information regarding the heavy and light batch operation days and promote high visibility into the Bridges production operations.
- The Contractor will work with the State to plan the calendar and batch activities as much as three months in advance using input from The State, based on the needs of the State and Bridges stakeholders. Once schedules are drafted, The Contractor seeks approval on the recommended dates from The State before publishing the calendar.
    - This level of visibility is essential for the State to plan and prioritize software modifications and system enhancements.

A.4.7 Batch Reports

The timely and detailed reporting of any significant production issues is critical to project stakeholders, and the Contractor's processes and procedures must support this objective and allow for open and immediate communication with respect to any plans, schedules, issues, and resolutions related to batch. To meet this demand, the Contractor will:

- Produce a Monthly Project Status Report to provide a project status summary report to Bridges stakeholders and includes a summary of the batch issues for the past month alongside their corrective actions
- Produce Daily Batch Meeting Report to identify the set of items discussed at the Daily Batch Status meeting and list any decisions and provide details on outstanding and new action items
- Produce the Batch Performance Review Report to provide the Bridges database management team with an overview of queries that have been identified as top candidates for performance tuning.
    - Work with the State to analyze the functionality of these queries and prioritize them through the standard release management process.

- Produce the Production Batch Exceptions Detail Report to be used by functional leads and track analysts to identify any specific exceptions during the batch processing due to data inconsistencies and identify potential candidates for break fix or immediate release.

A.4.8 Additional Batch Support

In addition to monitoring batch failures, the Batch support team also identifies jobs that, although successful, are running longer than normal. This data provides the ability to proactively address batch job performance risks before they become production issues or interfere with critical batch schedules. The Contractor will identify batch jobs that appear to present a risk to overall operations for review and optimization.

The batch team also makes the daily list of functional exceptions available for the application maintenance teams to analyze and determine if any action is required. The report provides a summary of the exceptions for each of the jobs and their latest run-times in production.

Each business day (*Or as scheduled by the State*), Contractor staff will participate in a Bridges Batch Status Meeting to review and discuss the information distributed on the nightly batch report, and any outstanding items and approvals from DHS for ad hoc batch requests. As a result of this meeting, The Contractor will create a management summary report for distribution to a larger group of Contractor and State management

A.5. Reports Assessment

Contractor Key Responsibilities

- The Contractor will monitor and assess reports to improve their accuracy and performance. This will include tasks such as:
  - Review production reports for accuracy and consistency of data as well as optimal performance
  - Identify potential improvements in the report related batch jobs
  - Support the State's ad hoc reporting needs

Description of Activity and State and Contractor Roles and Responsibilities

Bridges reports employ complex business rules that typically summarize and aggregate data based on business user requests and deliver a wealth of critical information to project stakeholders and business users. The Contractor will closely monitor and assess these reports to produce the highest quality information for Bridges users without impacting the batch schedules.

A.5.1 Batch Report Monitoring and Testing

The Contractor will perform the following:

- Monitoring batch report execution
- Following up on the daily production batch summary report generated and sent by DTMB
- Generating statistics and reports on the batch report runtimes to assist with identification of areas for improvement
- Following the Batch Issue Management process for any issues identified related to reports in production

Bridges reports are, by design, complex and expensive in terms of system resource consumption. To verify reports are running optimally, The Contractor will conduct performance tests to verify their stability and impact on system performance levels before promoting them to the production batch operations schedule. To identify performance optimization opportunities, The Contractor will test the batch reports against a database that is sized to Production such as UAT or Production Immediate. When performance problems are identified for existing production reports, these will be escalated to the release management team for prioritization for an immediate or scheduled release.

In the event of a failure to a critical batch report the Contractor will follow the State's established communication process

A.5.2 Ad hoc Reporting

The Contractor will produce Ad hoc reports that provide key information to the State, and empowers management to make decisions on their systems, programs, and staff.

Testing and quality in ad hoc reporting is critical as the State uses these reports for very important decisions and, in some cases, external communication. The Contractor will conduct sufficient quality checks by leveraging the services of the Quality Assurance Test (QAT) team to verify key data and confirm results using the Bridges system.

The timeliness of delivering information to the State for key decisions and providing external information is important. The Contractor will provide many types of ad hoc reports including but not limited to:

- **One-Time Reports.** These will be requested by the State as needed.
- **Recurring Ad hoc Reports.** These reports are needed at a certain frequency following an action that takes place either through online or batch processes.

A.6. Functional and Technical Support

Contractor Key Responsibilities

The Contractor will offer additional support to the State through activities such as:

- Proactively identify areas of process improvement and recommend policy changes required to support those process changes
- Work collaboratively with the State to recommend enhancements targeted to achieve worker relief
- Provide firsthand support to DHS testers
- Offer access to support during hours of operation
- Work with central office and field staff to identify problem areas proactively through field visits, weekly calls or other methods as directed by the State
- Work with the State on any issues identified in production and assist with necessary communication to field staff
- Support DTMB team members with development and technical tasks
- Work with DTMB Batch support teams to collaboratively manage batch maintenance and operations
- Serve as a functional liaison for DHS Management and third-party agencies to create a strong relationship between organizations to work together toward common business goals
- Assist DTMB with the documentation of processes and procedures required to effectively support and maintain all technical components of the system.
- Assist the Infrastructure team with hardware, software and technical issues critical to Bridges
- Foster open and transparent communication channels for efficient escalation of issues, questions and discussion items
- Research avenues that will allow the State to extend support for the functional maintenance areas and improve the end-user experience

A.7. Annual Maintenance Activities

Contractor Key Responsibilities

The Contractor will complete critical annual maintenance activities, create and follow an established plan to facilitate smooth operation of these annual activities, some of which include:

- $1 LIHEAP
- Time-sensitive reference table review and updates
- RSDI COLA Updates
- October SNAP Payment Standard Updates
- Home Heating Credit Payments
- Winter Protection
- Annual Clothing Allowance
- Fiscal Year Payrolls

Description of Activity and Contractor Roles and Responsibilities

A.7.1 Annual Maintenance Activities

Changes to reference tables, application logic, updates to policy, and stakeholder requirements create the necessity to implement annual updates to the Bridges caseload to maintain compliance with State and Federal regulations. .

Annual maintenance requests do not represent changes in Bridges scope and do not reflect changes in requirements, but are necessary to address critical parameters that drive the application standards and compliance with policy, mandates, and rules at all times.

Some updates may require a change to benefits of the citizens based on program policy and result in a large volume execution of mass update. In certain scenarios downstream activities such as generation of special correspondences to affected citizens or the creation of ad hoc reports to provide a summary of the impact of the change may be warranted.

The Contractor will support the implementation of mass updates by working closely with State leadership and policy specialists to determine specific eligibility criteria and identify cases that would be potentially impacted by the mass change.

The Contractor will plan, communicate, and coordinate each mass change with input and approval from the State.

When mass change updates are implemented, each impacted assistance group is typically identified using ad hoc reports that allow workers to distinguish online mass change determinations from worker-initiated determinations. The Contractor will identify appropriate case loads and perform pre-determined test executions to validate the accuracy and assess impact. The Contractor will collaborate with the State to plan, communicate, test, and implement mass change updates.

To facilitate the easy tracking of these time-sensitive tasks which, if not handled appropriately, may have negative impacts such as delayed benefits and application unavailability, The Contractor will use an “Annual Maintenance Dashboard” that acts as a centralized repository for time-sensitive recurring activities with details on planning, execution steps, owners, and timelines required for each of the tasks.

A.8. Status Reporting

The Contractor will provide monthly status reports that cover the subject areas of Planned Releases, Help Desk Support, Calendar and Batch Activity, Additional Activities, Business Measures, Bridges Self Serve and Interactive Voice Response Business Measures and Technology Measures. A Sample Status Report is provided as **Appendix A**.

Each of these sections provides summary level information for quick reference and also contains detailed information to provide a complete view of the activities for a reporting period. In addition, the monthly reports include extensive information related to Business Measures to help management staff to know the trends and growth of caseload volumes, public assistance program growths, benefit dollar values, and correspondence issued during the reporting period. These will also provide specific activities regarding recently completed and planned releases, immediate releases, and completed environmental requests.

Upon mutual agreement between the State and the Contractor enhancements will be made to the Monthly Maintenance and Operations Status Reports to include additional information, new sections or detailed information on special projects.

The remainder of this section defines each area of the required report and the information that is to be included.

A.8.1 Planned Releases

The Planned Release section consists of information on three consecutive releases:

- The Release implemented during the reporting period
- The current Release to be implemented
- The next future Release

This section of the report is designed to provide a transparent visibility of the actual release progress and provides status on the Work Requests associated with the current and upcoming Releases. The current status of specific Release-related Work Request activities will be provided including:

- Analysis
- Development
- Integration Testing
- Quality Assurance Testing
- User Acceptance Testing Support
- Production Promotion Support

This section will provide a count of the Work Requests which are scheduled as part of the Release. To provide a better understanding of the scope of the Release, the number of work requests that required application maintenance will be identified.

This section will also provide a summary of User Acceptance Test (UAT) status that is tracked at the Release Planning Meetings (RPM), with accompanying notes where applicable regarding specific details on Work Requests that have not passed UAT. The testing status of specific Highlighted Functionality items, which consist of groups of Work Requests and related Test Scenarios are presented in a table at the end of this section. This table reflects both Quality Assurance Testing and UAT test statuses.

A.8.2 Help Desk Support

The Help Desk Support section of the Monthly Status report will provide details on activities related to ticket resolution and help desk management support. The Weekly Ticket Resolution graphic provides DHS management a snapshot view of tickets resolved by the Production Support Team organized by priority *(low, medium, or high)* on a weekly basis over the prior month.

A.8.3 Calendar and Batch Activity

This section of the report will provide the schedule for recurring processes including Daily Batch Issuance, Mass Update and Send processing, Weekly CDC and SER Payroll, Monthly RD-1010 Packet, Month End RD, Month end Payroll and Quarterly SSP processing.

The contractor will produce a daily batch activity report *(post batch)* to highlight issues related to critical batch jobs and document other activities which are of importance to the business users and trading partners. This report is one of the key sources for the Batch Issues Log section of the Monthly Report.

In addition to the Batch Calendars, this section will provide a table of the start and end times for the recurring core jobs in each batch cycle included in the report. Informative comments will be provided for each cycle that extends beyond normal processing hours. For each major trading partner, a table will be provided with the start and end times of the batch jobs that process the related interface files, along with explanatory comments for any jobs that were *(or will be)* delayed.

This section will include the Batch Issues Log, which will provide an identification and description of any Batch Issues that have occurred, along with a short term and long term resolution to the issue. This mechanism will provide management with an ongoing assessment of issues that have occurred, what was done to promptly mitigate the issue, and what the necessary solution was determined to be.

Maintaining a record of issues and resolutions in this manner not only confirms that issues are being promptly addressed with acceptable solutions, it builds a growing base of knowledge that enables the Contractor and State Batch teams to quickly identify and respond to future situations.

A.8.4 Additional Activities

The Additional Activities section of the report will provide information on additional activities of value that occurred during the month that do not fit into one of the other status report categories. Each activity will be updated on a monthly basis. The 21 activities currently being tracked in this report include:

- Self Service Processing Centers
- Model Office Concept and Vision
- Electronic Document Management (EDM) Planning
- Bridges Business Field Call
- Retire Bull Mainframe – New Conversion Activities
- Self Service Changes
- Crawley Lawsuit related enhancements
- Training
- Knowledge Share
- Technical Upgrades
- Newborn Changes
- Documents/Explanation to OAG
- Welfare Debt and TOP
- Wage Match Assistance
- OQA Universe/Sampling Assistance
- Archival and Purge Strategy and Approach
- Recoupment Meetings
- Employment and Training Meetings
- CDC Inquiries
- Provider Management Meetings
- Annual School Subsidy

As new initiatives are implemented and business needs change, the State may request information on additional activities to be added to this section.

A.8.4.1 Bridges Business Measures

This section will report on critical business operations metrics related to Case, Individual, Program summaries related, benefit issuance data by program type for daily, weekly, monthly and quarterly payrolls, and weekly volume of correspondences by document type.

A.8.4.2 Bridges Self Serve and Interactive Voice Response Business Measures

This section of the report provides summary and detailed information on important business measures and key performance indicators that measure the effectiveness of operations and identify potential problem areas. This section will contain information that is crucial for the State management to assess the success of an initiative, observe patterns of growth and proactively prepare and implement enhancements to the system.

Reported business measures will provide State management a snapshot view of the portfolio and enable informed and prompt decision making. This section will provide multiple views on the operations of Self-Service and IVR.

The State may request reporting on additional items for Self Service applications. The Contractor will collaborate with The State to identify these reporting changes and incorporate them into the Monthly Status report.

A.8.4.3 Technology Measures

This section of the report will provide monthly summaries of resource utilization (*CPU, Memory, and Disk*) across the Application, Database and Web Server domains.

This section will also include the Application/Server Uptime table, which presents the average and peak utilization of each resource category for each server domain.

The remainder of this section will provide the following charts of daily utilization for the prior month:

- Application Server CPU, Memory, and Disk Utilization
- Database Server CPU, Memory, and Disk Utilization
- Web Server CPU, Memory, and Disk Utilization

A.8.4.4 Report Appendix

Additionally, the Monthly status report will provide detailed lists including status information of every Work request and environment request included in planned and immediate releases which highlight the functionality and test scenarios related to the activities. In addition, a summary of environment requests applied to all environments will be provided.

A.9. Staffing and Functional Areas

See Article 1, Section 1.201 Contractor Staff, Roles, And Responsibilities for additional requirements.

The Contractor will provide staff possessing the appropriate IT Classifications/Skills Sets that meet or exceeds the state's expectations in relation to tasks associated with the ongoing maintenance and operations of Bridges.

See **Article 1, Attachment A** for a complete list of the required IT Classification and skill sets. The overriding requirement is that the individuals must possess the skills, knowledge, and experience required to perform the duties effectively and efficiently at the level specified in the contract to maintain that Bridges functionality and data is not compromised. A list of Bridges Functional Tracks are included below to provide a framework from which the maintenance and operations activities expected of the contractor will transpire.

It is anticipated that the required experience and skill requirements will change over the course of the contract. The Contractor will be notified in writing of these changes and will be required to provide personnel satisfying the experience and skill requirements, as modified, which includes skills sets which identifies knowledge of any future versions of software.

Assigned tasks will vary according to the specific project needs that exist at any time during the term of this contract. The number of development and maintenance projects will vary throughout the contract period, as will the required tasks.

Resources must comply with:

- Time reporting requirements including weekly entry of hours itemimized by work requests in the State approved time tracking tool.
- Work peformed for this contract conforms to State Uniform Information Technology Environment (SUITE), project management, systems engineering methodology, and other IT standards in effect for DTMB personnel supporting DHS.

The table below lists IT classifications and number of resources the Contractor will provide for each area. Pricing is based on the FTE count and classifications in the table below:

IT Classification	FTE Count	Key Staff Name
* Application Development Manager	1	Tamil Balakrishnan
* Technical Support Manager	1	Hemang Dholakia
* Production Support Manager	1	Ravi Nagisetty
* Testing Manager	1	Neil Killey
* Senior Systems/Business Analyst	7	AmandeepThukral Anil Dayanand

		Ramkumar Palu Manoj Kumar Sunil Wahi Asma Anjum Jason Reese
Java Programmer Analyst	48	
Oracle Database Analyst	6	
Supportive Software Analyst	3	
Quality Assurance Testing Analyst	12	

**Denote Key Personnel*.

It is expected that Senior Systems/Business Analysts and Java Programmer Analyst be configured by the following Bridges functional tracks. Senior Systems/Business Analysts are the primary liaisons between the DHS end user support staff and the contractor's technical teams with regard to requirements definition and translation of business requirements into functional and technical designs. The expectation is that they would serve as the track leads for one or more of the following identified functional tracks:

Bridges Functional Tracks:

- Benefit Issuance: Benefit Issuance provides mechanisms to deliver benefits to eligible recipients through multiple payment methods while maintaining a detailed benefit history. Bridges supports the rapid delivery (i.e. near real time) of benefits depending on the Electronic Benefit Transfer (EBT) contractor. Workers can research issuances by drilling-down to the individual level for each benefit month.
- Benefit Recovery: Bridges functionality determines when benefits have been overissued based on date and data dependent logic built in to the rules engine. When appropriate benefit recovery claims are generated for certification by field staff or sent as an alert to specialized staff, Bridges will establish automated recoupment processing or repayment plans for the case.
- Case Maintenance: Bridges provides functionality to support the many tasks that Workers have to perform throughout the lifecycle of a case. Bridges tracks due dates, receipt of verifications, and historical records, and, based upon the data in the system, it will recalculate benefits. Bridges also schedules appointments and provides calendaring with distinct options that can be modified at the worker level, in addition there are other options that are controlled at the supervisor level. Some of the key Case Maintenance features within Bridges includes: redetermination, provider management, mass change, and inquiry
- Client correspondence: Notices, Forms, and Referrals are dynamically generated within Bridges from a library of templates. Fields on the correspondences are populated with data entered or calculated in the system.
- Caseload Management: Bridges functionality keeps staff informed of their workload and facilitates management with automated caseload realignment and reminder capabilities. Three major functions comprise the caseload management feature: task and reminder alerts, case transfers, and caseload reassignment.
- Eligibility Determination/Benefit Calculation: This functionality is the focal point of the Bridges system and supports the base business rules that determine the Client's eligibility across all requested programs. EDBC is based on a Rules Engine that reads a series of Decision Tables based on program policies and procedures.
- Historic User and Data Maintenance: Brides allows for audit trails which creates records of data changes and specific user actions. This information allows case data updates to be viewed for auditing and management purposes.
- Intake/Registration functions: Intake and registration functionality includes recording the Client application, assigning cases, and collecting Client data. The process guides the Worker through a complete series of steps and questions. The Worker enters data collected via the application for public assistance, gathers basic household and demographic information, identifies individuals known/unknown to the system, identifies expedited cases, and tracks requests for

assistance. The underlying philosophy within this track is that raw data is captured once and used across all assistance programs for as many months of eligibility determination as is applicable.

- Interfaces: Interfaces within Bridges automate processes that exchange data with other organizations. Bridges has the capability to interface online, real-time, or in batch. A broad array of information is exchanged between systems internal to DHS and external systems, with minimal manual intervention. An example is income changes from a trusted source such as SSA that will auto-populate and trigger mass update of affected program eligibility determinations and benefit calculations. Bridges exchanges over 300 interface files with a variety of other systems.
- Management and Financial Reporting: Report Extracts are generated from which management reports are created. Crystal Decisions products (Crystal Reports and Crystal Enterprises) are used to generate reports automatically according to specified timeframes, or manually by the Worker, as needed. Most management reports are canned reports and are hence pre-defined in terms of structure, layout, sorts and frequency. For identified reports that can be scheduled by the user to be created during batch, Bridges has the ability to define sorting rules through parameters on the report. Reports can also be rendered in Microsoft Excel format for additional sorting capabilities. Financial Management involves two main tasks: the ability to issue, modify, and stop payments to and from another financial entity; and, the ability to accurately and logically report on all such transactions. The focus of the Financial Management Reports from Bridges is the cash and food assistance benefits issued to Clients and providers/contractors through EBT, EFT, and the warrant processing system. These reports are used to track, monitor, reconcile benefits, and report to required entities at the Federal and State level. In addition the above recurring reports, there is a requirement that ad-hoc reporting be carried out upon request. Ad-hoc reports needed to pull instances or outcomes of specific situations. These reports assist the state in making operational, policy or technical decisions that may affect department clients.
- Mass Change: Mass changes are required to affect client eligibility and benefit amounts at various times during the year. Some mass changes are expected at a specific time in the year based upon known inputs while others may occur with shorter notice due to changes in state or federal legislation.
- Master Client and Provider Index: Bridges functionality includes the use of a Master Client Index (MCI) and Master Provider Index (MPI). Each of these indexes are used to identify known clients or providers. Through Bridges, creation of new clients and providers is possible, in addition to updating, changing or end-dating these records.
- Provider/Resource Management: Bridges functionality provides for the enrollment and maintenance of DHS providers who receive payment from the state or on behalf of clients receiving benefits from the state.
- Quality Control Universe: A number of monthly quality control samples are created from Bridges data utilizing set requirements for specified programs.
- Self-Service: Bridges provides a public facing application to assist applicants and recipients of public assistance programs. The Self-Service application integrates directly with Bridges to provide a seamless transition between the externally entered client requests for assistance and the ability for DHS workers to immediately process these applications within Bridges proper.

B ONGOING BRIDGES TECHNICAL OPERATIONS ACTIVITIES

The Contractor will collaborate and coordinate with DHS, DTMB and the State's Technical Control Group to perform and assist with configuration management, database management and operations, and other technical activities critical to maintaining the availability, performance, and functional delivery necessary to meet the State's business operations goals and objectives.

These activities are essential in maintaining the Bridges production environment and must support capacity expansion to keep pace with an increasing caseload, new users (e.g.; *MiBridges Self Service Online Expansion and IVR*), infrastructure upgrades, software patches, and application enhancements.

B.1 Key Contractor Tasks and Activities:

This Section is a summary of the primary areas of Bridges Technical Operations and some of the key contractor roles and responsibilities for each area. Each section is further defined in sections B.2 through B.12 (below) where the specific tools, tasks and activities required to meet these objectives are defined. Additional technical support tasks and operational activities are defined throughout the contract in the areas where they are required.

Technical Operations – Activity Categories	Key Contractor Tasks and Activities
System Health Check and Monitoring *(See Section B.2 for detailed tasks and activities)*	• Monitor the Bridges system's availability and performance to assist the state with the timely completion of batch operations and maximize availability and reliability of the Bridges online application. • Provide post-implementation monitoring, log analysis and review to identify and report production issues resulting from modifications in immediate or scheduled releases • Document any identified issues using agreed upon issue tracking tool(s) and communicate critical issues and recommendations for resolution to the State
Capacity Planning *(See Section B.3 for detailed tasks and activities)*	• Conduct capacity planning to reduce infrastructure or architecture modification efforts and increase system performance. • Assist the State with the documentation of any new capacity planning processes and updates to the current Capacity plan to verify that the hardware, software and infrastructure Bridges is dependent on meet the current Business and technology needs.
Support Emergency Preparedness and Disaster Recovery *(See Section B.4 for detailed tasks and activities)*	• Assist with and support disaster recovery activities to avoid partial or complete disruption of Bridges services. • Assist the State with analysis, documentation and testing required to maintain the Disaster Recovery plan and verify standard processes are up to date and sufficient to prevent any interruption of services in the event of an emergency • Assist the State with annual testing and revisions of plans to address any identified issues.
Security *(See Section B.5 for detailed tasks and activities)*	• Provide multiple levels of security to protect data and control access through the use of the established Bridges security architecture. • Assist the State with analysis and documentation required to satisfy security audits and collaborate with the State to upgrade Bridges security framework as needed to correct any issues or risks that are identified
Application Architecture Management *(See Section B.6 for detailed tasks and activities)*	• Perform technical reviews designed to integrate with the SEM and provide a method for tracking and assessing process and methodology compliance for system modification and enhancement initiatives. o Review new and modified code to verify that Bridges framework components are being used correctly and coding and system standards are followed within the persistence, business, integration and presentation layers • Document and communicate any identified issues and proposed solutions to allow for consistent and repeatable processes . • Conduct impact analysis for major upgrades to core application services, 3rd party software and infrastructure changes to provide estimates of scope and effort to the Release Planning Management team
Database Management *(See Section B.7 for detailed tasks and activities)*	• Deliver an efficient flow, conversion, storage, and on-demand retrieval of data to support the Bridges database environment to provide database performance at agreed upon service levels that supports the growing demands on Bridges. • Provide resources to assist with analysis and correction of database performance issues, tuning of application SQL and reviews to verify

	compliance with Database standards • Work with State DBA's at the direction of State management to create and follow a transition plan identifying all of the tools, processes and procedures required for DTMB DBA's to complete knowledge transfer and transition tasks
Files Management *(See Section B.8 for detailed tasks and activities)*	• Follow the State's established process designed to focus on the systematic implementation of online and batch configuration changes in multiple environments with ongoing development efforts and upcoming software changes. • Analyze, test and obtain approval for 3rd party software, online and batch configuration changes through Release planning before production implementation
System Performance Improvements *(See Section B.9 for detailed tasks and activities)*	• Assist with the analysis, identification and correction of performance problems while providing documentation indicating the root-cause, required modifications and test scenarios / results for any critical performance problems • Deliver optimum system performance at peak load levels and appropriate response times during online and batch processes.
System Patch and Upgrades Management *(See Section B.10 for detailed tasks and activities)*	• Evaluate existing and new technologies and identify the business drivers to recommend and support software and system upgrades • Conduct impact analysis and document the scope and level of effort required for implementation and testing of proposed upgrades • Implement and test proposed changes in experimental environment, followed by testing in lower environments before obtaining approval for production release
Environment Support and Setup *(See Section B.11 for detailed tasks and activities)*	• Assist with the creation and support of multiple temporary environments to support parallel development and testing for both new initiatives and ongoing maintenance and the activities these depend on such as functional, regression and performance testing. • Assist the State with the implementation of a Sandbox environment designed for DTMB to perform required transition activities o Creation of required environment components including installation and configuration of required software will be performed by DTMB resources with the assistance of the Contractor as directed by the State.
Configuration / Change Management *(See Section B.12 for detailed tasks and activities)*	• Follow the State's established configuration management processes for all phases of the SDLC • Work with the State to regularly update the Configuration Management Plan to represent the most current processes and procedures • Collaborate with the State to recommend and support the creation and implementation of improved Change management processes and Quality assurance checks • Assist the State with new configuration management processes for Bridges (*as directed by State management*) to provide improved service delivery and a solid foundation for development, testing, training, and production in compliance with SUITE / SEM standards o Assist the State with the design of and implementation of new standards and processes to allow for requirements traceability to meet SEM standards and reduce the risk of negative cross-functional impact when application changes are delivered o Assist the State with the review of Change / Configuration management processes to verify compliance with SEM standards and improve processes such as: ▪ The ability to trace work requests to the original activities defining the software artifacts and system modifications related to incorrect functionality ▪ The ability to trace test scenarios to the development activities related to the components being tested

B.2 System Health Check and Monitoring

Monitor the Bridges system and environment for availability and performance issues. Monitor batch schedules to assist the State with any changes required to complete batch operations within the designated window without negative impact to the online system.

