

Form No. DTMB-3522 (Rev. 4/2012)  
 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  
 PROCUREMENT  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

**CONTRACT NO. 071B5500109**  
 between  
**THE STATE OF MICHIGAN**  
 and

NAME & ADDRESS OF CONTRACTOR:	PRIMARY CONTACT	EMAIL
CW Professional Services, LLC 1 Campus Martius Detroit, MI 48886	Brian Smith	brian.smith@lochbridge.com
	TELEPHONE	CONTRACTOR #, MAIL CODE
	(517) 267-5255 (517) 267-5253 (fax)	-3320

STATE CONTACTS	AGENCY	NAME	PHONE	EMAIL
PROGRAM ADMINISTRATOR	DTMB DTMB	James McFarlen	(517) 241-1842	<a href="mailto:mcfarlanej@michigan.gov">mcfarlanej@michigan.gov</a>
CONTRACT ADMINISTRATOR/BUYER	DTMB	Terry Mead	517-284-7035	<a href="mailto:MeadT@michigan.gov">MeadT@michigan.gov</a>

CONTRACT SUMMARY:			
DESCRIPTION:			
Pre-Qualified IT Services Program for Software Modernization- Custom Software Development- LARA Corporations On-Line Filing System Project (COFS)			
INITIAL TERM	EFFECTIVE DATE	INITIAL EXPIRATION DATE	AVAILABLE OPTIONS
4 years	June 15, 2015	May 31, 2019	3, 1 Year Options
PAYMENT TERMS	F.O.B	SHIPPED	SHIPPED FROM
N/A	N/A	N/A	N/A
ALTERNATE PAYMENT OPTIONS:			AVAILABLE TO MiDEAL PARTICIPANTS
<input type="checkbox"/> P-card <input type="checkbox"/> Direct Voucher (DV) <input type="checkbox"/> Other			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
MINIMUM DELIVERY REQUIREMENTS:			
N/A			
MISCELLANEOUS INFORMATION:			
N/A			
ESTIMATED CONTRACT VALUE AT TIME OF EXECUTION:			\$ 3,805,659.00

**THIS IS NOT AN ORDER:** This Contract Agreement is awarded on the basis of our inquiry bearing the solicitation # 007115B0003654. This Contract will be performed pursuant to, at a minimum, the terms and conditions of the primary Contract 071B4300106 and the

**terms of Schedule C Maintenance and Support and apply to all work performed under this contract 071B5500109.**

**Orders for delivery will be issued directly by the Department of Technology, Management & Budget through the issuance of a Purchase Order Form.**

Notice of Contract #: 071B5500109

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**For the Contractor:**

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\_\_\_\_\_,  
**Contract Administrator**  
\_\_\_\_\_

\_\_\_\_\_

**Date**

**For the State:**

\_\_\_\_\_

\_\_\_\_\_  
**Bill Pemble,**  
**IT Division Director**  
**State of Michigan**

\_\_\_\_\_

**Date**



# STATE OF MICHIGAN

## SOFTWARE MODERNIZATION PRE-QUALIFICATION PROGRAM

### Schedule A STATEMENT OF WORK

#### *Corporations On-Line Filing System Project*

This Statement of Work, between the State and CW Professional Services LLC D/B/A/ Lochbridge ("Contractor") is hereby incorporated into and made an integral part of Contract Number 071B5500109 ("Contract") between the State and Lochbridge. In the event of any discrepancy between this Statement of Work and the Contract, the provisions of the Contract shall control.

#### **1. Solution Overview.**

##### **Project Narrative**

The Michigan Corporations, Securities and Commercial Licensing Bureau (CSCL) Corporations Division has chosen to purchase software developed by the Commonwealth of Massachusetts, called the Business Entities Electronic Filing and Imaging system. This software will replace the existing Electronic Filing System software and associated database.

The newly purchased software will provide the State of Michigan improved technology to provide online services to the public including (but not limited to): the submission of online forms for all entity types; electronic notification for yearly reporting requirements (for all entity types); online annual reports and statements (for all entity types); online order system; name availability; and annual reporting. The software must be configured and customized to meet the statutory requirements and technical standards of the State of Michigan.

The new software will be hosted on State of Michigan servers on the State of Michigan network and will be maintained fully by the awarded Contractor. Support of the application will be provided by the awarded Contractor until May 31, 2019. The Contract may be renewed for up to three (3) additional one (1) year period(s). The awarded Contractor will work in conjunction with DTMB to meet system availability requirements defined in Schedule C Maintenance and Support Services.

##### **Project Boundaries**

The following tasks and Deliverables are out-of-scope:

- Procurement of Hardware
- Implementation of hardware in the State's environment
- Any product or services not related to the Corporations On-Line Filing system Project

##### **Background and Assumptions**

The Michigan Corporations, Securities and