The Contractor will perform system health checks pro-actively and regularly following each release and:

- Identify and communicate issues with performance and / or stability
- Recommend and assist with the implementation of optimizations
- Assist the State with monitoring system metrics closely during post-implementation

The Contractor will analyze and review system performance data on a regular basis to provide the State with accurate recommendations for hardware, software or infrastructure changes required to:

- Support the implementation of new business functionality or technology initiatives
- Support increased caseload processing while maintaining performance and availability objectives of the State.

Increasing volume of data, functionality added through application releases, steadily increasing caseload processing needs, and hardware/software changes to the infrastructure contribute to constant system growth. To prevent system performance degradation and improve the stability of Bridges, the Contractor will:

- Identify long-running processes
- Track the historical performance of individual processes over time to identify those that are affected by the maturing system
- Provide ad-hoc reports and create automated reports that collect information and statistics periodically and document indicators used to provide accurate recommendations for optimal system operation to State management

B.2.1 Application and Database Usage Monitoring.

The Contractor will leverage monitoring tools such as Vantage, IBM Tivoli Performance Analyzer and Oracle Enterprise Manager (OEM) as well as the review and analysis of Automated Reports to provide the State with critical information on Bridges and MiBridges application and database usage and resource utilization and create automated alerts to notify technical leads, State and Contractor management and support staff when system/application thresholds are exceeded. Application and Database monitoring will include the following:

- **Vantage Monitoring**
  - Vantage usage:
    - Collect, monitor and analyze server information everyday
      - Monitor Application, Database and Web Server CPU and Memory utilization
      - Web Sphere-related application counters
      - EJB Response Times
      - Container requests
    - Produce dashboards and reports for real-time views of server health and key performance metrics
- **Custom Monitoring Reports:**
  - Provide automated monitoring reports to monitor and gauge performance and system availability in Production
    - Send periodic automated alerts on:
      - Statistics and Metrics**:**
        - Application Instances
        - Database health metrics including:
          - OEDBC transaction times
          - Queue depth

        - Hung threads
        - Garbage collection statistics
        - EDBC usage statistics
        - EDBC Usage trends
    - Provide Production Operational Summary report as needed to mitigate the risk of performance issues that could impact statewide availability of Bridges
    - Automate the consolidated Production Operational Summary Report to be accessible through a real-time dashboard
    - Automate detailed metric reports
- **Use Oracle Enterprise Manager (OEM) to monitor:**
    - Database memory
    - Processor utilization
    - Disk utilization
    - Query processing time
    - Query processing efficiency
- **Database "Top 10" List.** Monitor and document queries that use the most system resources during peak online times and heaviest batch schedules. These queries will be reviewed and analyzed to provide recommendations for optimizations to State and Contractor management and application track leads for weekly meetings. Resources that will be considered in the criteria for this list include:
    - Buffer gets
    - High hard parsing ratios
    - High CPU cycle consumption
    - High I/O rates
    - Extended execution time
    - DBAs will review and make necessary recommendations to Application Development leads who will create work requests for critical optimizations
    - Refer WR's to Release Planning Management team to prioritize and schedule

B.3 Capacity Planning

As the Bridges application evolves and expands, system hardware scalability must be regularly evaluated to verify adequate infrastructure for new business and technology initiatives.

The Contractor will work collaboratively with The State, to identify and respond to capacity issues and provide accurate forecasts on future capacity needs to allow Management time to plan and coordinate any required upgrades.

B.3.1 Capacity Planning Process

Key steps in the capacity planning process include:

- Gather and analyze system data and usage statistics from a variety of sources including:
    - **Database/File System Growth.** Obtaining statistics and calculate the expected increase over time to make accurate growth projections.
    - **User Base Growth.** Review the number of application users added, changed, or deleted. and determine the potential for impacts on the system resources.
    - **Actual System Usage.** Review changes in the numbers of transactions, percentages of resources consumed, database hits, other I/O metrics, CPU usage, disc usage. , etc. to provide an overview of system resource usage and also potential areas of concern.
        - Determine the growth patterns for both the online and batch environments
- Evaluate the impacts of new business and technology initiatives:
    - System resources for Bridges will expand with normal growth but also through the implementation of significant new initiatives. Any capacity initiative may have significant

impact on the infrastructure such as: added processor load, more file and database storage space needed, more users, additional correspondences produced, etc.
- Provide management and technical leads with a set of processor usage metrics under various user load and activity scenarios
- Report on the overall performance of the system within the production infrastructure and the availability of additional resources that may be required for new initiatives

- Meet with the State to present and discuss the capacity plan information
  - Provide the State with a set of detailed estimates to assist in the forecasting process for future capacity requirements
  - Analyze the impacts of new technologies or any code changes being introduced
  - Provide the State with a high-level understanding of where the primary impacts to the infrastructure are expected

B.3.2 Capacity Plan Review and Quarterly Reporting

The Contractor will review previous capacity plans to evaluate the accuracy of forecasted increases and provide quarterly capacity plans and individual initiative capacity estimates to the State. These plans and estimates will include:
- The scope of the initiative(s) being covered in the capacity plan
- Any anticipated increases to the system user base
- Any increases to resources usage and disk consumption of the database and file storage servers
- Any increases to network bandwidth consumption
- Any increases to service consumption

B.4 Support Emergency Preparedness and Disaster Planning

Bridges supports critical DHS, DCH and DTMB operations for delivering services and benefits to the citizens of Michigan to maintain business continuity. The Contractor will support existing disaster recovery processes to minimize the risk that Bridges could be compromised by natural or technological disasters. The contractor will work with The State to support and assist with disaster recovery activities with the main objective of avoiding partial or complete disruption of Bridges services in case of an unplanned event. These activities include:

- Perform, test, document and support disaster recovery activities
- Work with the State to regularly update the current Disaster Recovery plan documentation:
- The Disaster Recovery Plan must include:
  - A structured contingency and escalation process in the case of system outage
  - Established emergency plans:
    - Communication plans
    - Processes for remote support
    - Back-up procedures
  - Post-contingency plans:
  - Established processes for business impact analysis that will help determine the severity and ramifications of an emergency event

- Provide analysis of operational state to the State immediately following any emergency event
- Provide recommendations and associated risks to the State following any emergency event
- Review the readiness of the disaster recovery database and application environments
  - Regularly verify that the Disaster recovery database is in sync with the production database and the DR application environment is up to date with the latest application software and configuration
- Assist with the Implementation of failover and disaster recovery strategies
- Document software installation and server set-up procedures
  - Provide clear and concise step-by-step directions sufficient to restore all critical components of the Bridges environment in the event of an emergency

- Determine and document the root cause of any disaster or emergency event
- Assist the Sate with the documentation, testing and verification of emergency procedures and disaster recovery strategies including:
  - Processes to manage and restore the server infrastructure
  - Processes to restore and validate system configuration
  - Data requirements

B.5 Security

The Contractor will adhere to the State's established security policies and requirements and support maintain and enhance the Bridges security framework as directed by State management. Bridges employs multiple levels of security to protect data and control access rights. The Contractor will work with the State to develop new or modified Bridges components following the standard security, privacy, and confidentiality controls to protect recipient and provider information.

Bridges' configurable security modules store user IDs and passwords in the Lightweight Directory Access Protocol (LDAP) repository for authentication, use a 128-bit strong encryption Secure Socket Layer (SSL) for web pages using hardware encryption, and create application user level security profiles to provide control access based on location and roles.

The Contractor will comply with the established Bridges standards for security as well as state and federal regulations and guidelines related to Security, Confidentiality and Auditing.

Additional Contractor tasks and activities related to application security include:

- Analysis and review of new business and technology initiatives to Implement safeguards to protect against: unauthorized data access
- Support the monitoring and reporting of any unauthorized data access
- Create daily security reports that monitor suspicious activities
- Identify unauthorized access or inappropriate use of the Bridges system
- Provide reports of detailed transaction and user access set-up information to identify workers having privileges beyond their roles and responsibilities
- Provide support for the maintenance and enhancement of the existing Bridges security framework which includes:
  - Standard authentication process
  - Validation of user credentials through the standard mechanism of providing a user name and password
  - Automated processes for creating detailed audit records
  - Configurable authentication process storing user credentials in an LDAP repository
  - Security architecture that is capable of expanding to use available alternatives that provide greater flexibility such as single sign-on (SSO) access in order to interact with multiple state applications or use a centralized State LDAP repository.
  - Support of system administration module to capture transaction logs and:
    - Make logs available to state security coordinators
    - Capture user information in a separate set of tables that cannot be modified by the application
    - Track suspicious user activities that are monitored through the use of security reports that identify the user account and, in some instances, the user workstation address.
  - Application interface that supports detailed configuration of user roles and business functions by security coordinators

B.6 Application Architecture Management

The Contractor will work with the State to verify proper architectural design and standards alignment across the Bridges solution. The Contractor will work with the State to implement a Technical review process that is integrated with the SEM and serves as an additional method for tracking and assessing process and methodology compliance for project initiatives.

The Contractor will verify that software artifacts (system modifications/enhancements) produced for Bridges meet the following objectives:

- Support the implementation of the work request requirements and documented functional design
- Leverage the approved technologies and software products that align with both the Bridges standards and the State's IT Strategic Plan.
- Properly implement the services of the Bridges framework and efficiently re-use standard components of the business, integration, persistence and presentation layers.

In addition, the technical review team will:

- Document common issues identified during technology reviews to improve QA review standards for future initiatives
- Discuss the architectural and technical direction of project initiatives with key business and technical stakeholders (Board) including:
  - DHS , DCH and other State and Federal agencies that are involved
  - DTMB
  - OES (Office of Enterprise Security)
  - Contractor Application Leads
  - Contractor Technical Team
  - PMO (Project Management Office)
  - The State's Technical Control Group

The Board critically reviews the proposed functionality across domains to verify that the various standards are being followed. The Board also evaluates whether or not existing applications and resources are properly leveraged, per the existing architecture.

B.7 Database Management

Efficient flow, conversion, storage, and on-demand retrieval of data are essential to the success of Bridges. The Contractor will assist the State with the support, maintenance and enhancement of the Bridges database as required by approved project initiatives with consideration that solutions must scale to the size of the database, support expected growth rates and provide performance that meets or exceeds service level agreements for the volume of transactions expected in the production environment.

Scope of Bridges Database	Estimated System Statistics (*based on 9/2010 review*)
Database Size	~2,048 Gigabytes
Database Tables	3,700
Database Columns	86,168
Avg. Database Transactions per Day	5 million
Avg. Database Inquiries per Day	50 million

With the expectation that the size and production load will continue to increase, the Contractor will assist the State with initiatives for managing, accessing, and storing this information cost-effectively and ongoing compliance with federal and state mandated data retention requirements.

The Contractor will follow an established and documented Information Life cycle Management (ILM) methodology to manage Bridges' information effectively through its life cycle phases in an efficient and cost-effective way that aligns with the State's business and technology vision. The objectives and activities defined by ILM must include:

- Plan and conduct standards-based code / process reviews
- Documented processes to provide a maintainable, scalable, and fault-tolerant database infrastructure that meets operational needs
- Implement proactive troubleshooting, performance tuning, and batch query optimization activities that support the State's need to:
  - Process millions of transactions per day
  - Store terabytes of critical business data
  - Safely secure and manage sensitive information

- Maintain integrity, security, and overall accuracy and reliability of data processing
- Monitor the integrity of the data while implementing changes to environment(s).
- Documentation and communication of any issues identified during monitoring and review activities so that the Release planning team can prioritize any application maintenance needed to resolve critical issues
- Agreed upon standards and processes for: Data Archival, Retention, and Purge activities.
    - **Archival**. Archival processing supports the identified delineation and separation of data that are required for immediate online processing versus data that can be transitioned to less expensive media.
    - **Retention**. Data retention relates to identifying rules that define how long archived data needs to be stored. Archives are typically kept for auditing, and regulatory, analysis, or reference purposes.
    - **Purge**. Data purge identifies criteria to systematically and permanently remove aged data from the system.

B.7.1 Database Technical Support Services

Database Technical Support Services	
Service	**Objective / Contractor tasks and activities**
Online Query Performance	**Objective:** Proactively identify performance tuning opportunities critical to maintain the needs of the business and to extend the State's hardware investment **Contractor Key Activities and Responsibilities:** o Proactively Monitor online queries o Tuning of online queries and recommendations for critical optimizations o Use Explain Plans and tools including TKPROF to identify and analyze additional optimization potential o Report online queries that require optimization to Release Planning Management and Application Development teams
PL/SQL Code Reviews	**Objective:** Deliver database access and PL/SQL code efficiency with adherence to agreed upon standards and industry best practices **Contractor Key Activities and Responsibilities:** o Verify compliance with established standards including: ▪ Proper naming conventions ▪ Appropriate declaration of parameters ▪ Completeness of exception and error handling
Batch Process Optimization	**Objective:** Identify performance trends and tuning opportunities for existing and new or modified batch queries **Contractor Key Activities and Responsibilities:** o Identify tuning needs as data volume processed by batch increases over a period of time o Use Explain Plans and tools including TKPROF to identify and analyze additional optimization potential o Create a customized report identifying potential performance issues that would require application maintenance o Review performance reports with State and Contractor Application Development Leads to identify the optimizations that should be referred to release planning for prioritization.
Database Backup/Recovery	**Objective:** Assist with the design and configuration of backup solutions and recovery to support business continuity, avoid data loss, and meet audit regulations **Contractor Key Activities and Responsibilities:** • Assist with the design and configuration of back-up solutions and recovery mechanisms based on:

	○ Business criticality ○ Application complexity ○ Disaster recovery requirements • Work with the State to implement Database Back-up strategies that: ○ Support business continuity ○ Avoid data loss ○ Meet or exceed audit regulations.
Database Design Reviews	Objective: Comprehensively represent relationships between business entities and attributes with adherence to the State's standards and leading practices. Identify and remediate design issues that compromise the quality or stability of the database Contractor Key Activities and Responsibilities: ○ Conduct database design activities pertaining to Logical Data Models (LDM) and Physical Data Models (PDM) based on a available inputs such as new requirements, business rules and workflow, user interface (UI) needs, transaction design and ILM considerations ○ Coordinate regular sessions with the development teams to understand functional designs that involve new database changes or changes to existing database structure. ○ Work with the State to manage and maintain effective data models that are extendable, flexible, and maintainable for online and batch transactional processing ○ Verify that new development is in compliance with DTMB technical standards, policies, privacy / security standards and the Database design standards defined in Section B.7.2.
Database Performance Monitoring	**Objective:** Regularly monitor and analyze the operation and execution of individual components of Bridges, as well as the overall environment, to identify and implement performance-tuning initiatives **Contractor Key Activities and Responsibilities:** ○ Use the Oracle Enterprise Manager tool to monitor the overall database health and performance ○ Provide the following reports to support the database performance management activities: ○ **Automatic Workload Repository (AWR) Report.** The AWR report information is currently available using the Oracle Grid Control Monitoring. The Contractor's technical team will work with the State to monitor database activities and discuss any identified issues in the Infrastructure meetings. **Bridges and MiBridges Database Top 10 Performance Reports.** Provide Contractor and DTMB management teams with an overview of jobs and queries that have been identified as top candidates for performance tuning. ▪ This includes a list of the top 10 queries that consume the most database and system resources ▪ Capture this information weekly via database analysis and communicate with management and application development teams during regularly scheduled meetings. • Analyze the functionality of these queries and prioritize them through the standard Work Request process.
Database Patches and Upgrades	**Objective:** Continue to work with Oracle Support and The State and help with applying the latest patches without negative impact on system stability or availability **Contractor Key Activities and Responsibilities:** ○ Implement timely resolution and coordination for patches and upgrades ○ Proactively monitor industry trends and patch announcements ○ Perform research to demonstrate compatibility and support for key functionality ○ Develop proof of concepts to demonstrate compatibility and mitigate risk of any negative impact on the application

B.7.2 Database Standards

Database Standard	Category	Standards to be reviewed and verified by Contractor
Data Modeling	Naming Standards	Data model naming compliance is confirmed during the review of both the logical and physical data model (PDM) review. Additionally, checks are made upon submission of the data dictionary with the PDM.
Database Coding	PL/SQL Structure	PL/SQL Structure compliance is managed by completion of unit test checklists and developer peer review processes.
	Error Handling	Error Handling compliance is managed by completion of unit test checklists and developer peer review processes.
	Naming Standards	Naming Standards compliance is managed by completion of unit test checklists and developer peer review processes.
	Indexes	Index standards compliance is confirmed with the review of the physical data model and periodic checkpoints through the development process.
	Primary/Foreign Keys	Primary/Foreign Key standards compliance is confirmed with the approval of the PDM.
Physical Implementation	Sequences	Sequence usage standards compliance is confirmed with the approval of the PDM.
	Table Deign	Table Design standards compliance is confirmed with the approval of the PDM.
	Triggers/Sequences	Triggers/Sequence standards compliance is confirmed with the approval of the PDM.
	Views	View standards compliance is confirmed with the approval of the PDM.

B.7.3 Additional Database Management Activities

Additional maintenance and operations activities that the Contractor will assist with or perform include:

Activity	Description / Objective
Gathering Database Statistics	Database tools, such as Enterprise Manager, highlight database opportunities that can be addressed with database reorganization or maintenance. The statistics gathered identify items such as excessive row chaining, logical/physical reads, etc., that indicate reorganizational activities. Work with the State to support and maintain automated utility/scripts scheduled to repeatedly gather database statistics.
Reorganizing Tables	Typically, the data for ONLINE databases are changing frequently due to transaction activity against that database. As a result, the underlying database segment begins to fragment and response time tends to degrade; the data in the physical storage become scattered and require Oracle to perform more I/Os to that storage, which results in performance degradation. Execute scripts to identify the tables that need to be reorganized. These table reorganizations help restore the data in physical order, and reclaims space from free blocks. The result is an improvement in performance.
Rebuilding Indices	Use of appropriate indices is very important for any SQL query to retrieve data quickly as well as perform data manipulation during a transaction. To keep the indices up to date and get optimal performance for queries, especially on Online systems, the following maintenance activities will be performed: o Schedule and run scripts to coalesce the indices to confirm the indices are appropriate and not corrupted. If index corruption occurs, considerable performance degradation may result. o For those tables where the data manipulation transactions are very frequent (for example high volume of inserts, updates and deletes), regular rebuilds of indices may be needed to reclaim the space as well as keep the indices appropriate.

Activity	Description / Objective
Moving Tables to Less Expensive Storage	Business requirements may dictate that data are to be retained in the online database for inquiry purposes for several years. Depending on how often the data are viewed, some of that data can be moved into different storage tiers. For example, data that are more than 5 years old and that get viewed only occasionally may be moved to "tier-3" storage, which is less expensive. Assist with maintenance activities to move this "aged" data as directed by the State.
Backing up Archive Logs/Trace Logs	Backup and recovery is one of the most important activities associated with protecting valuable data assets. It is crucial to be able to restore the database to a point prior to a hardware or software error or database corruption. Due to high volume of transactions occurring in the online environment, the archive logs that Oracle generates are voluminous. o Support and maintain utility/scripts to back up the archive logs and free up the disk space. Oracle generates trace logs to report any issues or warnings identified in the database. The event may be an increase in tablespace, transaction dead locks, shutdown/startup for maintenance, etc. This helps a DBA analyze any error conditions and take necessary actions. o Support and maintain utility/scripts scheduled to back up the alert and trace logs and free up and maintain disk space.
Importing/Exporting Data	The periodic export of table structures, as well as the export of configuration data, is performed to support the application team during their various releases. o Support and maintain automated scripts that export data directly from production into the production environment test. Assist with ad hoc refreshes of production data to lower environments as directed by the State to help confirm that the application teams have a sufficient volume of data against which they can perform functional and load testing. This helps reduce the number of performance issues that are deployed to production.
Post Production Deployment Cleanup	Prior to production deployments, DBAs take backups of tables to support rollback, if needed.. o Support and maintain utility scripts that check and report back up tables.

B.7.4 Additional Database Management Support Activities

Database Management Support activities that the Contractor will assist with, coordinate or conduct as directed by the State include:

Database Management Activity	Descriptin
Database Design Support	Conduct data modeling and normalization for both Online Transaction Processing, batch processing and Data Warehouse initiatives Creation and review of physical database design Support database creation and update across multiple environments
Database Coordination Support	Coordinate and consult with application teams, Contractor and State management.
Database Release Support	Test and migrate database code and structure changes to Development, Integration, Systems Acceptance Test, Training, and Load Test environments Provide database centric deployment scripts and playbooks for Production migrations
Database Operations Support	Provide input into database standards identification and perform compliance monitoring Develop database maintenance and reorganization scripts Develop application related data fixes Develop scripts and/or utilities and accompanying documentation for refreshing lower environments
Performance Support/Improvement	Provide database administration and performance tuning Review database query performance and make recommendations for improvement A key requirement of high performance and high availability database environments is partitioning splits tables and indexes into smaller, more manageable components.
Information Life Cycle Support	Facilitate solutions to support business systems data and information life cycle management requirement

B.8 File Management

The file management processes that support the Bridges system must be adaptable to meet the changing business needs of the State. The Contractor will follow established processes and standards for the systematic implementation of online and batch configuration changes in multiple environments with ongoing development efforts and upcoming software changes and successfully implement configuration changes tied to a release

In collaboration with The State, the Contractor will assist with and perform regularly scheduled maintenance on files to support Bridges system in a cost effective manner. File Management tasks and activities performed by the Contractor will include:

B.8.1 Archiving and Purging of Files

a. Move old files generated during the batch operation from high-end to low-end storage areas to archive them so that the system has the required space for new activity and transactions in Production
b. Move old files generated during the online operation from high-end to low-end storage areas to archive them so that the system has the required space for new activity and transactions in Production.
c. Establish the purge criteria for files that are no longer needed or used
d. Perform the required cleanup periodically to save on the disc storage and promote efficient operation of the system
e. Determine and refine the selection criteria for these files
f. Obtain approval from the State for purge activities
g. Obtain approval from the State for cleanup activities

B.8.2 Monitoring Disk Space Growth

a. Provide appropriate disk capacity planning recommendations to The State
b. Use and support the features of the following tools (*or other tools and utilities as directed by the State*) to monitor the usage of disk space:
    i. Vantage
    ii. Nagios
    iii. Oracle Enterprise Manager (OEM)

B.8.3 Managing Environment Specific Online and Batch Configuration Properties

a. Maintain and perform version control activities on online, and batch configuration property files in Clear Case
b. Configuration changes must be properly tested, validated and approved by the State prior to release into the production environment
c. Established State standards will followed for the release of configuration changes into production: (Currently these include)
    i. A “Request for Change” (RFC) will be entered for any configuration changes in Production
    ii. The RFC request must be reviewed and approved for implementation in Production by the Bridges Infrastructure Change Control Board (CCB)

B.8.4 Managing Batch Data Files

a. In accordance with the established Security standards and as directed by the State, the Contractor will assist with or perform tasks such as:
    i. Periodically move production batch data files to the system’s global archive location for analysis and troubleshooting
    ii. Periodically move production batch data files to the system’s global archive location for auditing purposes

B.8.5 Managing Batch Framework Tables Configuration

a. Any addition of new batch jobs or changes to existing ones shall involve changes to batch parameter tables
b. SQL files for entries into the set of Batch Framework Tables shall be maintained in Clear Case
c. SQL files for entries into the set of Batch Framework Tables shall be version controlled in Clear Case

d. Changes to parameter tables in a specific environment shall be requested through a ClearQuest Environment Request
e. ClearQuest Environment Requests pertaining to batch shall be reviewed in daily meetings between Contractor and DTMB batch teams

The Contractor will assist the state with efforts to improve and advance these file management processes to facilitate smooth and efficient operation of Bridges during the maintenance period

B.9 System Performance Improvements

The Contractor will meet or exceed the State's performance objectives for optimum system performance at peak load levels as the system matures and with the expectation of increased caseloads and data volume. The Contractor will work with the State to maintain acceptable response time during online and batch processes. Contractor activities to achieve these objectives will include:

1. Conducting regular performance testing
2. Review performance test data to:
    a. Identify performance tuning initiatives for batch software
    b. Identify performance tuning initiatives for online software
    c. Coordinate with Application development teams and Release planning teams to prioritize and Implement performance tuning initiatives for online and batch components
3. Track performance concerns in the field through the Remedy ticket resolution and help desk processes
4. Produce performance reports required by application development teams, Contractor and State management to make informed decisions about the priorities of initiatives related to system performance

The Contractor will follow a well-defined system performance methodology and documented processes related to the following areas:

Performance Function	Objective / Description
Application Performance Process	Understanding overall system performance objectives and service level standards. Designing and writing effective application code. Providing an effectively configured and sized technical infrastructure. Properly testing the application's online and batch components, under expected business volumes. Enabling a feedback process to the development and release planning teams to revise application components that do not meet performance objectives.
Performance Engineering	Design effective performance characteristics into the framework and application code. Application development templates need to include standard code that follows leading practices and guidelines to help to optimize performance. Numerous technical considerations need to be addressed, including effective SQL coding, database indexing techniques, high-quality lock management, and setting appropriate subsystem parameters in the areas of connection and thread management. o These technical considerations should be enforced by the application framework wherever possible so that are automatically applied whenever new code is introduced to the system
Testing Tools	Utilize industry leading performance testing tools

The Contractor will perform effective performance testing and monitoring to offer the State crucial insight into performance and infrastructure tuning opportunities. The Contractor will work with the State to develop, manage, and maintain test scenarios that mimic the actions of end users. By closely emulating the user base of a system performing normal business activities for a sustained period, performance tests instill confidence that the system architecture and infrastructure support the demands of system functionality.

Performance tests focus on response time, throughput, and time-to-completion. Test objectives must include:

- Confirmation that transactions are processed to downstream systems
- Confirmation that transactions are processed to users in a timely fashion
- Performance indicators critical to the business are satisfied
- New applications are quickly made available to transaction processing systems
- Case updates are quickly made available to transaction processing systems
- Documents are quickly made available to transaction processing systems
- Eligibility determination calculations are completed within acceptable times

The Contractor will proactively monitor the system to Find and address tuning opportunities before they impact end user satisfaction.

- Monitor the system for tuning opportunities using tools and utilities including:
  - Vantage
  - Oracle Enterprise Manager
  - Customized scripts
    - Document and version customized scripts to establish repeatable processes for the identification and resolution of performance issues

The Contractor will work with the State and make recommendations to management and the Release planning team where application maintenance would provide significant performance gains. Throughout the maintenance phase, Business systems analysts, application development resources and technical leads shall work together as directed by the State to achieve the following performance objectives:

- Apply methods to improve response time
- Apply methods to improve perceived response time
- Improve performance with measures including (Where appropriate):
  - Pre-loading commonly used framework objects
  - Local data replication, client side caching
  - Data de-normalization
  - Server side caching
  - Reducing the size of user interface components to improve transfer time and reduce time required to render complex screens
- Implement asynchronous processing
  - Improve perceived performance
    - Let the user complete other actions while a transaction completes
    - Progressively render a page as data become available

B.10.1 Database Performance Tuning

Contractor DBAs, will work closely with State's database management team to follow a standard tuning approach to address database performance. When performance monitoring, analysis or code review activities identify changes that need to be made to the application software , hardware or configuration, the change will be entered as a Work Request and referred to the Release Planning Management team. This performance tuning approach will require the vendor to work closely with the State to assist with and perform activities including:

1. Implement a standard and agreed upon tool-set to monitor and analyze the database and database components / data access code
    i. Use the "Explain Plan" methodology
        1. Review queries with inefficient access paths and high "expense"
            a. Tune inefficient queries
                i. Re-execute explain plan
2. Alter the physical database design
    i. Include the creation of appropriate denormalized tables
    ii. Include the creation of appropriate database partitions
    iii. Include the creation of appropriate indexes
3. Apply the following tuning techniques to improve overall SQL performance:

i. Minimize Full-Table Scans.
ii. When possible, smaller database objects that are frequently accessed should be "pinned" to memory to confirm the fastest access possible.
iii. Maximize the use of indexes
iv. Recommend areas for strategic denormalization**.** Create denormalized structures that house frequently accessed data in a single structure. This reduces the need for expensive joins and reduce database I/O.
v. Instance Object Tuning
vi. Review Instance Tuning
    1. Tune the System Global Area (SGA)
    2. Tune the associated initialization parameters
    3. Verify the database has been properly configured to support anticipated workload
        a. Verify connection pooling is properly managed
        b. Verify how memory is allocated within the SGA
vii. Server Tuning**.** This includes the configuration and tuning of the server, disk subsystem, and the networking infrastructure to verify database hardware is operating optimally. It is imperative that the hardware infrastructure supporting database transactions is extremely reliable and fault tolerant.
viii. Establish performance thresholds for the various application servers and databases and current levels of resource usage
    1. Determine and monitor at what levels the end users begin to experience performance issues for:
        a. CPU consumption
        b. Memory consumption
        c. Network resource utilization
    2. Create alerts or other agreed upon communication methods for the automated communication of events where system resources exceed the levels where users would begin to see performance degradation

B.10 System Patch and Upgrades Management

The Contractor will work with the State to plan for upgrades to software and operating systems as new features are released and products approach their end-of-life dates. The Contractor will collaborate with the State to identify operating systems and COTS (*Commercial, off-the-shelf*) product upgrades and assist in the analysis of upcoming changes and releases, including defining the impact to in-scope systems and creating an upgrade deployment strategy that aligns with application deployment target dates.

B.10.1 Identify the Need for an Upgrade

Work with the State to regularly review business drivers for upgrades including:

a. Keeping product versions current
b. Understanding new business initiatives and requirements that need additional features not supported by the current software
c. Noting dependency from other components supporting the software infrastructure
d. Following the State's standard Technology Planning Process

B.10.2 Perform Impact Analysis

The Bridges environment has a large number of components each of which are critical to stable operation. This increases the risk of an impact during a system upgrade. Performing an impact analysis is crucial to identify possible negative impacts that could affect the overall system functionality and stability.

Once a system upgrade or patch has been prioritized by the State, the Contractor will assist DTMB to identify the business and technical impacts and any associated risk and provide executive management with critical information vital for the decision-making process.

Identifying the impact of any software or system upgrade across Bridges functional areas is one of the most critical tasks conducted by the technical team. The Contractor will coordinate cross track meetings where these items are discussed and reviewed by the functional specialists to assess any potential risks involved. As part of this process, the assessment will well documented and communicated to State and Contractor management to support prioritization and decision making.

B.10.3 Develop and Test Proof of Concept

As part of the upgrade process, the Contractor will create proof of concepts to validate that the code, the framework, and all related components continue to perform as expected. The Contractor works with the State to plan, conduct tests, and document the results of the POC (Proof of Concept) implementations.

Utilizing experimental environments, the Contractor will perform the upgrade/patch for validation, which includes preliminary performance and functional tests to evaluate the system functionality, and monitor performance to detect any significant degradation.

The Contractor will follow established and documented processes for planning, executing, evaluating, and governing a POC or pilot project initiative.

B.10.3.1 Standard Process for Technology Proof of Concept

POC Phases	Contractor Activities tfor Proof of Concept
Plan	• Define and document the scope, objectives, evaluation, and testing approach for the POC implementation • Develop a detailed work plan to describe the roles and responsibilities of the POC implementation team, schedule, milestones, communications plan, quality management plan, and change management • Identify and document the systems, technology used, and resource requirements for POC implementation • Work with DTMB and the State's Technical Control Group to identify the stages for incremental rollout to impacted systems.
Conduct	• Define POC measurement mechanism and evaluation criteria • Develop quality acceptance process • Develop and document assumptions, system design, and data flow/workflow • Conduct outreach session with POC participants to convey the intended objectives and outcome of the POC • Install the appropriate hardware and software for the POC • Customize POC solution (software and hardware) based on the established design and workflow • Monitor and document the POC implementation outcomes and configuration changes performed
Test	• Develop use cases to test the POC solution • Define the test evaluation matrix and worksheets • Define pass and failure criteria for the test • Assess the POC implementation’s applicable hardware, software, and interface components based on the use cases and additional business/functional requirements • Identify potential impacts to the Bridges system/infrastructure. • Analyze the results of the test with business, technical, and performance requirements • Identify and mitigate gaps in the POC implementation based on set objectives and goals • Prioritize a remediation plan • Identify and implement remediation controls • Conduct the test again with the defined use cases until we obtain the desired results

POC Phases	Contractor Activities tfor Proof of Concept
Document and Submit Results	• Document the results of the POC implementation including: – Objectives of the POC implementation and evaluation criteria – Configuration changes to the software, hardware, and interface components – Use cases – Initial gaps identified and the mitigation controls – Outcome of tests on the POC implementation. • Submit the results to the State for review

B.10.4 Develop Release Plan

The Contractor will collaborate with The State to review the results from the business and technical impact analysis and/or proof of concept to determine the complexity involved in introducing the system upgrade/patch. In this process, the appropriate release date is determined and the required functional, regression and performance testing activities are defined taking into consideration the nature of the upgrade and all environments involved. A master release plan document is delivered outlining all the activities to be performed during the implementation process.

B.10.5 Implementation and Support

Once the upgrade has been verified in the lower environments, The Contractor coordinates with the State and the application track leads to obtain a final sign off to allow the upgrade to be propagated through the higher environments as per the agreed upon release schedule. The implementation status is closely tracked and discussed in the Bridges Infrastructure meetings.

After the changes are implemented in Production, the Contractor will monitor the overall system performance and server logs o detect any system performance degradation or other signs of instability. Any issues identified during this process will be promptly communicated to State and Contractor management

B.11 Environment Support and Setup

Large-scale systems such as Bridges have numerous changes and initiatives occurring in parallel. Each of these initiatives has their own schedule for implementation, testing scenarios, and the development life cycle. This results in a need for multiple temporary environments, each are supporting various phases of an initiative. The Contractor will follow standard processes and conduct the required activities for each of these phases:

B.11.1 Analysis

Contractor tasks and activities include:

1. Evaluate the need and purpose of the requested environment by gathering this information from the State and the Contractor Application Leads.
    a. This pre-work activity is driven by a checklist of items that supports the decision making process concerning the setup of the environment.
2. Identify the length of time for which the environment is needed.
    a. This is critical in determining which servers should host the application(s).
3. Work with the users of the environment to determine where the initial data for this environment needs to be sourced from.
    a. This is important as it could be as simple as creating a new empty database or as complex as copying the full production data and masking it (if needed) for Personal Identifiable Information (PII).
4. Analyze which code base the environment needs to be built from.
5. Discuss any special considerations that need to be addressed.
    a. Tasks such as the setup of a patch environment or an interface with a specific trading partner can be addressed in this phase.

B.11.2 Environment Creation

Contractor tasks and activities include:

1. Utilize a standard pre-defined checklist for the setup of all environments.

a. This checklist helps to determine that each environment is created and configured in a reliable and repeatable manner.
2. The process is divided into multiple areas that need to be configured for a new environment with a set of sub-tasks for each area that need to be accomplished.
3. Many of the steps in the checklist then refer to additional documentation, which can be referenced as needed.

The Contractor will provide access to all plans and documentation created during this process to the State and the State's Technical Control Group to enable the same steps to be followed in the creation of upper environments. This will include detailed Environment Requests (*in ClearQuest*) that were created for each activity. The ER's provide the State with a traceable item that can be worked on and referred back to later.

B.11.3 Environment Validation

After a new environment is set up, the Contractor will perform the following technical and functional validations to determine that the set-up process was completed correctly before handing it to the application or testing team:

1. Validate the environment itself, checking application instances, database instances, message queues, and other items to determine that they are functioning and readily available.
2. Next, we validate the build and deployment process to confirm that it has been arranged correctly and that the appropriate code is being deployed to the correct environment.
3. Finally, we validate that external services and third-party applications (LDAP, SSA, etc.) are working and that the application configuration properties are correct.
4. In addition to performing technical validations, we perform basic functional validations such as a smoke-test. These validations, which are part of our predefined checklist, include tasks that check the basic functions of the Bridges system as well as the major third-party products used by the system.
5. An example of this is logging on to the system and running file clearance on an individual to determine that the name-matching software is accessible by the system. After this is completed, the environment is turned over to the development and testing team for use.

B.12 Configuration Management

The Contractor will work with the State to implement and refine configuration management processes for Bridges to provide improved service delivery. These processes are critical for the overall project as they form the foundation for development, testing, training, and implementation.

B.12.1 Tools Used for Bridges Configuration Management

Tool	Description of use in Configuration Management
IBM Rational ClearCase	• Used as the main code and documentation repository. This includes tracking the version history, changes made between versions, who made the changes, and what environment the changes are currently being tested in.
IBM Rational ClearQuest	• Used to track issues, testing, and development progress. ClearQuest also links the issue, code, and requirements.
IBM Rational Requisite Pro	• Used to track the Bridges Requirements.
Apache Ant	• Used to build the system through XML-based build scripts. These scripts drive the overall build and deployment process, interacting with and calling other scripts, and deploying the files, as needed.
Shell Scripts	• Used to assist in performing tasks such as checking for errors with the deployment and confirming file and folder permissions are correct.
Perl Scripts	• Used to perform a variety of code quality audits, checking for dependencies and confirming that code has been merged properly. Perl is also used to automate manual tasks such as deliveries, baseline creation, and importing data into ClearQuest.
VB6 Scripts	• Used to update the Remedy information for Bridges reporting.

B.12.2 Rational Integration

The Contractor will work with the State to improve the integration between the three IBM Rational tools: ClearCase, ClearQuest, and Requisite Pro. While the Contractor will need to provide dedicated staff to support the existing CM processes, improvements to established processes are needed so that the CM activities throughout the SDLC will support the standards identified by SUITE / SEM.

B.12.3 Documentation of Existing standards and processes

The Contractor will work with the State to update the existing Configuration Management Plan to provide accurate and detailed information on the current processes used. This will include detailed sections including:

- Stream Structure and Delivery Process
- Build and Deployment Activities
- Merge Process
- Technical information on scripts used to support CM Processes

The revised Configuration Management plan will serve as a guide for knowledge transfer and transition tasks and will provide a reference to existing standards that can be used in the evaluation of proposed improvements to the CM Processes

B.12.4 Reviews for compliance with SUITE / SEM standards

The Contractor, State PMO and State business and technical leads will work together to conduct regular reviews to determine compliance with SUITE / SEM Standards. When processes, standards or activities within the SDLC are identified that do not conform to the State standards, the following steps will be taken:

1. A report will be sent to Contractor and State management defining the identified issue including:
    a. Recommendations to improve processes to achieve compliance with SUITE / SEM
    b. Estimate to implement proposed changes including time, required resources and impact to current initiatives
    c. Accurate information on the risks or impacts to business and technology initiatives if the changes are not made
2. Management will review the report and consider the initiative in the context of current priorities.
3. The State PMO will create a project plan for the tracking of process improvements and associated Work Requests and Environment Requests will be sent to the Release Planning Management team prioritization.

C RELEASE PLANNING AND MANAGEMENT

The Contractor will support the State with the currently established release planning and management approach. The Contractor will assist the State to plan releases that address the priorities of new initiatives in conjunction with essential system maintenance.

A scheduled release is a collection of work requests that include enhancements, fixes, infrastructure modifications and upgrades that are packaged for testing and deployment purposes. The State may also need to implement immediate releases, as needed, to respond to urgent needs outside of the regular schedule.

Release management involves collaboration between the Contractor and the State to plan releases strategically considering major initiatives and changes that are anticipated to influence upcoming releases.

Contractor Key Responsibilities

- Functional and technical analysis of initiatives proposed for release to help the State prioritize and refine the scope of each release to maximize delivery of critical business functionality and minimize risk

- Follow the State's current release management process, working closely with The State to scope and manage items for scheduled and immediate releases that are essential to maintain, support and enhance Bridges
- Provide accurate status updates throughout every phase of the SDLC to report on the progress of all SEM phases.
- Deliver approved release items that meet the functional and technical requirements within the mutually agreed upon timelines for the release.

Description of Activities and Contractor Roles and Responsibilities

The roles and responsibilities of the Contractor for release planning and management include but are not limited to:

- Provide required resources and assist with scheduled release status meetings, working with the State to make informed project decisions that contribute to the success of application maintenance and operation activities or other business initiatives. These meetings are designed with the intention of notifying the State about the progress of work items throughout the SDLC phases of a release.
- Attend meetings as requested by the State to review business, policy, functional and technical questions as well as analyze and determine the impact that a change may have on Bridges users.
- Provide subject matter experts to assist the State in analysis and estimation of proposed initiatives to understand the scope and criticality of changes needed to support the end users.
- Assist the State with consolidation of work requests to determine the scope of releases based on the functional and business needs defined by the State.
- Work closely the State to clarify requirements and policy of initiatives targeted for release.
- Perform impact analysis of release items and estimate effort needed to produce recommendations that will assist the State in defining the scope of the release.
- Analyze items proposed for release to help the State determine whether to accept, reject, or further evaluate the initiatives.
- Assist the State with the Prioritization of release candidates according to the following categories:
    - Emergency
    - Mandatory
    - Required
    - Low priority
- Perform a preliminary estimate of the scope and impact of proposed modifications
- Assess the cross functional, business and technology impacts of proposed modifications
- Coordinate planned modifications with other ongoing maintenance tasks to minimize risk and plan for the availability of all required resources
- Work with the State to modify and confirm the scope of each release to properly respond to:
    - Critical production issues
    - Availability of business and technical resources
    - Changes to priorities
    - State and federal mandates
    - Critical issues identified by trading partners
    - Any other critical factors defined by the State
- Assist with the development of the release implementation plan and key activities required for the implementation of the release to production
- Provide post-implementation support including; monitoring and review of; online and batch logs, production performance, remedy tickets and information provided by the help desk, field staff and end users. Additional support activities include:
    - Document and communicate issues identified by these support activities to the State and provide recommendations for resolution

    - Assist with timely resolution of post-implementation issues. Assist the State with the improvement of QA processes, application standards and test methods to reduce the frequency of production issues in future releases.
- Throughout the development life cycle of every release item, the Contractor will promptly communicate any issues, risks or other important information to the Release Management team, State management and appropriate functional leads that may impact the timing or scope of the release. These will include issues, risks and action items resulting from sources such as:
    - New information discovered in the requirements gathering process or functional design.
    - Functional or technical impacts revealed during the technical design review
    - Cross-functional or technical impacts discovered during impact analysis, development, data validation or production support activities
    - Functional, technical, regression or load testing activities
    - New information provided by trading partners, field staff and subject matter experts
- Provide follow up support for every release by completing outstanding activities, testing, documentation and communicating any issues that require additional support to the State and other project stakeholders
- Work with the State to prioritize its enhancement efforts in alignment with the DHS and DTMB vision and strategic plans
- Work with DTMB management to engage DTMB technical resources in appropriate activities throughout each release to further their ability to efficiently maintain and support all aspects of Bridges
- Assist the State with continuous improvement of the release planning process by:
    - Document lessons learned with each release and recommend specific improvements
    - Provide proper communication between development, testing and production support teams
    - Identifying and recommending solutions for common issues
    - Referring common issues to the QA team to help establish QA review and testing processes that will reduce the frequency of these issues

C.1 Release Frequency and Scheduling

The Contractor will support an iterative release planning process that makes it easily adaptable to variable release schedules and allows addition/removal of units of work as well as accommodates any items that impact multiple functional and business areas. This will include:

- Support for scheduling releases in an overlapping process that allows the current five-week system development life cycle to produce monthly releases to production.
- Support for Immediate releases
- Working with the State as directed to support the capability for longer release cycles to meet business demands.

C.2 Support for Special Environments

The Contractor will work with the State to carefully prioritize enhancements across the various functional areas with the understanding that maintenance operations are not interrupted from a cost, resource, or schedule perspective.

There are instances where development and testing for sub-projects may require additional streams and environments so as to not interrupt the normal release cycle. Based on the individual requirements of each activity, the Contractor will work with The State to create and support these special environments.

Each sub-project request will follow the same release planning and prioritization steps as other work requests. Analysis and estimation of factors such as effort level, resource allocation, and impact to existing functionality and Bridges users will be reviewed to determine how the sub-project can be conducted while still maintaining the regular release cycle

C.3 Configuration of Development Tools for Special Releases

Both the regular release and sub-project processes will leverage the same change management tools; however, there are instances where versions of these tools will require customization to meet the setup requirements for special releases and sub-projects. If the sub-project is on a different schedule than the regular release cycle the settings for ClearQuest/ClearCase may require modification so that a work request can be identified as either being part of the current release or part of the sub-project activities. This confirms that while development for the sub-project is taking place, code promotion and testing activities do not interfere with the current release activities.

At the conclusion of development and testing for a sub-project, the work requests for a release and the work requests related to the other activities are packaged as one unit for deployment into production. The Contractor will work with the State to merge the final code for the special project with our normal release code so that it can be delivered to the production environment as one unit.

C.4 SUITE / SEM Process for Release Planning and Management

The Contractor will follow the established (SEM) processes for Release planning and management as defined by the State. The Contractor will work with the State and trading partners in the coordination and management of each release cycle.

Each work request that is completed for a release will follow the same progression path through the SEM phases defined in this methodology. These items are first reviewed during the Initiation and Planning phase through the Bridges Release Planning Management (RPM) process where the Contractor and the State, and other necessary stakeholders consider factors such as the overall impact to the State's program policy and Bridges users, an estimation of the development effort required to complete the work item, and how existing system technology and functionality are affected, Based on this initial evaluation, a work request is prioritized for a release.

Following this initial process, a Release Planning Document (RPD) is produced and serves as a key method of tracking throughout the release cycle. The summary status of work requests at the various phases of SEM is reported until the deployment of the work request package into production or the de-scheduling of the work request occurs. This document also accounts for the addition of work items at various points of the SEM stages that were not originally scoped for a release.

C.4.1 Initiation, Planning, and Scope Finalization

The Contractor will assist the State with the identification and prioritization of systems modifications and enhancements that will progress the DHS and DTMB vision and meet business needs, ultimately improving the delivery of services to the citizens of Michigan.

This initial phase of SEM marks the initiation of a release and brings together stakeholders from the Contractor, State, and other trading partners in the release planning management (RPM) process to identify the scope of the release based on factors including the significance of a work item (*both large and small work requests are evaluated*), the impact to policy/program offices and their clients, and the requirements and constraints of both development and technical resources.

Subject Matter Specialists and Executive Management from the State provide the preliminary scope of work requests that should be incorporated in a specific release, taking into consideration required policy items and requests from various Bridges user groups as well as the significance of an item.

Once this analysis is completed and a list of prioritization recommendations is submitted to the Release planning team the Contractor will provide timely and accurate evaluations of the effort and criticality of an item along with their recommendations for the initial scope. The Contractor's production support team will provide additional input to help the State refine the scope.

The Contractor will review and assess additional factors such as resource availability, the number of prioritized work requests, the effort level of each work request, and the length of time for the release to determine the items that can be developed and tested within the defined release cycle. The number of requests and prioritization from the State helps to determine which work requests should be included in

the release and which ones should be removed. At the conclusion of this assessment, the Contractor provides their final recommendations for the release to the State, which helps DHS management to approve a finalized scope for the release.

Once the scope of the release is approved, the Contractor will assist the State with the creation of a release planning document. Throughout the phases of the release, it is important that open communication and feedback are observed.

The Release planning document defines the units of work or special projects that are included in the release and will be continuously updated throughout the cycle to provide State and Contractor management, and other necessary individuals with the status of release items as they progress through the SDLC. This document is critical to allow the flexibility to add or remove items from the scope of the release.

If it is necessary to include a work item in a release after the development week (the release "cutoff period") or within the testing phase (both QAT and UAT), the criticality of the modification will be evaluated to determine if there is an urgency to have the functionality in production. If this is the case, the Contractor will works with The State to prioritize the work request and complete the SDLC phases of SEM to confirm that the work request is developed and tested to the necessary standards.

The Release Planning Document also plays an important role throughout the multi-tiered testing process. For the work requests that are included in the packaged release, the test status for each item is evaluated by DHS management to give a provisional approval for the release to production. The status is revisited right before the deployment of the code to production, and a high UAT testing completion percentage along with low risk anticipation from untested work requests drives the approval for final deployment.

C.4.1.1 Estimation Processes and Tools for Accurate Release Planning

Estimation for systems modifications and enhancements is a critical step in the systems modifications and enhancements life cycle to identify feasibility, timeline impacts, and allow for scheduling of required resources for the timely delivery of each initiative or work request. The release planning process depends on estimates to identify the business and technical resources needed and the hours required for each resource throughout the SDLC.

Estimates will be considered when determining the scope of each release and will help meet the following objectives:

- Release items meet agreed upon standards of quality
- Sufficient time and resources are available to complete required quality assurance checks
- Downstream impact is minimized and properly communicated when it is inevitable
- Sufficient resources are available for completion of dependencies, modifications required to impacted system functionality and changes to business processes that may be required
- Required testing resources are available for each test phase to complete documented test plans and improve the quality of production releases
- Test phases include sufficient time for re-development and re-testing to correct issues identified in the testing process
- Common problems that result in the need for break-fixes, immediate releases or workarounds are reduced or eliminated by improving the quality of the release as a whole

The Contractor will follow a defined and coordinated estimation process that includes participation and close collaboration across multiple State and Contractor teams. The process and tools used will be evaluated by Contractor and State management regularly to confirm that the objectives defined in this section are met.

Initial Estimations will be based on available information related to the proposed system modification(s) including:

- Communication with the State to confirm proper understanding of the scope and work required to successfully deliver the initiative through each phase of the SDLC.
- Initial understanding ,evaluation and impact analysis of the work request or initiative and all tasks required for completion,
- Existing requirements and design documentation for related functionality
- Prior estimates for work of similar scope and the actual resources and hours required for the completion of this work

Estimates will follow the SEM phases and account for the resources required for the completion of each phase. If the scope or complexity of a Work Request or initiative is changed in any of the phases, the estimate will be revised to reflect the change(s) and related impact on required resources. , Revised estimates will be communicated to the Release planning management team and discussed with State and Contractor management when the scope or timing of a release is impacted.

To support a standard methodology for accurate estimates, standard templates and tools will be utilized and an estimation process that is approved by the State will be documented and implemented as a requirement of the Initiation and planning phase of the contract. The agreed upon processes and tools will be improved throughout the contract with an objective of obtaining accurate and thorough estimates of the resources, tasks and hours per resource required for each release item and each phase of the SDLC.

For each phase of the SDLC, estimates will provide a detailed breakdown of the tasks required for completion of the phase, the complexity of the required tasks and the resources and hours required for each task. Tasks with dependencies should be clearly identified to allow for proper scheduling of resources based on the completion of key dependencies.

Estimation Process for SEM Phases:

1. **Requirements** (*Activities defined in A.1.3.2)*
    a. The estimate for the requirements phase will include the time required to gather the requirements create / modify and review requirements documentation. This estimate must identify the number of State and Contractor resources required to complete this process and the number of hours each resource will be required.
2. **Design** (*Activities defined in A.1.3.3*)
    a. The estimate for the design phase is based on the average time it takes to create each required design document including reviews, revisions and the number of each document type that is required.

        i. Required design documentation will be determined by the DTMB PMO based on the type of project being completed and include:

            - **Storyboards.** Storyboards document the components of a screen, interface file, or report layout, associating the components with attributes such as edit rules and relationships between the components and database fields.
            - **Decision Table Updates.** Decision tables house the rules that apply policy in the rules engine of Bridges. Decision table updates document the changes or addition of policy rules that will be applied under specific case circumstances.
            - **Physical Data Model.** A model of the database that describes in an abstract way how the organization's data will be represented the database management system.

- **Data Dictionary.** The data dictionary includes a set of metadata that contains definitions and representations of data elements for the application.
- **Interface Details/Layout.** Interface layout details include a list of the interfaces that are included in the Work Order and details such as data elements, data formats, data layouts and other systems that will be sending or receiving data.
- **Application Artifacts.** New or updated Application Artifacts that include screen designs, correspondence layout, reports layouts, and interface file structure.
- **Program Specifications.** These are the definitions of what a program is expected to do and are used by the developer to code and test the program. Program specifications are estimated according to the average time it takes to create a program specification document for each type of object (such as a screen), and by Complexity (*Very Simple to Very Complex*).

ii. The total resources and hours required per resource estimated for the design phase must reflect the resources required to complete the design phase with an approved Functional Design document that accurately provides the development team with sufficient detail to complete the construction phase.

b. The Initial Estimate will be reviewed at the completion of the Design phase to verify that the original resources and tasks are in alignment with the most current understanding of the scope, complexity and impact of the work request or initiative.

1. Significant changes to estimates during this phase may impact the release schedule and must be logged as project issues and properly communicated to the Release Planning Management team.

3. Construction *(Activities defined in A.1.3.4)*

a. The estimate for the construction phase will consider the resources and hours per resources required for:
   i. Development Documentation Including:
      1. The Development Work Plan
      2. Integration Test Scenarios
      3. Support Activities including:
         a. Plans / special considerations for regression testing
         b. Configuration activities
         c. Plans for Implementation activities
   ii. Development of Software Artifacts Including:
      1. Count of each type of software artifact that will be created or modified and the complexity of the development effort.
      2. Time and resources required to develop and Unit test each component.
      3. Allowance for QA checklists, peer review, internal code review and required change management activities.

b. The initial estimate will be revised at any point in the construction phase where new understanding of the complexity, scope or impact of the changes required will increase or decrease the number of resources or hours per resource required to complete the construction phase and the remaining SDLC phases.
   i. Significant changes to *estimates* during this phase may impact the release schedule and must be logged as project issues and properly communicated to the Release Planning Management team.

4. **Testing** *(Activities defined in A.1.3.5)*

    a. **Integration Testing**
        i. Time and resources required to complete the Integration testing required.
        ii. Time expected for re-development and re-testing for issues discovered in this phase.
    b. **Quality Assurance Testing**
        i. Time and resources required to complete the Quality Assurance testing required including:
            1. QAT Regression Testing and updates to regression test scripts
            2. Load Testing
            3. Completion of QA Test Scenarios
            4. Consideration for testing requiring special environments
            5. Correction of any issues identified by the technical QA review team
            .
        ii. Time and resources expected for re-development and re-testing for issues identified in this phase.
    c. **User Acceptance Testing**
        i. Time and resources required to complete the User Assurance testing required including:
            1. UAT Regression Testing and updates to regression test scripts
            2. Completion of UA Test Scenarios
            3. Consideration for testing requiring special environments
            4. Support required for completion of UAT activities
        ii. Time and resources expected for re-development and re-testing for issues identified in this phase.
    d. The Initial Estimate will be reviewed at the start and completion of each testing phase to verify that the original resources and tasks are in alignment with the most current understanding of the scope, complexity and impact of the work request or initiative.
        i. Significant changes to *estimates* during this phase may impact the release schedule and must be logged as project issues and properly communicated to the Release Planning Management team.

    e. Initial estimates for the testing phase will include the approximate number of test scenarios grouped by complexity based on the current understanding of the work request or initiative. These estimates will be revised as the actual test scenarios are determined in the requirements and design phases.

5. **Implementation**
    a. Estimation of activities required for implementation will include the number of resources and hours per resources for activities such as:
        i. Preparing, testing and executing data migration scripts
        ii. One time processes required to support new or modified interfaces
        iii. Special production testing or validation required to confirm the stability and accuracy of release items

At release closure, the Contractor will work with the State to evaluate the original estimate and any revisions that were required throughout the SDLC. Throughout this process, the standards, tools and metrics used for estimation will be refined to improve the accuracy of future estimates and help determine a reasonable scope for future releases.

A regular review of initial estimates compared to actual resources required for successful delivery will be conducted to validate steps, identify improvement opportunities, and capture metrics used to calibrate the estimation models.

The final version of the estimate for each work request will be documented and added to version control to assist the State with future resource planning and transition efforts

C.4.2 Requirements
Contractor roles and responsibilities for the phase are described in Article 1, Section 1.104,A.1.3.2

C.4.3 Design Requirements
Contractor roles and responsibilities for the phase are described in Article 1, Section 1.104,A.1.3.3

C.4.4 Construction
Contractor roles and responsibilities for the phase are described in Article 1, Section 1.104,A.1.3.4

C.4.5 Testing
Contractor roles and responsibilities for the phase are described in Article 1, Section 1.104,A.1.3.5

C.4.6 Implementation
The Contractor will meet with the State during the week leading up to the implementation of a build to report the status of work items for a release and confirm that the release items will be ready for the production build to occur.

If the release depends on other actions to complete deployment *(such as running batch processes or data migration scripts)*, The Contractor will communicate these items to the DTMB Batch team and organize a strategy for their completion so that all parties are aware and understand the steps that need to be taken to effectively complete implementation.

Determining the need for and construction of training modules are critical to convey the business processes related to a new modification to the Bridges application The Contractor will collaborate with The State to support the development of training materials before the modification is introduced in production based on the analysis and determination of the potential impact to Bridges users. The Contractor will be available to answer technical and business questions concerning a specific change and provide any essential documentation for information that is required. Additionally, the Contractor will assist the State in reviewing the finished product and offer feedback as requested by the State.

With the approval of DHS, the Contractor will assist with preparations for the deployment of the code release to production. Regularly scheduled releases will be completed on weekends to negate potential impacts to system availability.

As part of the implementation process, the Contractor will provide DHS, DTMB, and other stakeholders with concise details about the new functionality that is introduced with the release so that Bridges users are informed and aware of changes to the application(s).

After successfully deploying a release build in the Production environment, The Contractor will perform post production validations that include monitoring Bridges for performance and accurate system functionality as well as performing a review of error logs to proactively address any issues. In addition, the functional leads will work with the technical team to employ data integrity checks that run on a repeated basis. These checks scan the database for business rule violations that would indicate application problems. Issues identified by these activities will be reviewed by the Contractor and DTMB and prompt communication of any issues, risks or required actions will be provided to State management. Additional immediate post implementation support as defined in the '*Description of Activities and Contractor Roles and Responsibilities*' for this section will be provided.

D PROJECT INITIATION

The activities below are planned for the first 3 months of the contract.

D.1 Key activities during the Project initiation phase of this Contract		
Time Frame	**Contractor Required Activities**	**Description / Objective**
	RFP Defined Activities	
Within 5 Calendar Days of the Contract Execution Date	Participate in a kick-off meeting	This meeting provides an opportunity for key resources from DHS, DTMB and the Contractor to discuss objectives of the new contract and plan additional meetings and action as needed.
Within Month 1 of the Contract Execution Date	Participate in status meetings	These meetings allow State and Contractor management to evaluate the progression of the initiation period.
Within Month 1 of the Contract Execution Date	Review risks	This allows the proper assessment and review of project risks and mitigation strategies to confirm that the appropriate protocol for these items is addressed and in place.
Within Month 1 of the Contract Execution Date	Optimize assigned space with DTMB staff	DHS, DTMB and the Contractor will work together to facilitate a collaborative working environment and locate resources strategically to provide the most efficient workflow and cooperation between teams. Review any changes needed to communication channels or scheduled meetings to improve cooperation and integration.
Within Month 1 of the Contract Execution Date	Review Reports	This review confirms that the monthly status reports that are being produced meet the business needs of the State.
Within Month 1 of the Contract Execution Date	Develop recommendations for for issues and risk management	Discuss requirements and timelines for the implementation of an issue and risk management process.
Within Month 2 of the Contract Execution Date	Review current processes vs. SUITE	Review existing processes and procedures throughout the SDLC to determine compliance with SUITE / SEM and plan for changes to processes and procedures required to obtain full compliance. With the SUITE / SEM standards defined by the DTMB PMO
Within the Last 3 Weeks of the Contract Execution Date	Review QA standards for application development with DTMB and improve documentation of agreed upon standards	Meet with DTMB technical leads and management to confirm documented standards for QA processes are up to date and proper measures are in place for enforcement of standards. This includes review and improvement of standards for: • Unit Test Checklists o Identification of the Unit Test Checklists required for each type of software artifact and creation of new checklists for artifacts that are lacking a checklist • Integration Test Plans • Code validation tools such as FindBugs and their configurations. o Standards to review and

D.1 Key activities during the Project initiation phase of this Contract		
Time Frame	**Contractor Required Activities**	**Description / Objective**
		enforce compliance with validation tools and the issues they identify. • QA Review Process including code review checklists, CQ triggers / rules and impact analysis • Code, UI and technical standards including verification of proper inline documentation of code changes and updates to JavaDoc intranet site.
Within the Last 3 Weeks of the Contract Execution Date	Review Knowledge transfer and workload transition plans and processes in place to track the progress of transition activities over the life of the contract	• Review of plans and processes agreed upon between Contractor and State to meet the objectives defined in Section 1.101.1.
Within the Last 3 Weeks of the Contract Execution Date	Review plan to Implement SUITE driven changes	Review plan to Implement new processes and procedures that improve compliance with SUITE (SEM) practices without negatively affecting the timelines of ongoing maintenance and support activities. Document changes to processes and procedures that will be required to obtain full compliance with the SUITE / SEM standards defined by the DTMB PMO.Enter outstanding action items as project issues to allow proper tracking and resolution.
Within the Last 3 Weeks of the Contract Execution Date	Confirm Contractor support activities for DHS	This activity confirms that the Contractor is meeting the objectives defined in this contract for functional support provided to DHS and provides an opportunity for DHS to prioritize functional support activities for the Contractor to focus on. Contractor and State management will work together to prioritize changes to processes, procedures and resource allocation required to meet the objectives of the contract and enter any outstanding action items as project issues for tracking and reporting.
Within the 90 day Contract Execution Date	Delivery and support of the releases for the initiation period	This activity provides a check-point for the evaluation of the Contractor's performance and services provided during the support of the most recent releases. State and Contractor management will discuss any changes to priorities or resource allocation that may be needed to improve the quality of services being provided to the State..

1.200 Roles and Responsibilities

1.201 Contractor Staff, Roles, And Responsibilities

- Contractor must provide services during normal working hours (Monday through Friday, 7:00 a.m. to 6:00 p.m.) and possible night and weekend hours depending on position and project requirements. No overtime will be authorized or paid. The State is not obligated to provide State management of assigned work outside of normal State working hours. The State reserves the right to modify the work hours in the best interest of the project. Contractor shall observe the same

standard holidays as State employees. The State does not compensate for holiday pay. Contractor will not be reimbursed for travel expenses or travel time.

- Contractor work is to be performed, completed, and managed at the following location, with site access and conditions the same as those provided to state staff:

  Grand Tower Office Building
  235 South Grand Ave
  Lansing, Michigan 48933

- Contractor must present certifications evidencing satisfactory Michigan State Police Background checks (ICHAT) and drug tests for all staff identified for assignment to this project. In addition, proposed Contractor personnel will be required to complete and submit an RI-8 Fingerprint Card for the National Crime Information Center (NCIC) Finger Prints, if required by project.

- Contractor may request clarification regarding DTMB's request during the response period. If the contractor is unable to provide the personnel requested, the contractor must record this fact in a written response to the State.

- Contractor will provide a mechanism for expedited procurement of staff to meet a need for immediate replacement or for mission critical services.

- Contractor will provide staff for this assignment that are trained and meet the skill set requirements of the job position being filled. The State makes changes to its technical architectures from time to time. If a contract individual is assigned to a State project or support area and the technology associated with their assignment changes, the contractor are responsible for training in the new or changed technology (e.g., contractor personnel needs training in a particular tool in order to perform their State assignment.) or providing new resources who are trained in the new tool, at the State's discretion. Contractor or the assigned contract staff may elect to pay for the training necessary to continue working on the assignment. The cost of the course, including any travel expenses, and the training hours will not be billable to the State.

- Contractor staff will be subject to the rules, regulations, and policies of DTMB and the Michigan Department of Civil Service.

- Contractor staff will be subject to DTMB and DHS rules for computer and Internet usage and will be required to sign an acceptable use agreement, as required of DTMB's and DHS's own employees.

- Contractor staff must attend DHS orientation, security awareness training and any other relevant security and/or confidentiality training. contractor staff must sign any appropriate agreements or training certifications.

- Contractor staff assigned to work with restricted (a.k.a. sensitive) data have an obligation to safeguard and protect the confidentiality of such data. Further, if the staff member accidentally or purposefully releases restricted or sensitive data, the contractor assumes full responsibility for any resulting penalties, such as those described in the Identity Theft Protection Act (Act 452 P.A. 2004, amended July 2007).

- Contractor assumes full responsibility for the acts of their subcontractors.

- Contractor may use subcontractors to fulfill requirements of the contract.

- Contractor staff will exhibit professional conduct and act in the best interest of the State.

The Contractor has assigned the following Contract Administrator to this Contract:

Umesh Jadhav
ujadhav@deloitte.com
(626) 664-7682

The contract administrator will report to the DMTB-CIO. The duties of the Contract Administrator shall include, but not be limited to:

- Supporting the management of the Contract
- Facilitating dispute resolution
- Advising the State of performance under the terms and conditions of the Contract
- Managing contractor's subcontractors
- Serving as the single point of contact for all contract issues
- Assessing and reporting contract feedback and status
- Escalating contract issues, risks, and other concerns
- Managing and reporting on the contract budget

The State reserves the right to require a change in the assigned Contract Administrator if the assigned Contract Administrator is not, in the opinion of the State, adequately serving the needs of the State.

1.202 State Staff, Roles, And Responsibilities

- The State will provide the following resources for the Contractor's use: work space, desk, telephone, PC workstation, printer, and access to copiers and fax machine. This includes software licenses as appropriate.

- The State will follow an annual purchase order process (APOP) for all service request performed under this contract. A purchase order (PO) for one year at a time will be issued for all resources working under this contract.

- After selecting the Contractor, the State will notify contractor regarding its selection. Such notification will be made electronically and within seven (7) days of the time resumes are submitted to the State.

State Project Manager - (DTMB and Agency)
The designated Agency Project Manager is:
To be determined

The designated DTMB Agency Service's Project Manager is:
Jim Hogan, DTMB IO

The State's Project Manager(s) duties shall include, but not be limited to:

- Provide State facilities, as needed
- Facilitate coordination between various external contractors
- Facilitate communication between different State departments/divisions
- Provide acceptance and sign-off of deliverable/milestone using SUITE
- Review and sign-off of timesheets and invoices
- Resolve issues
- Escalate outstanding/high priority issues
- Utilize change control procedures based on SUITE for scope, schedule, resources or process changes.
- Document and archive all important decisions
- Arrange, schedule and facilitate State staff attendance at all meetings.

DTMB shall provide a Contract Administrator whose duties shall include, but not be limited to supporting the management of the Contract.

To be determined

1.300 Project Plan

1.301 Project Plan Management

Orientation Meeting

1. Within five (5) calendar days from execution of the Contract, the Contractor will be required to attend an orientation meeting to discuss the content and procedures of the Contract.
2. The meeting will be held in Lansing, Michigan, at a date and time mutually acceptable to the State and the Contractor
3. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

Performance Review Meetings

1. The State will require the Contractor to attend monthly meetings, at a minimum, to review the Contractor's performance under the contract. The meetings will be held in Lansing Michigan, as mutually agreed by the State and the Contractor.
2. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

1.302 Reports

Progress reporting for this contract will be performed both by the individual resource and by the Contractor, in compliance with the annual purchase order process (APOP). Reporting includes the monthly maintenance and operations status reports.

1.400 Project Management

Project management duties will be the responsibility of the DTMB-CIO. The Contractor shall adhere to processes covering, but not limited to the following project management competencies:

1.401 Issue Management

An issue is an identified event that if not addressed may affect schedule, scope, or quality.

The Contractor will communicate issues to the State and log issues in the agreed upon tracking tool.
The Contractor will employ two ways to handle issue management:

- Issues identified during requirements gathering, design, development, testing, or implementation of work that has been prioritized for a release are documented and tracked as part of the Release Planning process documentation.
- Issues identified during requirements gathering, design, development, testing or implementation of large changes such as Program Office initiatives follow project level issue management and are documented and tracked in the agreed upon issue tracking tool.

The following steps will be followed for logging, tracking, and escalating an issue through its life cycle during the Bridges Maintenance and Operations project:

Steps	Description
Step 1: Issue Identification	A potential issue that may impact project progress is identified.
Step 2: Issue Documentation and Tracking	Based on the source of the issue, the issue is documented using SUITE processes with the intent of tracking the issue to completion. The identifying party is responsible for entering the minimum information, which includes the description of the issue, identification date, and the potential team that will be responsible for resolving the issue.

Steps	Description
Step 3: Issue Analysis	Contractor team members analyze the issue and perform an initial evaluation of the source, cause, and system as well as business impact and develop recommendations for resolution. An initial priority of the issue is also determined at this point to enable appropriate escalation of the issue.
Step 4: Issue Escalation	Depending on many factors that include the effect of the issue on scope, budget, quality, and schedule as well as the impact on business users, the issue is escalated using different channels of communication to the business leads, project managers, and executive subject matter specialists.
Step 5: Categorization, Prioritization and Resolution Action Plan	State and Contractor members collaboratively identify the category of business area to which the issue belongs, the priority of the issue, and a plan for resolution that includes the target due date and assigned resources.
Step 6: Resolution	The Contractor works with the State and trading partners to resolve the issue. Once an issue is resolved, it is marked as complete in the appropriate tools or documentation.

The Contractor will use the agreed upon tracking tool and document details related to the issues including the following minimum elements:

- Description of issue
- Issue identification date
- Responsibility for resolving issue.
- Priority for issue resolution (to be mutually agreed upon by the State and the Contractor)
- Resources assigned responsibility for resolution
- Expected Resolution date
- Actual Resolution date (*Entered after resolution*)
- Resolution description

Issues that required escalation will follow the agreed upon and documented escalation process for the project.

1.402 Risk Management

A risk is an unknown circumstance or event that, if it occurs, may have a positive or negative impact on the project.

The Contractor is responsible for establishing a risk management plan and process using SUITE processes, including the identification and recording of risk items, prioritization of risks, definition of mitigation strategies, monitoring of risk items, and periodic risk assessment reviews with the State.

The Contractor shall use the agreed upon tools and SUITE processes to track risks. The Contractor will work with the State and allow input into the prioritization of risks.

The Contractor is responsible for identification of risks for each phase of the project. Mitigating assigned risks will be the responsibility of the Contractor. The State will assume the same responsibility for risks assigned to them.

The Contractor will employ two ways to handle identified risk:

- For risks identified during planning or execution of changes that are part of a given production release, the Contractor will document the identified risks in the agreed upon tool and discuss them with impacted project stakeholders. • For large complex changes such as DHS Program Office initiatives, the Contractor will document the risk characteristics in the agreed upon tool.

The Contractor will use a structured process to determine the risk probability and impact measurement of each risk to provide the State with the necessary information to accurately prioritize the risks. Once risks have been identified, assessed, and reviewed, the Contractor will regularly monitor them in collaboration with the State so that they can be effectively managed, responded to, and reported on.

Change Control

A change control process that is mutually agreed upon between the State and the Contractor, will be used to communicate, assess, monitor, and control changes to the scope of releases, allocation of resources, schedules and processes.

The Contractor will work with the State to establish a change control process compliant with SUITE standards. The Contractor will provide inputs to manage scope and number of changes in every release with the knowledge that extensive changes jeopardize project progress, schedule, budget, and stability of the application. As part of the maintenance and operation activities in Bridges, there will be large-scale complex changes such as DHS Program Office initiatives that will be prioritized by State management. The Release Management Group, made up of DHS and DTMB Executive Management, will perform the Change Control Board function as changes are implemented through the maintenance phase.

The Change Control mechanism must provide for controlled and orderly modifications to the approved plan including timing, scope and staffing.

The Change Control process will be integral to the success of project execution and control.

The Contractor will bring change controls to the Release Planning meeting, where the change control will be logged and tracked. The Contractor will provide the following minimum elements to the Release Planning facilitator:

- Description of change control
- Change control identification date
- Responsibility for the change control if it is approved
- Priority for the change control (to be mutually agreed upon by the State and the Contractor)
- Resources assigned responsibility for analysis and completion
- Suggested release to complete the change control
- Evaluation of the scope, schedule and resources (only after the CCB determines it is a valid change control)

1.500 Acceptance

1.501 Criteria

Acceptance is tied to adequate performance of required services and/or delivery of the deliverables.

1.502 RESERVED - Final Acceptance

1.600 Compensation and Payment

1.601 Compensation And Payment

Method of Payment

The Cost tables are provided in **Exhibit C**.

Payments will be made upon completion of each delivered and accepted monthly status report for fixed pricing Ongoing Maintenance and Operational Support.

Standard payment terms for the State are net 45 days from invoice receipt. The contractor may only invoice the State once a month for all resources.

Invoicing

Contractor will submit properly itemized invoices to:

DTMB Procurement
Constitution Hall
525 W. Allegan
Lansing, MI 48913

Invoices shall provide and itemize, as applicable:

- Contractor name, address, and phone number
- Dates covered
- Contract number
- Purchase order number
- For each service request number against which work is being billed:
  - Work authorization number
- Total dollars being billed by the contractor for the month

Incorrect or incomplete invoices will be returned to contractor for correction and reissue.

Article 2, Terms and Conditions

2.000 Contract Structure and Term

2.001 Contract Term

This Contract is for a period of four (4) years beginning **February 11, 2011** through **February 10, 2015**. All outstanding Purchase Orders must also expire upon the termination (cancellation for any of the reasons listed in **Section 2.150**) of the Contract, unless otherwise extended under the Contract. Absent an early termination for any reason, Purchase Orders issued but not expired, by the end of the Contract's stated term, will remain in effect for the balance of the fiscal year for which they were issued.

2.002 Options to Renew

This Contract may be renewed in writing by mutual agreement of the parties not less than 30 days before its expiration. The Contract may be renewed for up to **one (1)** additional one (1) year period.

2.003 Legal Effect

Contractor shall show acceptance of this Contract by signing two copies of the Contract and returning them to the Contract Administrator. The Contractor shall not proceed with the performance of the work to be done under the Contract, including the purchase of necessary materials, until both parties have signed the Contract to show acceptance of its terms, and the Contractor receives a contract release/purchase order that authorizes and defines specific performance requirements.

Except as otherwise agreed in writing by the parties, the State assumes no liability for costs incurred by Contractor or payment under this Contract, until Contractor is notified in writing that this Contract (or Change Order) has been approved by the State Administrative Board (if required), approved and signed by all the parties, and a Purchase Order against the Contract has been issued.

2.004 Attachments, Appendices & Exhibits

All Attachments, Appendices and Exhibits affixed to any and all Statement(s) of Work, or appended to or referencing this Contract, are incorporated in their entirety and form part of this Contract.

2.005 Ordering

The State will issue a written Purchase Order, Blanket Purchase Order, Direct Voucher or Procurement Card Order, which must be approved by the Contract Administrator or the Contract Administrator's designee, to order any Services/Deliverables under this Contract. All orders are subject to the terms and conditions of this Contract. No additional terms and conditions contained on either a Purchase Order or Blanket Purchase Order apply unless they are also specifically contained in that Purchase Order or Blanket Purchase Order's accompanying Statement of Work. Exact quantities to be purchased are unknown, however, the Contractor will be required to furnish all such materials and services as may be ordered during the CONTRACT period. Quantities specified, if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities.

2.006 Order of Precedence

The Contract, including any Statements of Work and Exhibits, to the extent not contrary to the Contract, each of which is incorporated for all purposes, constitutes the entire agreement between the parties with respect to the subject matter and supersedes all prior agreements, whether written or oral, with respect to the subject matter and as additional terms and conditions on the purchase order must apply as limited by **Section 2.005.**

In the event of any inconsistency between the terms of the Contract and a Statement of Work, the terms of the Statement of Work will take precedence (as to that Statement of Work only); provided, however, that a Statement of Work may not modify or amend the terms of the Contract, which may be modified or amended only by a formal Contract amendment.

2.007 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 the Contract.

2.008 Form, Function & Utility

If the Contract is for use of more than one State agency and if the Deliverable/Service does not the meet the form, function, and utility required by that State agency, that agency may, subject to State purchasing policies, procure the Deliverable/Service from another source.

2.009 Reformation and Severability

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

2.010 Consents and Approvals

Except as expressly provided otherwise in the Contract, if either party requires the consent or approval of the other party for the taking of any action under the Contract, the consent or approval must be in writing and must not be unreasonably withheld or delayed.

2.011 No Waiver of Default

If a party fails to insist upon strict adherence to any term of the Contract then the party has not waived the right to later insist upon strict adherence to that term, or any other term, of the Contract.

2.012 Survival

Any provisions of the Contract that impose continuing obligations on the parties, including without limitation the parties' respective warranty, indemnity and confidentiality obligations, survive the expiration or termination of the Contract for any reason. Specific references to survival in the Contract are solely for identification purposes and not meant to limit or prevent the survival of any other section

2.020 Contract Administration

2.021 Issuing Office

This Contract is issued by the Department of Technology , Management and Budget, Purchasing Operations and the Department of Human Services (collectively, including all other relevant State of Michigan departments and agencies, the "State"). Purchasing Operations is the sole point of contact in the State with regard to all procurement and contractual matters relating to the Contract. The Purchasing Operations Contract Administrator for this Contract is:

Steve Motz
Buyer
Purchasing Operations
Department of Technology, Management and Budget
Mason Bldg, 2nd Floor
PO Box 30026
Lansing, MI 48909
MotzS@michigan.gov
(517) 241 -3215

2.022 Contract Compliance Inspector

The Director of Purchasing Operations directs the person named below, or his or her designee, to monitor and coordinate the activities for the Contract on a day-to-day basis during its term. **Monitoring Contract activities does not imply the authority to change, modify, clarify, amend, or otherwise alter the prices, terms, conditions and specifications of the Contract. Purchasing Operations is the only State office**

authorized to change, modify, amend, alter or clarify the prices, specifications, terms and conditions of this Contract. The Contract Compliance Inspector for this Contract is:

Barb Suska
517-335-4067
SuskaB@Michigan.gov

2.023 Project Manager

The following individual will oversee the project:

To be determined

2.024 Change Requests

The State reserves the right to request from time to time any changes to the requirements and specifications of the Contract and the work to be performed by the Contractor under the Contract. During the course of ordinary business, it may become necessary for the State to discontinue certain business practices or create Additional Services/Deliverables. At a minimum, to the extent applicable, the State would like the Contractor to provide a detailed outline of all work to be done, including tasks necessary to accomplish the Services/Deliverables, timeframes, listing of key personnel assigned, estimated hours for each individual per task, and a complete and detailed price justification.

If the State requests or directs the Contractor to perform any services or provide deliverables that are consistent with and similar to the Services/Deliverables being provided by the Contractor under the Contract, but which the Contractor reasonably and in good faith believes are not included within the Statements of Work, then before performing such services or providing such deliverables, the Contractor shall notify the State in writing that it considers the services or deliverables to be an Additional Service/Deliverable for which the Contractor should receive additional compensation and/or a delivery schedule adjustment. If the Contractor does not so notify the State, the Contractor shall have no right to claim thereafter that it is entitled to additional compensation for performing that service or providing that deliverable. If the Contractor does so notify the State, then such a service or deliverable shall be governed by the Change Request procedure in this Section, and the Contractor shall not be required to perform the additional services/deliverables in the absence of a mutually agreed Change Order or Contract Modification applicable to the additional services or deliverables.

In the event prices or service levels are not acceptable to the State, the Additional Services or New Work shall be subject to competitive bidding based upon the specifications.

(1) Change Request at State Request
If the State should require Contractor to perform New Work, Additional Services or make changes to the Services that would affect the Contract completion schedule or the amount of compensation due Contractor (a "Change"), the State shall submit a written request for Contractor to furnish a proposal for carrying out the requested Change (a "Change Request").

(2) Contractor Recommendation for Change Requests:
Contractor shall be entitled to propose a Change to the State, on its own initiative, should it be of the opinion that this would benefit the Contract.

(3) Upon receipt of a Change Request or on its own initiative, Contractor shall examine the implications of the requested Change on the technical specifications, Contract schedule and price of the Deliverables and Services and shall submit to the State without undue delay a written proposal for carrying out the Change. Contractor's proposal will include any associated changes in the technical specifications, Contract schedule and price and method of pricing of the Services. If the Change is to be performed on a time and materials basis, the Amendment Labor Rates shall apply to the provision of such Services. If Contractor

provides a written proposal and should Contractor be of the opinion that a requested Change is not to be recommended, it shall communicate its opinion to the State.

(4) By giving Contractor written notice within a reasonable time, the State shall be entitled to accept a Contractor proposal for Change, to reject it, or to reach another agreement with Contractor. Should the parties agree on carrying out a Change, a written Contract Change Notice must be prepared and issued under this Contract, describing the Change and its effects on the Services and any affected components of this Contract (a "Contract Change Notice").

(5) No proposed Change must be performed until the proposed Change has been specified in a duly executed Contract Change Notice issued by the Department of Technology, Management and Budget, Purchasing Operations.

(6) If the State requests or directs the Contractor to perform any activities that Contractor believes constitute a Change, the Contractor must notify the State that it believes the requested activities are a Change before beginning to work on the requested activities. If the Contractor fails to notify the State before beginning to work on the requested activities, then the Contractor waives any right to assert any claim for additional compensation or time for performing the requested activities. If the Contractor commences performing work outside the scope of this Contract and then ceases performing that work, the Contractor must, at the request of the State, retract any out-of-scope work that would adversely affect the Contract.

2.025 Notices

Any notice given to a party under the Contract must be deemed effective, if addressed to the 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 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.

State: Steve Motz
State of Michigan
Purchasing Operations
Attention:
PO Box 30026
530 West Allegan
Lansing, Michigan 48909

Contractor: See signature page for contact information

Either party may change its address where notices are to be sent by giving notice according to this Section.

2.026 Binding Commitments

Representatives of Contractor must have the authority to make binding commitments on Contractor's behalf within the bounds set forth in the Contract. Contractor may change the representatives from time to time upon written notice.

2.027 Relationship of the Parties

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

2.028 Covenant of Good Faith and Cooperation

Each party must act reasonably and in good faith. Unless stated otherwise in the Contract, the parties will not unreasonably delay, condition or withhold the giving of any consent, decision or approval that is either requested or reasonably required of them in order for the other party to perform its responsibilities under the Contract.

Each party shall reasonably cooperate with the other party in the performance of the Contract, including provision by the State of timely access to data, information, and its personnel. The State shall be responsible for the performance of its obligations as set forth in the Statement of Work and for the accuracy and completeness of data and information provided to the Contractor. Contractor's performance is dependent upon the timely and effective satisfaction of the State's responsibilities hereunder.

2.029 Assignments

Neither party may assign the Contract, or assign 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 other party; provided, however, that the State may assign the Contract to any other State agency, department, division or department without the prior consent of Contractor and Contractor may assign the Contract to an affiliate so long as the affiliate is adequately capitalized and can provide adequate assurances that the affiliate can perform the Contract. The State may withhold consent from proposed assignments, subcontracts, or novations when the transfer of responsibility would operate to decrease the State's likelihood of receiving performance on the Contract or the State's ability to recover damages.

Contractor may not, without the prior written approval of the State, assign its right to receive payments due under the Contract. If the State permits an assignment, the Contractor is not relieved of its responsibility to perform any of its contractual duties, and the requirement under the Contract that all payments must be made to one entity continues.

If the Contractor intends to assign the contract or any of the Contractor's rights or duties under the Contract, the Contractor must notify the State in writing at least 90 days before the assignment. The Contractor also must provide the State with adequate information about the assignee within a reasonable amount of time before the assignment for the State to determine whether to approve the assignment.

2.030 General Provisions

2.031 Media Releases

News releases (including promotional literature and commercial advertisements) pertaining to the RFP and Contract or project to which it relates shall not be made without prior written State approval, and then only in accordance with the explicit written instructions from the State. No results of the activities associated with the RFP and Contract are to be released without prior written approval of the State and then only to persons designated; provided, however, nothing herein shall preclude Contractor from referencing the Contract and services in past performance qualifications included in other proposals.

2.032 Contract Distribution

Purchasing Operations retains the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by Purchasing Operations.

2.033 Permits

Contractor must obtain and pay any associated costs for all required governmental permits. The State must pay for all costs and expenses incurred in obtaining and maintaining any necessary easements or right of way.

2.034 Website Incorporation

The State is not 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 the content and has expressly agreed to be bound by it in a writing that has been manually signed by an authorized representative of the State.

2.035 Future Bidding Preclusion

Contractor acknowledges that, to the extent this Contract involves the creation, development or generation of a future RFP; it may be precluded from bidding on the subsequent RFP. The State reserves the right to

disqualify any bidder if the State determines that the bidder has used its position (whether as an incumbent Contractor, or as a Contractor hired to assist with the RFP development, or as a Vendor offering free assistance) to gain a competitive advantage on the RFP

2.036 Freedom of Information

All information in any proposal submitted to the State by Contractor and this Contract is subject to the provisions of the Michigan Freedom of Information Act, 1976 Public Act No. 442, as amended, MCL 15.231, et seq (the "FOIA").

2.037 Disaster Recovery

Contractor and the State recognize that the State provides essential services in times of natural or man-made disasters. Therefore, except as so mandated by Federal disaster response requirements, Contractor personnel dedicated to providing Services/Deliverables under this Contract will use reasonable efforts to provide the State with priority service for repair and work around in the event of a natural or man-made disaster.

2.040 Financial Provisions

2.041 Fixed Prices for Services/Deliverables

Each Statement of Work or Purchase Order issued under this Contract shall specify (or indicate by reference to the appropriate Contract Exhibit) the firm, fixed prices for all Services/Deliverables, and the associated payment milestones and payment amounts. The State 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 or otherwise as mutually agreed by the parties in the Contract or applicable Purchase Order. Contractor must show verification of measurable progress at the time of requesting progress payments.

2.042 Adjustments for Reductions in Scope of Services/Deliverables

If the scope of the Services/Deliverables under any Statement of Work issued under this Contract is subsequently reduced by the State, the parties shall negotiate an equitable reduction in Contractor's charges under such Statement of Work commensurate with the reduction in scope.

2.043 Services/Deliverables Covered

For all Services/Deliverables to be provided by Contractor (and its Subcontractors, if any) under this Contract, the State shall not be obligated to pay any amounts in addition to the charges specified in this Contract (as modified or supplemented pursuant to any agreed Change Orders, Contract Modifications or Purchase Orders).

2.044 Invoicing and Payment – In General

(a) Each Statement of Work issued under this Contract shall list (or indicate by reference to the appropriate Contract Exhibit) the prices for all Services/Deliverables, equipment and commodities to be provided, and the associated payment milestones and payment amounts.

(b) Each Contractor invoice for fixed price services will show details as to prices by Service/Deliverable component. Invoices for Services performed on a time and materials basis will show, for each labor category, the number of hours of Services performed during the billing period and the applicable hourly billing rate. Prompt payment by the State is contingent on the Contractor's invoices showing the amount owed by the State.

(c) Correct invoices will be due and payable by the State, in accordance with the State's standard payment procedure as specified in 1984 Public Act No. 279, MCL 17.51 et seq., within 45 days after receipt, provided the State determines that the invoice was properly rendered.

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

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

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.

2.045 Pro-ration

To the extent there are any Services that are to be paid for on a monthly basis, the cost of such Services shall be pro-rated for any partial month.

2.046 Antitrust Assignment

The Contractor assigns to the State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to the Contractor, toward fulfillment of this Contract.

2.047 RESERVED - Final Payment

2.048 Electronic Payment Requirement

Electronic transfer of funds is required for payments on State Contracts. Contractors are required to register with the State electronically at http://www.cpexpress.state.mi.us. As stated in Public Act 431 of 1984, all contracts that the State enters into for the purchase of goods and services shall provide that payment will be made by electronic fund transfer (EFT).

2.050 Taxes

2.051 Employment Taxes

Contractors are expected to collect and pay all applicable federal, state, and local employment taxes, including the taxes.

2.052 Sales and Use Taxes

Contractors are required to be registered and to remit sales and use taxes on taxable sales of tangible personal property or services delivered into the State. For purchases made directly by the State of Michigan, the State is exempt from State and Local Sales Tax. Contractors that lack sufficient presence in Michigan to be required to register and pay tax must do so as a volunteer. This requirement extends to: (1) all members of any controlled group as defined in § 1563(a) of the Internal Revenue Code and applicable regulations of which the company is a member, and (2) all organizations under common control as defined in § 414(c) of the Internal Revenue Code and applicable regulations of which the company is a member that make sales at retail for delivery into the State are registered with the State for the collection and remittance of sales and use taxes. In applying treasury regulations defining “two or more trades or businesses under common control” the term “organization” means sole proprietorship, a partnership (as defined in § 701(a) (2) of the Internal Revenue Code), a trust, an estate, a corporation, or a limited liability company.

2.060 Contract Management

2.061 Contractor Personnel Qualifications

All persons assigned by Contractor to the performance of Services under this Contract must be employees, partners or principals of Contractor or its affiliates (directly or indirectly, at any tier) (or a State-approved Subcontractor) and must be fully qualified to perform the work assigned to them. Contractor must include a similar provision in any subcontract entered into with a Subcontractor. For the purposes of this Contract, independent contractors engaged by Contractor solely in a staff augmentation role must be treated by the

State as if they were employees of Contractor for this Contract only; however, the State understands that the relationship between Contractor and Subcontractor is an independent contractor relationship.

2.062 Contractor Key Personnel

(a) Key Personnel must be dedicated as defined in the Statement of Work to the Project.

(b) The State will have the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor will notify the State of the proposed assignment, will introduce the individual to the appropriate State representatives, and will provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting written approval. In the event the State finds a proposed individual unacceptable, the State will provide a written explanation including reasonable detail outlining the reasons for the rejection. The State will not unreasonably reject any proposed Key Personnel.

(c) Contractor must not remove any Key Personnel from their assigned roles on the Contract (unless such Personnel's role is complete as defined in the Statement of Work) without the prior written consent of the State. The Contractor's removal of Key Personnel without the prior written consent of the State is an unauthorized removal ("Unauthorized Removal"). Unauthorized Removals does not include replacing Key Personnel for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, and resignation or for cause termination of the Key Personnel's employment. Unauthorized Removals does not include replacing Key Personnel because of promotions or other job movements allowed by Contractor personnel policies or Collective Bargaining Agreement(s) as long as the State receives prior written notice before shadowing occurs and Contractor provides 30 days of shadowing unless parties agree to a different time period. The Contractor with the State must review any Key Personnel replacements, and appropriate transition planning will be established. . The State will approve replacements of Key Personnel provided that such replacement is of a substantially similar skill-set and reasonably acceptable experience. Any Unauthorized Removal may be considered by the State to be a material breach of the Contract, in respect of which the State may elect to exercise its termination and cancellation rights.

(d) The Contractor must notify the State project manager at least 10 business days before redeploying non-Key Personnel, who are dedicated to primarily to the Project, to other projects. If the State does not object to the redeployment by its scheduled date, the Contractor may then redeploy the non-Key Personnel. If the State objects, the Contractor will work with the State to mutually agree on a resolution.

(e) The Contractor shall not assign any personnel to work at a State facility prior to such personnel completing the State's required background checks

2.063 Re-assignment of Personnel at the State's Request

The State reserves the right to require the removal from the Project of Contractor personnel determined to not be performing in accordance with the Contract. The State's request must be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request must be based on legitimate, good faith reasons. Replacement personnel for the removed person must be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed personnel, the State agrees to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any incident with removed personnel results in delay not reasonably anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Service will not be counted for a time as agreed to by the parties.

2.064 Contractor Personnel Location

All staff assigned by Contractor to work on the Contract will perform their duties either primarily at Contractor's offices and facilities or at State facilities. Without limiting the generality of the foregoing, Key Personnel will, at a minimum, spend at least the amount of time on-site at State facilities as indicated in the applicable Statement of Work. Subject to availability, selected Contractor personnel may be assigned office space to be shared with State personnel.

2.065 Contractor Identification

Contractor employees must be clearly identifiable while on State property by wearing a State-issued badge, as required. Contractor employees are required to clearly identify themselves and the company they work for whenever making contact with State personnel by telephone or other means.

2.066 Cooperation with Third Parties

Contractor agrees to cause its personnel and the personnel of any Subcontractors to reasonably cooperate with the State and its agents including the State's Quality Assurance personnel. As reasonably requested by the State in writing in advance, the Contractor will provide to the State's agents reasonable access to Contractor's Project personnel and facilities where the Services are being performed to the extent the access relates to activities specifically associated with this Contract and will not interfere or jeopardize the safety or operation of the facilities. The State acknowledges that Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay or otherwise impeded Contractor's performance under this Contract with the requests for access.

2.067 Contract Management Responsibilities

Contractor shall be responsible for all acts and omissions of its employees, as well as the acts and omissions of any other personnel furnished by Contractor to perform the Services. Contractor shall have overall responsibility for managing and successfully performing and completing the Services/Deliverables, subject to the State performing its responsibilities and the overall direction and supervision of the State and with the participation and support of the State as specified in this Contract. Contractor's duties will include monitoring and reporting the State's performance of its participation and support responsibilities (as well as Contractor's own responsibilities) and providing timely notice to the State in Contractor's reasonable opinion if the State's failure to perform its responsibilities in accordance with the Project Plan is likely to delay the timely achievement of any Contract tasks.

The Contractor will provide the Services/Deliverables directly or through its affiliates, subsidiaries, subcontractors or resellers. Regardless of the entity providing the Service/Deliverable, the Contractor will act as a single point of contact coordinating these entities to meet the State's need for Services/Deliverables. Nothing in this Contract, however, shall be construed to authorize or require any party to violate any applicable law or regulation in its performance of this Contract.

2.068 Contractor Return of State Equipment/Resources

The Contractor must return to the State any State-furnished equipment, facilities and other resources when no longer required for the Contract in the same condition as when provided by the State, reasonable wear and tear excepted.

2.070 Subcontracting by Contractor

2.071 Contractor full Responsibility

Contractor shall have full responsibility for the performance and completion of all of the Services and Deliverables in material compliance with Contract requirements. The State will consider Contractor to be the sole point of contact with regard to all contractual matters under this Contract, including payment of any and all charges for Services and Deliverables.

2.072 State Consent to delegation

Contractor shall not delegate any duties under this Contract to a Subcontractor unless the Department of Technology, Management and Budget, Purchasing Operations has given written consent to such delegation. The State shall have the right of prior written approval of all Subcontractors and to require Contractor to replace any Subcontractors found, in the reasonable judgment of the State, to be unacceptable. The State's request shall be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good faith reasons. Replacement Subcontractor(s) for the removed Subcontractor shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed Subcontractor, the State will agree to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any such

incident with a removed Subcontractor results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLA for the affected Work will not be counted for a time agreed upon by the parties.

2.073 Subcontractor bound to Contract

In any subcontracts entered into by Contractor for the performance of the Services, Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to Contractor by the applicable terms (including Flow Down per section 2.074) of this Contract and to assume toward Contractor all of the obligations and responsibilities that Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and review all subcontracts, although Contractor may delete or mask any proprietary information, including pricing, contained in such contracts before providing them to the State. The management of any Subcontractor will be the responsibility of Contractor, and Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if Contractor had not subcontracted such performance. Contractor shall make all payments to Subcontractors or suppliers of Contractor. Except as otherwise agreed in writing by the State and Contractor, the State will not be obligated to direct payments for the Services other than to Contractor. The State's written approval of any Subcontractor engaged by Contractor to perform any obligation under this Contract shall not relieve Contractor of any obligations or performance required under this Contract. A list of the Subcontractors, if any, approved by the State as of the execution of this Contract, together with a copy of the applicable subcontract is attached.

2.074 Flow Down

Except where specifically approved in writing by the State on a case-by-case basis, Contractor shall flow down the obligations in **Sections 2.031, 2.060, 2.100, 2.110, 2.120, 2.130, and 2.200** in all of its agreements with any Subcontractors.

2.075 Competitive Selection

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.

2.080 State Responsibilities

2.081 Equipment

The State will provide only the equipment and resources identified in the Statements of Work and other Contract Exhibits.

2.082 Facilities

The State must designate space as long as it is available and as provided in the Statement of Work, to house the Contractor's personnel whom the parties agree will perform the Services/Deliverables at State facilities (collectively, the "State Facilities"). The Contractor must have reasonable access to, and unless agreed otherwise by the parties in writing must observe and comply with all rules and regulations relating to each of the State Facilities (including hours of operation) used by the Contractor in the course of providing the Services. Contractor agrees that it will not, without the prior written consent of the State, use any State Facilities or access any State information systems provided for the Contractor's use, or to which the Contractor otherwise gains access in the course of performing the Services, for any purpose other than providing the Services to the State.

2.090 Security

2.091 Background Checks

On a case-by-case basis, the State may investigate the Contractor's personnel before they may have access to State facilities and systems. The scope of the background check is at the discretion of the State and the results will be used to determine Contractor personnel eligibility for working within State facilities and systems. The investigations will include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) Finger Prints. Proposed Contractor personnel may be required to

complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check. Any request for background checks will be initiated by the State and will be reasonably related to the type of work requested.

All Contractor personnel will also be expected to comply with the State's security and acceptable use policies for State IT equipment and resources. See http://www.michigan.gov/dit. Furthermore, Contractor personnel will be expected to agree to the State's security and acceptable use policies before the Contractor personnel will be accepted as a resource to perform work for the State. It is expected the Contractor will present these documents to the prospective employee before the Contractor presents the individual to the State as a proposed resource. Contractor staff will be expected to comply with all Physical Security procedures in place within the facilities where they are working. To the extent any of these security requirements are modified by the State following execution of this Contract, and such modification impacts Contractor's costs or ability to comply with the requirements, Contractor shall either have a right to an equitable adjustment to cover such additional costs or shall be relieved of compliance with the additional requirements.

2.092 Security Breach Notification

If the Contractor breaches this Section, the Contractor must (i) promptly cure any deficiencies and (ii) comply with any applicable federal and state laws and regulations pertaining to unauthorized disclosures. Contractor and the State will cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized use or disclosure. Contractor must report to the State in writing any use or disclosure of State Confidential Information (including information originally provided by the Federal Government), whether suspected or actual, other than as provided for by the Contract within 10 business days of becoming aware of the use or disclosure or the shorter time period as is reasonable under the circumstances.

2.093 PCI DATA Security Requirements

The following section only applies to Contractors with access to credit/debit card cardholder data.

Contractors with access to credit/debit card cardholder data must adhere to the Payment Card Industry (PCI) Data Security requirements. Contractor agrees that they are responsible for security of cardholder data in their possession. Contractor agrees that data can ONLY be used for assisting the State in completing a transaction, supporting a loyalty program, supporting the State, providing fraud control services, or for other uses specifically required by law.

Contractor agrees to provide business continuity in the event of a major disruption, disaster or failure.

The Contractor will contact the Department of Technology, Management and Budget, Financial Services promptly to advise them of any known breaches in security where card data has been compromised. In the event of a security intrusion, the Contractor agrees the Payment Card Industry representative, or a Payment Card Industry approved third party, will be provided with full cooperation to conduct a thorough security review. The review will validate compliance with the Payment Card Industry Data Security Standard for protecting cardholder data. Contractor agrees to properly dispose sensitive cardholder data when no longer needed. The Contractor will continue to treat cardholder data as confidential upon contract termination.

The Contractor will provide the Department of Technology, Management and Budget, Financial Services documentation showing PCI Data Security certification has been achieved. The Contractor will advise the Department of Technology, Management and Budget, Financial Services of all failures to comply with the PCI Data Security Requirements. Failures include, but are not limited to system scans and self-assessment questionnaires. The Contractor will provide a time line for corrective action.

2.100 Confidentiality

2.101 Confidentiality

Contractor and the State each acknowledge that the other possesses and will continue to possess confidential information that has been developed or received by it. As used in this Section, "Confidential Information" of Contractor must mean all non-public proprietary information of Contractor (other than Confidential Information of the State as defined below), which is marked confidential, restricted, proprietary, or with a similar

designation. "Confidential Information" of the State must mean any information which is retained in confidence by the State (or otherwise required to be held in confidence by the State under applicable federal, state and local laws and regulations) or which, in the case of tangible materials provided to Contractor by the State under its performance under this Contract, is marked as confidential, proprietary or with a similar designation by the State. "Confidential Information" excludes any information (including this Contract) that is publicly available under the Michigan FOIA.

2.102 Protection and Destruction of Confidential Information

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

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

2.103 Exclusions

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

2.104 No Implied Rights

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

2.105 Respective Obligations

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

2.110 Records and Inspections

2.111 Inspection of Work Performed

The State's authorized representatives must at all reasonable times and with 10 days prior written request, have the right to enter Contractor's premises, or any other places, where the Services are being performed, and must have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress created under this Contract. Upon 10 Days prior written notice and at all reasonable times, the State's representatives must be allowed to inspect, monitor, or otherwise evaluate the work being performed and to the extent that the access will not reasonably 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.

2.112 Examination of Records

For seven years after the Contractor provides any work under this Contract (the "Audit Period"), the State may examine and copy any of Contractor's books, records, documents and papers pertinent to establishing Contractor's compliance with the Contract and with applicable laws and rules. The State must notify the Contractor 20 days before examining the Contractor's books and records. The State does not have the right to review any information deemed confidential by the Contractor to the extent access would require the 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.

2.113 Retention of Records

Contractor must maintain at least until the end of the Audit Period all pertinent records (including time sheets with respect to time-and-materials services, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract according to generally accepted accounting principles, or other substantially similar procedures. Records supporting the billings under the Contract must 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.

2.114 Audit Resolution

If necessary, the Contractor and the State will meet to review each audit report promptly after issuance. The Contractor will respond to each audit report in writing within 30 days from receipt of the report, unless a shorter response time is specified in the report. The Contractor and the State must develop, agree upon and monitor an action plan to promptly address and resolve any deficiencies, concerns, and/or recommendations in the audit report.

2.115 Errors

If the audit demonstrates any errors in the documents provided to the State, then, unless disputed by either party, the amount in error must 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 invoices. If a balance that is undisputed remains after four invoices, then the remaining amount will be due as a payment or refund within 45 days of the last quarterly invoice that the balance appeared on or termination of the contract, whichever is earlier.

In addition to other available remedies, if the difference between the payment received and the correct payment amount is greater than 10% following final resolution of all audit issues, then the Contractor must pay all of the reasonable costs of the audit.

2.120 Warranties

2.121 Warranties and Representations

The Contractor represents and warrants:

(a) It is capable in all respects of fulfilling and must fulfill all of its obligations under this Contract. The performance of all obligations under this Contract must be provided in a good faith, professional, and workman-like manner

(b) The Contract Appendices, Attachments and Exhibits, as modified by agreement of the parties, identify the equipment and software and services necessary for the Contractor to operate in compliance with the Contract's requirements.

(c) Except for third party hardware and software, it 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 licensed use, as applicable, of any and all Deliverables. None of the Deliverables provided by Contractor to the State under neither this Contract, nor their use by the State will infringe the patent, copyright, trade secret, or other proprietary rights of any third party.

(d) If, under this Contract, Contractor procures any third party 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 the items in this Contract, Contractor must assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.

(e) The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter into this Contract, on behalf of Contractor.

(f) It is qualified and registered to transact business in all locations where required.

(g) To Contractor's knowledge, neither the Contractor nor any Affiliates, nor any employee of either working on the Contract, has, must have, or must 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 must notify the State about the nature of the conflict or appearance of impropriety promptly when learning about it.

(h) To Contractor's knowledge, neither Contractor nor any Affiliates, nor any employee of either has accepted or must accept anything of value based on an understanding that the actions of the Contractor or Affiliates or employee on behalf of the State would be influenced. Contractor must not attempt to influence any State employee by the direct or indirect offer of anything of value.

(i) To Contractor's knowledge, neither Contractor nor any Affiliates, nor any employee of either has paid or agreed to pay any person, other than bona fide employees and consultants working solely for Contractor or the Affiliate, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making of this Contract.

(j) The prices proposed by Contractor were arrived at independently, without consultation, communication, or agreement with any other bidder for the purpose of restricting competition; the prices quoted were not knowingly disclosed by Contractor to any other bidder; and no attempt was made by Contractor to induce any other person to submit or not submit a proposal for the purpose of restricting competition.

(k) To the extent that any such information was provided, to Contractor's knowledge, all financial information furnished by Contractor to the State as part of its response to the RFP 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 information. Since the respective dates or periods covered by such financial information, there have been no material adverse changes in the business, properties, financial condition, or results of operations of Contractor. To Contractor's knowledge, all written information furnished to the State by Contractor in connection with this Contract, including its bid, is materially true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make such information not misleading.

(l) All written information furnished to the State by or for the Contractor in connection with this Contract, including its bid, is true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make the information not misleading.

(m) To Contractor's knowledge, It is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its

departments that was terminated by the State or the department within the previous five years for the reason that Contractor failed to perform or otherwise breached an obligation of the contract.

(n) If any of the certifications, representations, or disclosures made in the Contractor's original bid response change after contract award, the Contractor is required to report those changes immediately to the Department of Technology, Management and Budget, Purchasing Operations.

2.122 RESERVED - Warranty of Merchantability

2.123 RESERVED - Warranty of Fitness for a Particular Purpose

2.124 RESERVED - Warranty of Title

2.125 RESERVED - Equipment Warranty

2.126 Equipment to be New

If applicable, all equipment provided under this Contract by Contractor shall be new where Contractor has knowledge regarding whether the equipment is new or assembled from new or serviceable used parts that are like new in performance or has the option of selecting one or the other. Equipment that is assembled from new or serviceable used parts that are like new in performance is acceptable where Contractor does not have knowledge or the ability to select one or other, unless specifically agreed otherwise in writing by the State.

2.127 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 Purchasing Operations has approved a change order pursuant to **Section 2.024**.

2.128 Consequences for Breach

In addition to any remedies available in law, if the Contractor breaches any of the warranties contained in this section, the breach may be considered as a default in the performance of a material obligation of this Contract.

2.130 Insurance

2.131 Liability Insurance

The Contractor must provide proof of the minimum levels of insurance coverage as indicated below. The insurance must protect the State from claims that may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether the 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 under this Contract.

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

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

The insurers selected by Contractor must have an A.M. Best rating of A or better, or as otherwise approved in writing by the State, or if the ratings are no longer available, with a comparable rating from a recognized insurance rating agency. All policies of insurance required in this Contract must be issued by companies that have been approved to do business in the State.
See www.michigan.gov/dleg.

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

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

☑ 1. Commercial General Liability with the following minimum coverage:
$2,000,000 General Aggregate Limit other than Products/Completed Operations
$2,000,000 Products/Completed Operations Aggregate Limit
$1,000,000 Personal & Advertising Injury Limit
$1,000,000 Each Occurrence Limit

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

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

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

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

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

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

☑ 4. Employers liability insurance with the following minimum limits:
$100,000 each accident
$100,000 each employee by disease
$500,000 aggregate disease

☐ 5. Employee Fidelity, including Computer Crimes, insurance naming the State as a loss payee, providing coverage for direct loss to the State and any legal liability of the State arising out of or related to fraudulent or dishonest acts committed by the employees of Contractor or its Subcontractors, acting alone or in collusion with others, in a minimum amount of one million dollars ($1,000,000.00) with a maximum deductible of fifty thousand dollars ($50,000.00).

☑ 6. Umbrella or Excess Liability Insurance in a minimum amount of ten million dollars ($10,000,000.00), which must apply, at a minimum, to the insurance required in Subsection 1 (Commercial General Liability) above.

☐ 7. Professional Liability (Errors and Omissions) Insurance with the following minimum coverage: three million dollars ($3,000,000.00) each occurrence and three million dollars ($3,000,000.00) annual aggregate.

☐ 8. Fire and Personal Property Insurance covering against any loss or damage to the office space used by Contractor for any reason under this Contract, and the equipment, software and other contents of the office space, including without limitation, those contents used by Contractor to provide the Services to the State, up to its replacement value, where the office space and its contents are under the care, custody and control of Contractor. The policy must cover all risks of direct physical loss or damage, including without limitation, flood and earthquake coverage and coverage for computer hardware and software. The State must be endorsed on the policy as a loss payee as its interests appear.

2.132 Subcontractor Insurance Coverage

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

2.133 Certificates of Insurance and Other Requirements

Contractor must furnish to DTMB Purchasing Operations, certificate(s) of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in this Section (the "Certificates"). The Certificate must be on the standard "accord" form or equivalent. **The Contract Number or the Purchase Order Number must be shown on the Certificate Of Insurance To Assure Correct Filing.** All Certificate(s) are to be prepared and submitted by the Insurance Provider. All Certificate(s) must contain a provision indicating that Contractor will use commercial reasonable efforts so that coverage afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without 30 days prior written notice, except for 10 days for non-payment of premium, having been given to the Director of Purchasing Operations, Department of Technology, Management and Budget. The notice must include the Contract or Purchase Order number affected. Before the Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor must provide evidence that the State and its agents, officers and employees are included as additional insured under each commercial general liability and commercial automobile liability policy. In the event the State approves the representation of the State by the insurer's attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

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

2.140 Indemnification

2.141 General Indemnification

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from liability for third party claims and resulting losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm or corporation, in each case with respect to claims initiated against the State for bodily injury (including death) or damage to real or tangible personal property, in each case that are attributable to the negligence or tortious acts of the Contractor or any of its subcontractors.

2.142 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.

2.143 Employee Indemnification

In any claims against the State of Michigan, its departments, divisions, agencies, sections, commissions, officers, employees and agents, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract must 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 benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, 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 provisions.

2.144 Patent/Copyright Infringement Indemnification

To the extent permitted by law, the Contractor must indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees 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 the 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 the equipment, software, commodity or service, or the use or reproduction of any documentation provided with the equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or service, or its operation, become or in the State's or Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor must at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if the option is not reasonably available to the Contractor, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if the 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.

Notwithstanding the foregoing, the Contractor has no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; (ii) use of the equipment in a configuration other than implemented or approved in writing by the Contractor, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Contractor under this Contract.

2.145 Continuation of Indemnification Obligations

The Contractor's duty to indemnify under this Section continues in full force and effect, notwithstanding the expiration or early cancellation of the Contract, with respect to any claims based on facts or conditions that occurred before expiration or cancellation.

2.146 Indemnification Procedures

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

(a) After the State receives notice of the action or proceeding involving a claim for which it will seek indemnification, the State must promptly notify Contractor of the 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 notify the Contractor relieves the Contractor of its indemnification obligations except to the extent that the Contractor can establish damages attributable to the failure. Within 10 days following receipt of written notice from the State relating to any claim, the

Contractor must 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 before the State receiving Contractor's Notice of Election, the State is entitled to defend against the claim, at the Contractor's expense, and the Contractor will be responsible for any reasonable costs incurred by the State in defending against the claim during that period.

(b) If Contractor delivers a Notice of Election relating to any claim: (i) the State is entitled to participate in the defense of the claim and to employ counsel at its own expense to assist in the handling of the claim and to monitor and advise the State about the status and progress of the defense; (ii) the Contractor must, at the request of the State, demonstrate to the reasonable satisfaction of the State, the Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) the Contractor must periodically advise the State about the status and progress of the defense and must obtain the prior written approval of the State before entering into any settlement of the claim or ceasing to defend against the claim and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State has the right, at its own expense, to control the defense of that portion of the claim involving the principles of Michigan governmental or public law. But the State may retain control of the defense and settlement of a claim by notifying the Contractor in writing within 10 days after the State's receipt of Contractor's information requested by the State under clause (ii) of this paragraph if the State determines that the Contractor has failed to demonstrate to the reasonable satisfaction of the State the Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State under 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 may defend the claim in the 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 must promptly reimburse the State for all the reasonable costs and expenses.

2.150 Termination/Cancellation

2.151 Notice and Right to Cure

If the Contractor breaches a material provision of the contract, and the State in its sole reasonable discretion determines that the breach is curable, then the State will provide the Contractor with written notice of the breach and a time period (not less than 30 days) to cure the Breach. The notice of breach and opportunity to cure is inapplicable for successive breaches (not less than three) 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.

2.152 Termination for Cause

(a) The State may terminate this contract, for cause, by notifying the Contractor in writing, if the Contractor (i) breaches any of its material duties or obligations under this Contract (including a Chronic Failure to meet any particular SLA), or (ii) fails to cure a breach within the time period specified in the written notice of breach provided by the State

(b) If this Contract is terminated for cause, the Contractor may be liable for all costs incurred by the State in terminating this Contract, including but not limited to, State administrative costs, reasonable attorneys' fees and court costs, and any reasonable additional costs the State may incur to procure the Services/Deliverables required by this Contract from other sources.

(c) If the State chooses to partially terminate this Contract for cause, charges payable under this Contract will be equitably adjusted, pursuant to negotiations between the parties', to reflect those Services/Deliverables that are terminated and the State must pay for all Services/Deliverables for which Final Acceptance has been granted provided up to the termination date. Services and related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.

(d) If the State terminates this Contract for cause under this Section, and it is determined, for any reason, that Contractor was not in breach of contract under the provisions of this section, that termination for cause

must be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties must be limited to that otherwise provided in this Contract for a termination for convenience.

2.153 Termination for Convenience

The State may terminate this Contract for its convenience, in whole or part, if the State determines that a termination is in the State's best interest. Reasons for the termination must be left to the sole discretion of the State and may include, but not necessarily be 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 Services no longer practical or feasible, (c) unacceptable prices for Additional Services or New Work requested by the State, or (d) falsification or misrepresentation, by inclusion or non-inclusion, of information material to a response to any RFP issued by the State. The State may terminate this Contract for its convenience, in whole or in part, by giving Contractor written notice at least 30 days before the date of termination. If the State chooses to terminate this Contract in part, the charges payable under this Contract must be equitably adjusted, pursuant to negotiations between the parties', to reflect those Services/Deliverables that are terminated. Services and related provisions of this Contract that are terminated for cause must cease on the effective date of the termination.

2.154 Termination for Non-Appropriation

(a) 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 Contract. If funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available, the State must terminate this Contract and all affected Statements of Work, in whole or in part, at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The State must give Contractor at least 30 days advance written notice of termination for non-appropriation or unavailability (or the time as is available if the State receives notice of the final decision less than 30 days before the funding cutoff).

(b) If funding for the Contract is reduced by law, or funds to pay Contractor for the agreed-to level of the Services or production of Deliverables to be provided by Contractor are not appropriated or otherwise unavailable, the State may, upon 30 days written notice to Contractor, reduce the level of the Services or the change the production of Deliverables in the manner and for the periods of time as the State may elect. The charges payable under this Contract will be equitably adjusted, pursuant to negotiations between the parties', to reflect any equipment, services or commodities not provided by reason of the reduction.

(c) If the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by Contractor under this Section, the State must pay Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case may be and as determined by the State, to the extent funds are available. This Section will not preclude Contractor from reducing or stopping Services/Deliverables or raising against the State in a court of competent jurisdiction, any claim for a shortfall in payment for Services performed or Deliverables finally accepted before the effective date of termination.

2.155 Termination for Criminal Conviction

The State may terminate this Contract immediately and without further liability or penalty in the event Contractor, an officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a criminal offense related to a State, public or private Contract or subcontract.

2.156 Termination for Approvals Rescinded

The State may terminate this Contract if any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services under Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. In that case, the State will pay the Contractor for only the work completed to that point under the Contract. 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 the written notice.

2.157 Rights and Obligations upon Termination

(a) If the State terminates this Contract for any reason, the Contractor must (a) stop all work as specified in the notice of termination, (b) take any action that may be reasonably necessary, or that the State may reasonably 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 accordance with the Contract's ownership and license rights provisions, and upon full payment for each such Deliverable, transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which must be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of the items included compensation to Contractor for the provision of warranty services in respect of the materials), and (e) take reasonable 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.

(b) If the State terminates this Contract before its expiration for its own convenience, the State must pay Contractor for all charges due for Services provided before the date of termination and, if applicable, as a separate item of payment under this Contract, for Work In Process, on a percentage of completion basis at the level of completion determined by the State. All completed or partially completed Deliverables prepared by Contractor under this Contract, at the option of the State, becomes the State's property, and Contractor is entitled to receive equitable fair compensation for the Deliverables. Regardless of the basis for the termination, the State is not 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.

(c) Upon a good faith termination, nothing shall preclude the State from Contracting directly with any party for services and deliverables provided under this Contract, and may further pursue completion of the Services/Deliverables under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

2.158 Reservation of Rights

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

2.160 Termination by Contractor

2.161 Termination by Contractor

If the State breaches a material provision of the Contract, and the Contractor in its sole discretion determines that the breach is curable, then the Contractor will provide the State with written notice of the breach and a time period (not less than 30 days) to cure the breach. The Notice of Breach and opportunity to cure is inapplicable for successive and repeated breaches.

The Contractor may terminate this Contract if the State (i) materially breaches its obligation to pay the Contractor undisputed amounts due and owing under this Contract, (ii) breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for the Contractor to perform the Services, or (iii) does not cure the breach within the time period specified in a written notice of breach.

2.170 Transition Responsibilities

2.171 Contractor Transition Responsibilities

If the State terminates this contract, for convenience or cause, or if the Contract is otherwise dissolved, voided, rescinded, nullified, expires or rendered unenforceable, the Contractor must provide for up to 180 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. These efforts must include, but are not limited to, those listed in **Sections 2.171, 2.172, 2.173, 2.174, and 2.175.** The State shall pay the Contractor for any resources utilized in performing such transition assistance at the rates established in this Contract.

2.172 RESERVED - Contractor Personnel Transition

2.173 Contractor Information Transition

The Contractor agrees to provide reasonable detailed specifications for all Services/Deliverables needed by the State, or specified third party, to properly provide the Services/Deliverables required under this Contract. The Contractor will deliver to the State any remaining owed reports and documentation still in Contractor's possession subject to appropriate payment by the State.

2.174 Contractor Software Transition

If the State transfers any software licenses to the Contractor, those licenses must, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, Contractor may be required to freeze all non-critical changes to Deliverables/Services.

2.175 Transition Payments

If the transition results from a termination for any reason, the termination provisions of this Contract must govern reimbursement. 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) at the rates agreed upon by the State. The Contractor will prepare an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

2.176 State Transition Responsibilities

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to reconcile all accounts between the State and the Contractor, complete any pending post-project reviews and perform any others obligations upon which the State and the Contractor agree.

(a) Reconciling all accounts between the State and the Contractor;
(b) Completing any pending post-project reviews.

2.180 Stop Work

2.181 Stop Work Orders

The State may, at any time, by written stop work order to Contractor, require that Contractor stop all, or any part, of the work called for by the Contract for an aggregate period of up to 90 calendar days after the stop work order is delivered to Contractor, and for any further period to which the parties may agree. The stop work order must be identified as a stop work order and must indicate that it is issued under this **Section 2.150**. Upon receipt of the stop work order, Contractor must immediately comply with its terms and take all reasonable steps to minimize incurring 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 must either: (a) cancel the stop work order; or (b) terminate the work covered by the stop work order as provided in Section 2.**130**.

2.182 Cancellation or Expiration of Stop Work Order

The Contractor must resume work if the State cancels a Stop Work Order or if it expires. The parties will agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract must be modified, in writing, accordingly, if: (a) the stop work order results in an increase in the time required for, or in Contractor's costs properly allocable to, the performance of any part of the Contract; and (b) Contractor asserts its right to an equitable adjustment within 30 calendar 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 Contractor

proposal submitted at any time before final payment under the Contract. Any adjustment will conform to the requirements of **Section 2.024**.

2.183 Allowance of Contractor Costs

If the stop work order is not canceled and the work covered by the stop work order is terminated for reasons other than material breach, the termination must be deemed to be a termination for convenience under **Section 2.153**, and the State will pay reasonable costs resulting from the stop work order in arriving at the termination settlement. For the avoidance of doubt, the State is not liable to Contractor for loss of profits because of a stop work order issued under this Section**.**

2.190 Dispute Resolution

2.191 In General

Any claim, counterclaim, or dispute between the State and Contractor arising out of or relating to the Contract or any Statement of Work must be resolved as follows. For all Contractor claims seeking an increase in the amounts payable to Contractor under the Contract, or the time for Contractor's performance, Contractor must submit a letter, together with all data supporting the claims, executed by Contractor's Contract Administrator or the Contract Administrator's designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to Contractor or the time for Contractor's performance for which Contractor believes the State is liable and covers all costs of every type to which Contractor is entitled from the occurrence of the claimed event, and (c) the claim and the supporting data are current and complete to Contractor's best knowledge and belief.

2.192 Informal Dispute Resolution

(a) All disputes between the parties must be resolved under the Contract Management procedures in this Contract. If the parties are unable to resolve any disputes after compliance with the processes, the parties must meet with the Director of Purchasing Operations, DTMB, or designee, for the purpose of attempting to resolve the dispute without the need for formal legal proceedings, as follows:

(1) The representatives of Contractor and the State must meet as often as the parties reasonably deem necessary to gather and furnish to each other all information with respect to the matter in issue which the parties believe to be appropriate and germane in connection with its resolution. The representatives must discuss the problem and negotiate in good faith in an effort to resolve the dispute without the necessity of any formal proceeding.

(2) During the course of negotiations, all reasonable requests made by one party to another for non-privileged information reasonably related to the Contract will be honored in order that each of the parties may be fully advised of the other's position.

(3) The specific format for the discussions will be left to the discretion of the designated State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.

(4) Following the completion of this process within 60 calendar days, the Director of Purchasing Operations, DTMB, or designee, must issue a written opinion regarding the issue(s) in dispute within 30 calendar days. The opinion regarding the dispute must be considered the State's final action and the exhaustion of administrative remedies.

(b) This Section will not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or under Section 2.193.

(c) The State will not mediate disputes between the Contractor and any other entity, except state agencies, concerning responsibility for performance of work under the Contract.

2.193 Injunctive Relief

The only circumstance in which disputes between the State and Contractor will not be subject to the provisions of **Section 2.192** is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is the that the damages to the party resulting from the breach will be so immediate, so large or severe and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

2.194 Continued Performance

Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent the issue in dispute precludes performance (dispute over payment must not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in **Section 2.150**, as the case may be.

2.200 Federal and State Contract Requirements

2.201 Nondiscrimination

In the performance of the Contract, Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, and marital status, physical or mental disability. Contractor further agrees that every subcontract entered into for the performance of this Contract or any purchase order resulting from this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required under the Elliot Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and any breach of this provision may be regarded as a material breach of the Contract.

2.202 Unfair Labor Practices

Under 1980 PA 278, MCL 423.321, et seq., the State must not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled under section 2 of the Act. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, must not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Under section 4 of 1980 PA 278, MCL 423.324, the State may void any Contract if, after award of the Contract, the name of Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of Contractor appears in the register.

2.203 Workplace Safety and Discriminatory Harassment

In performing Services for the State, the Contractor must comply with the Department of Civil Services Rule 2-20 regarding Workplace Safety and Rule 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor must comply with Civil Service regulations and any applicable agency rules provided to the Contractor. For Civil Service Rules, see http://www.mi.gov/mdcs/0,1607,7-147-6877---,00.html.

2.204 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 Labor and Economic Development, Wage and Hour Bureau, 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.

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract in privity of contract with the Contractor shall keep posted on the work site, in a conspicuous place, a copy of all wage rates and fringe benefits as prescribed in the contract. You must also post, in a conspicuous place, the address and telephone number of the Michigan Department of Labor and Economic Development, the office responsible for enforcement of the wage rates and fringe benefits. You shall keep an accurate record showing the name and occupation of the actual wage and benefits paid to each individual employed in connection with this contract. This record shall be available to the State upon request for reasonable inspection.

If any trade is omitted from the list of wage rates and fringe benefits to be paid to each class of individuals by the Contractor, 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.

2.205 (A) Equal Employment Opportunity

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract agree to abide by Executive Order 11246, entitled “Equal Employment Opportunity”, as as amended by Executive Order 11375, and as supplemented by the Department of Labor Regulations (41 CFR Part 60): The Executive Order prohibits federal contractors and federally-assisted construction contractors and subcontractors who do over $10,000 in Government business in one year from discriminating in employment decisions on the basis of race, color, religion, sex, or national origin. The Executive Order also requires Government contractors to take affirmative action to ensure that equal opportunity is provided in all aspects of their employment.

2.205 (B) Clean Air Act

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract agree to abide by the terms outlined in the Federal Clean Air Act, Section 306 stipulates:

a. No Federal agency may enter into any contract with any person who is convicted of any offense under section 113(c) for the procurement of goods, materials, and services to perform such contract at any facility at which the violation which gave rise to such conviction occurred if such facility is owned, leased, or supervised by such person. The prohibition in the preceding sentence shall continue until the Administrator certifies that the condition giving rise to such a conviction has been corrected. For convictions arising under section 113(c)(2), the condition giving rise to the conviction also shall be considered to include any substantive violation of this Act associated with the violation of 113(c)(2). The Administrator may extend this prohibition to other facilities owned or operated by the convicted person.

b. The Administrator shall establish procedures to provide all Federal agencies with the notification necessary for the purposes of subsection (a).

c. In order to implement the purposes and policy of this Act to protect and enhance the quality of the Nation's air, the President shall, not more than 180 days after enactment of the Clean Air Amendments of 1970 cause to be issued an order (1) requiring each Federal agency authorized to enter into contracts and each Federal agency which is empowered to extend Federal assistance by way of grant, loan, or contract to effectuate the purpose and policy of this Act in such contracting or assistance activities, and (2) setting forth procedures, sanctions, penalties, and such other provisions, as the President determines necessary to carry out such requirement.

d. The President may exempt any contract, loan, or grant from all or part of the provisions of this section where he determines such exemption is necessary in the paramount interest of the United States and he shall notify the Congress of such exemption. The President shall annually report to the Congress on measures taken toward implementing the purpose and intent of this section, including but not limited to the progress and problems associated with implementation of this section. [42 U.S.C. 7606]

e. The President shall annually report to the Congress on measures taken toward implementing the purpose and intent of this section, including but not limited to the progress and problems associated with implementation of this section. [42 U.S.C. 7606]

2.205 (C) Clean Water Act

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract agree to abide by the terms outlined in the Federal Clean Water Act, Section 309 stipulates:

a. No Federal agency may enter into any contract with any person who has been convicted of any offense under Section 309(c) of this Act for the procurement of goods, materials, and services if such contract is to be performed at any facility at which the violation which gave rise to such conviction occurred, and if such facility is owned, leased, or supervised by such person. The prohibition in preceding sentence shall continue until the Administrator certifies that the condition giving rise to such conviction has been corrected.

b. The Administrator shall establish procedures to provide all Federal agencies with the notification necessary for the purposes of subsection (a) of this section.

c. In order to implement the purposes and policy of this Act to protect and enhance the quality of the Nation's water, the President shall, not more than 180 days after the enactment of this Act, cause to be issued an order:

1. requiring each Federal agency authorized to enter into contracts and each Federal agency which is empowered to extend Federal assistance by way of grant, loan, or contract to effectuate the purpose and policy of this Act in such contracting or assistance activities, and
2. setting forth procedures, sanctions, penalties, and such other provisions, as the President determines necessary to carry out such requirement.

d. The President may exempt any contract, loan, or grant from all or part of the provisions of this section where he determines such exemption is necessary in the paramount interest of the United States and he shall notify the Congress of such exemption.

e. The President shall annually report to the Congress on measures taken in compliance with the purpose and intent of this section, including, but not limited to, the progress and problems associated with such compliance.

f. (1) No certification by a contractor, and no contract clause, may be required in the case of a contract for the acquisition of commercial items in order to implement a prohibition or requirement of this section or a prohibition or requirement issued in the implementation of this section.

(2) In paragraph (1), the term "commercial item" has the meaning given such term in section 4(12) of the Office of Federal Procurement Policy Act (41 U.S.C. 403(12)).

2.205 (D) Anit-lobbying Act

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract agree to abide by the terms outlined in the Anti-Lobbying Act. The Anti-Lobbying Act prohibits the recipients of Federal contracts, grants, and loans from using appropriated funds for lobbying the Executive or Legistlative branches of the Federal government in connection with a specific contract, grant, or loan. As required by Section 1352, Title 31 of the U.S. Code and implemented at 34 CFR Part 82 for persons entering into a grant or cooperative agreement over $100,000, as defined at 34 CFR Part 82, Section 82.105 and 82.110, the applicant certifies that:

a. No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with the making of any federal grant, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal grant or cooperative agreement;

b. If any funds other than federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Confess in connection with this federal grantor o cooperative agreement, the undersigned shall complete and submit Standard Form – LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions;

c. The undersigned shall require that the language of this certification be include in the award documents for all sub-awards at all tiers (including sub-grants, contracts under grants and cooperative agreements, and subcontracts) and that all sub-recipients shall certify and disclose accordingly.

2.205 (E) Americans with Disabilities Act

The Contractor, its subcontractors, their subcontractors and all persons involved with the performance of this contract agree to abide by the terms outlined in the Americans with Disabilities Act. This Act (28 CFR Part 35, Title II, Subtitle A) prohibits discrimination on the basis of disability in all services, programs, and activities provided to the public and State and local governments, except public transportation services.

2.205 (F) Drug Free Workplace

The Federal government implemented the Drug Free Workplace Act of 1988 in an attempt to address the problems of drug abuse on the job. It is a fact that employees who use drugs have less productivity, a lower quality of work, and a higher absenteeism, and are more likely to misappropriate funds or services. From this perspective, the drug abuser may endanger other employees, the public at large, or themselves. Damage to property, whether owned by this entity or not, could result from drug abuse on the job. All these actions might

undermine public confidence in the services this entity provides. Therefore, in order to remain a responsible source for government contracts, the following guidelines have been adopted:

a. The unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited in the work place.
b. Violators may be terminated or requested to seek counseling from an approved rehabilitation service
c. Employees must notify their employer of any conviction of a criminal drug statue no later than five days after such conviction.
d. Although alcohol is not a controlled substance, it is nonetheless a drug. It is the policy of the Arkansas Department of Health WIC Program that abuse of this drug will also not be tolerated in the workplace.
e. Contractors of federal agencies are required to certify that they will provide drug-free workplaces for their employees.

Transactions subject to the suspension/debarment rules (covered transactions) include grants, subgrants, cooperative agreements, and prime contracts under such awards. Subcontracts are not included. Also, the dollar threshold for covered procurement contracts is $25,000. Contracts for Federally required audit services are covered regardless of dollar amount.

2.205 (G) Debarment and Suspension

As required by Executive Order 12549, Debarment and Suspension, and implemented at 34 CFR Part 85, for prospective participants in primary covered transactions, as defined at 34 CFR Part 85, Sections 85.105 and 85.110.

a. The applicant certifies that it and its principals:
   1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency;
   2. Have not within a three-year period preceding this application been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (federal, state, or local) transaction or contract under a public transaction; violation of federal or state antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
   3. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (federal, state, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
   4. Have not within a three-year period preceding this application had one or more public transactions (federal, state, or local) terminated for cause or default.

b. Where the applicant is unable to certify to any of the statements in this certification, he or she shall attach an explanation to this application.

2.205 (H) Food and Nutrition Services Ownership Rights

The State and Food and Nutrition Services (FNS) reserve royalty-free, nonexclusive and irrevocable license to reproduce, publish , or otherwise use and authorize others to use for Federal Government purposes, the copyright in any software and associated documentation developed under the resulting contract. In addition, FNS must have access to Bridges during the duration of the contract and will need access to pertinent cost records of contractors and subcontractors as FNS considers necessary

2.210 Governing Law

2.211 Governing Law

The Contract must in all respects be governed by, and construed according to, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of any other jurisdiction to the extent not inconsistent with, or pre-empted by federal law.

2.212 Compliance with Laws

Contractor shall comply with all applicable state, federal and local laws and ordinances in providing the Services/Deliverables.

2.213 Jurisdiction

Any dispute arising from the Contract must be resolved in the State of Michigan. With respect to any claim between the parties, Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections it may have to the jurisdiction on the grounds of lack of personal jurisdiction of the court or the laying of venue of the court or on the basis of forum non conveniens or otherwise. Contractor agrees to appoint agents in the State of Michigan to receive service of process.

2.220 Limitation of Liability

2.221 Limitation of Liability

Neither the Contractor nor the State is liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability does not apply to claims for infringement of United States patent, copyright, trademark 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; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

The Contractor's liability for damages to the State, regardless of the form of action, shall be limited to $14,632,716 or professional fees applicable to this Contract paid over the preceding 12 months, whichever is higher. The foregoing limitation of liability does 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; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

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

2.230 Disclosure Responsibilities

2.231 Disclosure of Litigation

Contractor must disclose any material criminal litigation, involving the Contractor (and each Subcontractor) or any of its officers or directors or any litigation, investigations or proceedings under the Sarbanes-Oxley Act, in each case to the extent Contractor believes such litigation, investigations or proceedings adversely impact Contractor's ability to perform the Services . 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, to which Contractor (or, to the extent Contractor is aware, any Subcontractor) 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; or (ii) a conviction for fraud against Contractor or, to the extent Contractor is aware, any Subcontractor by a governmental or public entity arising out of their business dealings with governmental or public entities.

If any Proceeding disclosed to the State under this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about:

(a) the ability of Contractor (or a Subcontractor) to continue to perform this Contract according to its terms and conditions, or

(b) whether Contractor (or a Subcontractor) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in the Proceeding, which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations or public policy, then the Contractor must provide the State reasonable assurances requested by the State to demonstrate that:

(1) Contractor and its Subcontractors will be able to continue to perform this Contract and any Statements of Work according to its terms and conditions, and

(2) Contractor and its Subcontractors have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in the Proceeding.

(c) Contractor must make the following notifications in writing:

(1) Within 30 days of Contractor becoming aware that a change in its ownership or officers has occurred, or is certain to occur, or a change that could result in changes in the valuation of its capitalized assets in the accounting records which results in increased Contract costs, Contractor must notify DTMB Purchasing Operations.

(2) Contractor must also notify DTMB Purchasing Operations 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 which results in increased Contract costs.

2.232 Call Center Disclosure

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

2.233 Bankruptcy

The State may, without prejudice to any other right or remedy, terminate this Contract, in whole or in part, and, at its option, may take possession of the "Work in Process" and finish the Works in Process by whatever appropriate method the State may deem expedient if:

(a) the Contractor files for protection under the bankruptcy laws;

(b) an involuntary petition is filed against the Contractor and not removed within 30 days;

(c the Contractor becomes insolvent or if a receiver is appointed due to the Contractor's insolvency;

(d) the Contractor makes a general assignment for the benefit of creditors; or

(e) the Contractor or its affiliates are unable to provide reasonable assurances that the Contractor or its affiliates can deliver the services under this Contract.

Contractor will fix appropriate notices or labels on the Work in Process to indicate ownership by the State. To the extent reasonably possible, materials and Work in Process must be stored separately from other stock and marked conspicuously with labels indicating ownership by the State.

2.240 Performance

2.241 Time of Performance

(a) Contractor shall use commercially reasonable efforts to provide complete all Services and Deliverables according to the time schedules and requirements contained in the Statements of Work and other Exhibits governing the work.

(b) Without limiting the generality of **Section 2.241,** Contractor must notify the State in a timely manner upon becoming aware of any circumstances that are reasonably expected to jeopardize the timely and successful completion of any Deliverables/Services on the scheduled due dates in the latest State-approved delivery schedule and must inform the State of the projected actual delivery date.

(c) If the Contractor believes that a delay in performance by the State has caused or will cause the Contractor to be unable to perform its obligations according to specified Contract time periods, the Contractor shall notify the State in a timely manner and must use commercially reasonable efforts to perform its obligations according to the Contract time periods notwithstanding the State's failure. Contractor will not be in default for a delay in performance to the extent the delay is caused by the State.

2.242 RESERVED - Service Level Agreement (SLA)

2.243 Liquidated Damages

Unauthorized Removal of any Key Personnel

It is acknowledged that an Unauthorized Removal will interfere with the timely and proper completion of the Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any Unauthorized Removal. Therefore, Contractor and the State agree that in the case of any Unauthorized Removal in respect of which the State does not elect to

exercise its rights under **Section 2.141**, the State may assess liquidated damages against Contractor as specified below.

For the Unauthorized Removal of any Key Personnel designated in the applicable Statement of Work, the liquidated damages amount is $25,000.00 per individual if the Contractor identifies a replacement approved by the State under **Section 2.060** and assigns the replacement to the Project to shadow the Key Personnel who is leaving for a period of at least 30 days before the Key Personnel's removal.

If Contractor fails to assign a replacement to shadow the removed Key Personnel for at least 30 days, in addition to the $25,000.00 liquidated damages for an Unauthorized Removal, Contractor must pay the amount of $833.33 per day for each day of the 30 day shadow period that the replacement Key Personnel does not shadow the removed Key Personnel, up to $25,000.00 maximum per individual. The total liquidated damages that may be assessed per Unauthorized Removal and failure to provide 30 days of shadowing must not exceed $50,000.00 per individual and $350,000 in the aggregate.

2.244 Excusable Failure

Neither party will be liable for any default, damage or delay in the performance of its obligations under the Contract to the extent the default, damage or delay is caused by government regulations or requirements (executive, legislative, judicial, military or otherwise), power failure, electrical surges or current fluctuations, lightning, earthquake, war, water or other forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, or acts or omissions of common carriers, fire; riots, civil disorders; strikes or other labor disputes, embargoes; 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 a party; provided the non-performing party and its Subcontractors are without fault in causing the default or delay, and the 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 a party does not perform its contractual obligations for any of the reasons listed above, the non-performing party will be excused from any further performance of its affected obligation(s) for as long as the circumstances prevail. But the party must use commercially reasonable efforts to recommence performance whenever and to whatever extent possible without delay. A party must promptly notify the other party in writing promptly after the excusable failure occurs, and also when it abates or ends.

If any of the above-enumerated circumstances substantially prevent, hinder, or delay the Contractor's performance of the Services/provision of Deliverables for more than 10 Business 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/Deliverables from an alternate source, and the State is not be liable for payment for the unperformed Services/ Deliverables not provided under the Contract for so long as the delay in performance continues; (b) the State may terminate any portion of the Contract so affected and the charges payable will be equitably adjusted as agreed by the parties to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to Contractor as of a date specified by the State in a written notice of termination to the Contractor, provided that the State must pay for Services/Deliverables provided through the date of termination.

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/Deliverables not provided as a result of the Excusable Failure condition. Defaults or delays in performance by Contractor which are caused by acts or omissions of its Subcontractors will not relieve Contractor of its obligations under the Contract except to the extent that a Subcontractor is itself subject to an Excusable Failure condition described above and 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.

2.250 Approval of Deliverables

The extension year invoices will be paid based upon receipt of the monthly maintenance and operations status report deliverable. The format and contents of the deliverable will be jointly defined by the State and Contractor. A representative sample of items that would be included in this monthly deliverable are in Attachment A.

2.260 Ownership

2.261 Ownership of Work Product by State

Upon full payment by the State for each such Deliverable, the State owns all Deliverables and each such Deliverable shall be considered work made for hire by the Contractor for the State. Upon full payment, the State owns all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

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 developed outside the Contract (collectively, the "Development Tools") and created, adapted or used by the Contractor in its business generally, including any and all associated intellectual property rights, and any derivative works thereof, 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 use, for its internal purposes, any such Development Tools that are delivered solely in connection with the Deliverables. 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 Deliverables, 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 shall be free to use and employ its 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 acquires and applies such information without disclosure of any confidential or proprietary information of the State, and without any unauthorized use or disclosure of any Deliverables resulting from this Contract.

2.262 Vesting of Rights

With the sole exception of any (1) third party hardware and software' and (2) Development Tools identified in the SOW or identified by the Contractor during performance of the Contract, the Contractor assigns to the State, upon full payment for each such Deliverable, 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 the Deliverable, by operation of law, may not be considered work made for hire by the Contractor for the State. From time to time upon the State's request, the Contractor must confirm the assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State may obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

2.263 Rights in Data

The State is the owner of all data made available by the State to the Contractor or its agents, Subcontractors or representatives under the Contract. The Contractor will not use the State's data for any purpose other than providing the Services, nor will any part of the State's data be disclosed, sold, assigned, leased or otherwise disposed of to the general public or to specific third parties or commercially exploited by or on behalf of the Contractor (except as required by applicable law or regulation). No employees of the Contractor, other than those on a strictly need-to-know basis, have access to the State's data. Contractor will not possess or assert any lien or other right against the State's data. Without limiting the generality of this Section, the Contractor must only use personally identifiable information as strictly necessary to provide the Services and must disclose the information only to its employees who have a strict need-to-know the information. The Contractor must comply at all times with all laws and regulations applicable to the personally identifiable information.

The State is the owner of all State-specific data under the Contract. The State may use the State data used by the Contractor for any purpose. The State will not possess or assert any lien or other right against the Contractor's data. Without limiting the generality of this Section, the State may use personally identifiable information only as strictly necessary to utilize the Services and must disclose the information only to its employees who have a strict need to know the information, except as provided by law. The State must comply at all times with all laws and regulations applicable to the personally identifiable information. Other material developed and provided to the State remains the State's sole and exclusive property.

2.264 Ownership of Materials

The State and the Contractor will continue to own their respective proprietary technologies developed before entering into the Contract or otherwise independently developed outside of this Contract. Any hardware bought through the Contractor by the State, and paid for by the State, will be owned by the State. Any software licensed through the Contractor and sold to the State, will be licensed directly to the State.

2.270 State Standards

2.271 Existing Technology Standards

The Contractor will adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at http://www.michigan.gov/dit. To the extent that such standards are modified by the State following execution of the Contract, Contractor shall be entitled to a change order to address any costs resulting to Contractor from such change.

2.272 Acceptable Use Policy

To the extent that Contractor has access to the State computer system, Contractor must comply with the State's Acceptable Use Policy, see http://www.michigan.gov/ditservice. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State system. The State reserves the right to terminate Contractor's access to the State system if a violation occurs.

2.273 Systems Changes

Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the Project Manager. Any changes Contractor makes to State systems with the State's approval must be done according to the applicable Change Order requirements.

2.280 Extended Purchasing

2.281 RESERVED - MiDEAL (Michigan Delivery Extended Agreements Locally

2.282 RESERVED - State Employee Purchases

2.290 Environmental Provision

2.291 Environmental Provision

Energy Efficiency Purchasing Policy: The State seeks wherever possible to purchase energy efficient products. This includes giving preference to U.S. Environmental Protection Agency (EPA) certified 'Energy Star' products for any category of products for which EPA has established Energy Star certification. For other purchases, the State may include energy efficiency as one of the priority factors to consider when choosing among comparable products.

Environmental Purchasing Policy: The State of Michigan is committed to encouraging the use of products and services that impact the environment less than competing products. The State is accomplishing this by including environmental considerations in purchasing decisions, while remaining fiscally responsible, to promote practices that improve worker health, conserve natural resources, and prevent pollution. Environmental components that are to be considered include: recycled content and recyclables; energy efficiency; and the presence of undesirable materials in the products, especially those toxic chemicals which

are persistent and bioaccumulative. The Contractor should be able to supply products containing recycled and environmentally preferable materials that meet performance requirements and is encouraged to offer such products throughout the duration of this Contract. Information on any relevant third party certification (such as Green Seal, Energy Star, etc.) should also be provided.

Hazardous Materials: For the purposes of this Section, "Hazardous Materials" is a generic term used to describe asbestos, ACBMs, PCBs, petroleum products, construction materials including paint thinners, solvents, gasoline, oil, and any other material the manufacture, use, treatment, storage, transportation or disposal of which is regulated by the federal, state or local laws governing the protection of the public health, natural resources or the environment. This includes, but is not limited to, materials the as batteries and circuit packs, and other materials that are regulated as (1) "Hazardous Materials" under the Hazardous Materials Transportation Act, (2) "chemical hazards" under the Occupational Safety and Health Administration standards, (3) "chemical substances or mixtures" under the Toxic Substances Control Act, (4) "pesticides" under the Federal Insecticide Fungicide and Rodenticide Act, and (5) "hazardous wastes" as defined or listed under the Resource Conservation and Recovery Act.

(a) The Contractor must use, handle, store, dispose of, process, transport and transfer any material considered a Hazardous Material according to all federal, State and local laws. The State must provide a safe and suitable environment for performance of Contractor's Work. Before the commencement of Work, the State must advise the Contractor of the presence at the work site of any Hazardous Material to the extent that the State is aware of the Hazardous Material. If the Contractor encounters material reasonably believed to be a Hazardous Material and which may present a substantial danger, the Contractor must immediately stop all affected Work, notify the State in writing about the conditions encountered, and take appropriate health and safety precautions.

(b) Upon receipt of a written notice, the State will investigate the conditions. If (a) the material is a Hazardous Material that may present a substantial danger, and (b) the Hazardous Material was not brought to the site by the Contractor, or does not result in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Materials, the State must order a suspension of Work in writing. The State must proceed to have the Hazardous Material removed or rendered harmless. In the alternative, the State must terminate the affected Work for the State's convenience.

(c) Once the Hazardous Material has been removed or rendered harmless by the State, the Contractor must resume Work as directed in writing by the State. Any determination by the Michigan Department of Community Health or the Michigan Department of Environmental Quality that the Hazardous Material has either been removed or rendered harmless is binding upon the State and Contractor for the purposes of resuming the Work. If any incident with Hazardous Material results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in a time as mutually agreed by the parties.

(d) If the Hazardous Material was brought to the site by the Contractor, or results in whole or in part from any violation by the Contractor of any laws covering the use, handling, storage, disposal of, processing, transport and transfer of Hazardous Material, or from any other act or omission within the control of the Contractor, the Contractor must bear its proportionate share of the delay and costs involved in cleaning up the site and removing and rendering harmless the Hazardous Material according to Applicable Laws to the condition approved by applicable regulatory agency(ies).

Labeling: Michigan has a Consumer Products Rule pertaining to labeling of certain products containing volatile organic compounds. For specific details visit http://www.michigan.gov/deq/0,1607,7-135-3310_4108-173523--,00.html

Refrigeration and Air Conditioning: The Contractor shall comply with the applicable requirements of Sections 608 and 609 of the Clean Air Act (42 U.S.C. 7671g and 7671h) as each or both apply to this contract.

Environmental Performance: Waste Reduction Program - Contractor shall establish a program to promote cost-effective waste reduction in all operations and facilities covered by this contract. The Contractor's programs shall comply with applicable Federal, State, and local requirements, specifically including Section 6002 of the Resource Conservation and Recovery Act (42 U.S.C. 6962, et seq.).

2.300 Deliverables

2.301 Software

A list of the items of software the State is required to purchase for execution the Contract is attached or otherwise mutually agreed by the parties in writing. The list includes all software required to complete the Contract and for the Contractor to meet its Contract requirements; if any additional software is required in order for the Deliverables to meet the requirements of this Contract, such software shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Statement of Work or Contract Change Notice). The attachment also identifies certain items of software to be provided by the State. Licensing and support of third party software shall be in accordance with Section 2.314.

2.302 Hardware

A list of the items of hardware the State is required to purchase for execution the Contract is attached or otherwise mutually agreed by the parties in writing. The list includes all hardware required to complete the Contract and for the Contractor to meet its Contract requirements; if any additional hardware is required in order for the Deliverables to meet the requirements of this Contract, such hardware shall be provided to the State by Contractor at no additional charge (except where agreed upon and specified in a Contract Change Notice). The attachment also identifies certain items of hardware to be provided by the State.

2.303 Equipment to be New

If applicable, all equipment provided under this Contract by Contractor shall be new where Contractor has knowledge regarding whether the equipment is new or assembled from new or serviceable used parts that are like new in performance or has the option of selecting one or the other. Equipment that is assembled from new or serviceable used parts that are like new in performance is acceptable where Contractor does not have knowledge or the ability to select one or other, unless specifically agreed otherwise in writing by the State.

2.304 Equipment to be New and 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 Purchasing Operations has approved a change order pursuant to **Section 2.024.**

2.310 Software Warranties

2.311 RESERVED - Performance Warranty

2.312 No Surreptitious Code Warranty

The Contractor represents and warrants that no copy of licensed Software provided to the State contains or will contain 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. Unauthorized 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.

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.

2.313 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.

2.314 Third-party Software License and 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 or resell the Third-party Software. The Contractor may use an affiliate to "resell" any such third party products.

2.315 Physical Media Warranty

Contractor represents and warrants that each licensed copy of any custom developed 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 (30) thirty days after that date of Final Acceptance of the custom developed 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).

2.320 Software Licensing

2.321 Cross-License, Deliverables Only, License to Contractor

The State grants to the Contractor, the royalty-free, world-wide, non-exclusive right and license under any Deliverable now or in the future owned by the State, or with respect to which the State has a right to grant such rights or licenses, to the extent required by the Contractor to market the Deliverables and exercise its full rights in the Deliverables, including, without limitation, the right to make, use and sell products and services based on or incorporating such Deliverables.

2.322 Cross-License, Deliverables and Derivative Work, License to Contractor

The State grants to the Contractor, the royalty-free, world-wide, non-exclusive right and license under any Deliverable and/or Derivative Work now or in the future owned by the State, or with respect to which the State has a right to grant such rights or licenses, to the extent required by the Contractor to market the Deliverables and/or Derivative Work and exercise its full rights in the Deliverables and/or Derivative Work, including, without

limitation, the right to make, use and sell products and services based on or incorporating such Deliverables and/or Derivative Work.

2.323 License Back to the State

Unless otherwise specifically agreed to by the State, before initiating the preparation of any Deliverable that is a Derivative of a preexisting work, the Contractor shall cause the State to have and obtain the irrevocable, nonexclusive, worldwide, royalty-free right and license to (1) use, execute, reproduce, display, perform, distribute internally or externally, sell copies of, and prepare Derivative Works based upon all preexisting works and Derivative Works thereof, and (2) authorize or sublicense others from time to time to do any or all of the foregoing.

2.324 License Retained by Contractor

Contractor grants to the State a non-exclusive, royalty-free, site-wide, irrevocable, transferable license to use the Software and related documentation according to the terms and conditions of this Contract. For the purposes of this license, "site-wide" includes any State of Michigan office regardless of its physical location.

The State may modify the Software and may combine such with other programs or materials to form a derivative work. The State will own and hold all copyright, trademarks, patent and other intellectual property rights in any derivative work, excluding any rights or interest in Software other than those granted in this Contract.

The State may copy each item of Software to multiple hard drives or networks unless otherwise agreed by the parties.

The State will make and maintain no more than one archival copy of each item of Software, and each copy will contain all legends and notices and will be subject to the same conditions and restrictions as the original. The State may also make copies of the Software in the course of routine backups of hard drive(s) for the purpose of recovery of hard drive contents.

In the event that the Contractor shall, for any reason, cease to conduct business, or cease to support the Software, the State shall have the right to convert these licenses into perpetual licenses, with rights of quiet enjoyment, but subject to payment obligations not to exceed the then current rates.

2.325 Pre-existing Materials for Custom Software Deliverables

Neither Contractor nor any of its Subcontractors shall incorporate any preexisting materials (including Standard Software) into Custom Software Deliverables or use any pre-existing materials to produce Custom Software Deliverables if such pre-existing materials will be needed by the State in order to use the Custom Software Deliverables unless (i) such pre-existing materials and their owners are identified to the State in writing and (ii) such pre-existing materials are either readily commercially available products for which Contractor or its Subcontractor, as the case may be, has obtained a license (in form and substance approved by the State) in the name of the State, or are materials that Contractor or its Subcontractor, as the case may be, has the right to license to the State and has licensed to the State on terms and conditions set forth herein.

2.400 Other Provisions

2.411 Forced Labor, Convict Labor, or Indentured Servitude Made Materials

Bidder represents and certifies that, to the best of its knowledge and belief no foreign (outside of the U.S.) made equipment, materials, or supplies, will be furnished to the State under any resulting Contract, that have been produced in whole or in part by forced labor, convict labor, or indentured servitude.

2.421 Knowledge of Child Labor for Listed End Products

(a) "Forced or indentured child labor" means all work or service:

(i) Exacted from any person under the age of 18 under the menace of any penalty for its nonperformance and for which the worker does not offer himself voluntarily; or

(ii) Performed by any person under the age of 18 under a contract the enforcement of which can be accomplished by process or penalties.

(b) *Listed end products*. The following end product(s) being acquired under this solicitation is (are) included in the List of Products Requiring Contractor Certification as to Forced or Indentured Child Labor, identified by their country of origin. There is a reasonable basis to believe that listed end products from the listed countries of origin may have been mined, produced, or manufactured by forced or indentured child labor.

Listed End Product	Listed Country of Origin

(c) *Certification*. The State will not make award to a Bidder unless the Bidder, by checking the appropriate block, certifies to one of the following:

(X) The Bidder will not supply any end product listed in paragraph (b) of this provision that was mined, produced, or manufactured in a corresponding country as listed for that end product.

( ) The Bidder may supply an end product listed in paragraph (b) of this provision that was mined, produced, or manufactured in the corresponding country as listed for that product. The Bidder certifies that it has made a good faith effort to determine whether forced or indentured child labor was used to mine, produce, or manufacture the end product. On the basis of those efforts, the Bidder certifies that it is not aware of any the use of child labor.

Appendix A
Sample Status Report

Article 1, Attachment A

IT Classification/Skill Sets

Application Development Manager
The Contractor shall provide a full-time person, the Application Development Manager, to lead the Development Team. The Application Development Manager will be identified and should have a minimum of five years experience in all aspects of application development. This person will be the primary point of contact for the State for all development activity.

The Development Manager should also meet the following requirements:

- •5 years of direct analysis, design, development, implementation, and maintenance experience with automated HHS eligibility systems
- •2 years of experience managing projects using the development and testing methodologies proposed by the Contractor
- •3 years of experience of application development management
- •5 years experience in leadership roles overall
- •2 years of experience managing J2EE projects
- •3 years of experience working with Microsoft Project (or equivalent)

Technical Support Manager
The Contractor shall provide a full-time person, the Technical Support Manager, to oversee the Technical Planning and Support Team. The Technical Support Manager and should have a minimum of five years experience in providing technical planning and support services. This person will be the primary point of contact for the State for BRIDGES technical planning and support activities. This includes resource assignments for the technical planning and support team, as well as the monitoring and reporting of team progress. The Technical Support Manager will work with the State and the State's Technical Control Group to plan and implement technical infrastructure support activities.

The Technical Support Manager should also meet the following requirements:

- 5 years of experience in managing technical support/architecture teams
- 5 years of experience supporting Java/J2EE web applications
- 5 years of experience working with Oracle-based applications
- 3 years of experience working with Unix and/or Linux
- 2 years of experience in utilizing the advanced features of QA/Load for load and performance testing.
- Prior experience and established competence in developing, managing and executing regression, smoke, load and performance tests

Production Support Manager
The Contractor shall provide a full-time person to lead the Ongoing Production Support team. This person, the Production Support Manager, and should have a minimum of three years experience in all aspects of production support.

The Contractor shall work with the State to develop all processes and procedures necessary to record and track ongoing production support requests (i.e., production "tickets"). The Contractor shall also work with the State to develop appropriate processes and procedures to control the flow of ongoing production support work, including production support ticket assessment, configuration management, patch release testing, release builds, and promotions

Testing Manager
The Contractor shall provide a full-time person, the Testing Manager, to lead the Testing Team. The

Testing Manager should have a minimum of five years experience in all aspects of application testing as outlined in this RFP. This person will be the primary point of contact for the State for all quality assurance and user acceptance testing activities. The Testing Manager will be responsible for the coordination, execution and completion of quality assurance testing activities, and the support of User Acceptance Testing activities, as well as resource assignments and monitoring of team progress.

The Testing Manager should have the following minimum qualifications:

- 5 years of experience with large projects in quality assurance testing
- years of experience in the tools and testing methodologies proposed by the
- Contractor
- years of experience in managing testing teams specifically responsible for
- testing public eligibility systems

Senior Systems/Business Analyst

The Contractor shall provide experienced Senior Systems/Business Analysts to serve as the primary liaisons between the State's business staff and the Contractor's technical staff. These senior analysts must have demonstrated experience in both business requirements definition and the technical aspects of application development.

- 5 years experience in writing and analyzing business requirements, generating project specifications, converting specifications into code, and applying knowledge of computer programming techniques and computer languages.
- 5 years experience developing technical designs in consultation with other technical experts.
- 5 years experience using Eclipse development and design tools
- 5 years total development experience in one or more of the following languages:
  - ✓ Web Services
  - ✓ XML
  - ✓ J2EE/ Java 2.x, Struts/Spring Frame work, EJB
  - ✓ JSP & Servelets
  - ✓ Hibernate
  - ✓ PowerScript
  - ✓ JavaScript
  - ✓ Active Directory or Tivoli, LDAP
- 5 years experience with IBM WebSphere web application servers
- 5 years experience in RDBMS developing data model database triggers, procedures, packages and functions in Oracle 10g or later
- 5 years experience developing unit and system test plans, test data and scripts for application validation and verification.
- 5 years experience performing extensive analysis and design working on projects of all sizes that require exposure to all aspects of the project life cycle and creating and maintaining documentation in conformance with established standards.
- 5 years experience working with application/solution architects to set direction of design and development for application development projects.
- 5 years experience evaluating user requests for new programs or modified program components to determine feasibility, cost and time required, compatibility with current systems, and computer capabilities.
- 5 years experience performing peer reviews of developed code to insure conformity to standards and design best practices.
- 5 years experience reviewing technical designs and specifications for completeness and conformance to quality standards, especially as a mentor to less experienced developers.
- 5 years experience analyzing business requirements, generating project specifications and converting them into code, and applying knowledge of computer programming techniques and computer languages.
- 5 years experience working with System Development Life Cycle (SDLC) concepts

- 5 years experience conducting system tests
- 5 years experience in verbal and written communication with clients in English
- Minimum 2 years experience leading Joint Application Design (JAD) meetings
- Minimum 1 year of work in Human Services area preferred; for Senior Systems/Business Analysts assigned to the Eligibility Determination/Benefit Calculation, Benefit Recovery, and Case Maintenance tracks, a minimum of 3 years experience with Human Services automated systems is required
- Experience working with mature CMM or CMMI project methodologies
- Experience working with MS Office applications
- Experience working with project management tools such as MS Project
- Experience working in a team environment
- Experience in troubleshooting, problem solving and debugging.
- Ability to work under pressure and within tight deadlines.

Java Programmer Analyst

The Contractor shall provide Java Programmer Analysts with the following experience:

- 3 years experience analyzing business requirements, generating project specifications and converting them into code, and applying knowledge of computer programming techniques and computer languages.
- 3 years experience developing technical designs in consultation with other technical experts.
- 3 year experience on one or more of the following development and design tools:
  - ✓ Eclipse
- 3 years total development experience in one or more of the following languages:
  - ✓ J2EE/ Java 2.x, Struts/Spring Frame work, EJB
  - ✓ JSP and Servelets
  - ✓ Hibernate
  - ✓ PowerScript
  - ✓ Web Services
  - ✓ JavaScript
  - ✓ XML
  - ✓ Active Directory, or Tivoli, LDAP
- 3 years experience with IBM WebSphere application servers
- 3 years experience in RDBMS developing Data model Database triggers, procedures, packages and functions in Oracle 10g or later
- 3 years experience developing and following unit test plans, test data, and scripts for application validation and verification.
- 3 years experience performing extensive analysis and design by working on projects of all sizes that require exposure to all aspects of the project life cycle and creating and maintaining documentation in conformance with established standards.
- 3 years experience working with application/solution architects to set direction of design and development for application development projects.
- 3 years experience evaluating user requests for new programs or modified program components to determine feasibility, cost and time required, compatibility with current systems, and computer capabilities.
- 3 years experience developing solutions, following design documents and use cases
- 3 years conducting unit tests
- 3 years experience performing peer reviews of developed code to insure conformity to standards and design best practices.
- 3 years experience reviewing technical designs and specifications for completeness and conformance to quality standards.
- 3 years experience working with System Development Life Cycle (SDLC) concepts
- 2 years experience in verbal and written communication with clients in English
- Experience working with mature CMM or CMMI project methodologies

- Experience working with MS Office applications
- Experience working with project management tools such as MS Project
- Experience working in a team environment
- Experience in trouble shooting, problem solving and debugging
- Ability to work under pressure and within tight deadlines

Oracle Database Analyst

The Contractor's proposed Oracle Database Analysts shall have the following experience:

- Experience with Oracle 10g or higher
- Database tools such as PL/SQL and OEM; and Visio for documentation.

Support Software Analyst

The Contractor shall provide a Support Software Analyst with the following minimum experience:

- 3 years experience with IBM WebSphere (MQ/Broker/WTX) support and administration
- Experience with the installation, configuration and operation of the following software: SSA, IQ8, LDAP, and OpCon batch scheduler preferred

Quality Assurance Testing Analyst

The Contractor shall provide experienced Quality Assurance Testing Analysts:

- At least 50% of the Quality Assurance Testing Analysts must have a minimum of 2 years experience in the testing of HHS automated eligibility systems.
- Prior experience and established competence in utilizing the advanced features of the HP Quicktest Pro and Quality Center tool set.
- Some prior experience and established competence developing small programs with VB Script or similar programming language preferred
- Some prior experience creating basic to moderate complex SQL queries that extract information from existing databases preferred
- Prior experience in writing, executing and validating all aspects of a Quality Assurance Test Plan
- Ability to read and understand complex written software requirements at a detailed level preferred
- Ability to read and understand the major types of UML requirements analysis diagrams (e.g. Use Cases, State Diagrams, Activity Diagrams)
- Ability to use MS Excel including advanced features for data import/export, sorting, and table creation
- Basic understanding of the structure of Web applications, particularly as they are implemented with a J2EE architecture.
- Ability to organize and manage large quantities of detailed information
- Ability to write clear and concise technical documents which can be understood by both technical audiences (e.g. developers) and business clients

RESERVED - Article 1, Attachment B
Anticipated Organizational Model

RESERVED - Exhibit A
Initial 90-day Implementation Plan

RESERVED - Exhibit B
Staff Resumes

Exhibit C
Ongoing Maintenance and Operations

Summary Costs	Total
Years 1-4	$61,217,820
Option Year 5	$16,469,244

Timeframe	Year 1 February 8 2011 – February 7, 2012	Year 2 February 8 2012 – February 7, 2013	Year 3 February 8 2013 – February 7, 2014	Year 4 February 8 2014 – February 7, 2015	Option Year 5 February 8 2015 – February 7, 2016
Month 1	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 2	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 3	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 4	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 5	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 6	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 7	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 8	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 9	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 10	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 11	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Month 12	$1,219,393	$1,255,975	$1,293,654	$1,332,463	$1,372,437
Total	$14,632,716	$15,071,700	$15,523,848	$15,989,556	$16,469,244

The Contractor will provide 80 project staff members to maintain and support the Bridges system. There will be no on-boarding process and project staff that is currently working in the project roles per the Contract requirements will continue working under this Contract. If the State requires additional Contractor staffing support, or a reduction in the level of Contractor staffing support, the State and Contractor will follow the Change Request process in Section 2.024 of the Contract to determine the revised pricing schedule.

The State will not pay for any travel expenses, including hotel, mileage, meals, parking, etc. Travel time will not be reimbursed.

Payments will be made upon completion of each delivered and accepted monthly status report.

IT Rate Table

In the event that substantial enhancements are required which due to size cannot be completed within the body of the maintenance and operations activities; the State may issue Statements of Work (SOW) which may be either fixed price for a specific unit of work, or time and materials for a set period of staff augmentation. Contractor shall be required to respond to the SOW within ten (10) business days.

IT Classification	Not To Exceed Hourly Rate
Application Development Manager	$265.00
Technical Support Manager	$150.00
Production Support Manager	$140.00
Test Manager	$140.00
Senior Systems/Business Analyst	$120.00
Java Programmer Analyst	$80.00
Oracle Database Analyst	$90.00
Supportive Software Analyst	$100.00
Quality Assurance Test Analyst	$65.00

Hourly rates quoted are firm, fixed rates for the duration of the contract, inclusive of vendor staff and management overhead.

The State will not pay for any travel expenses, including hotel, mileage, meals, parking, etc. Travel time will not be reimbursed.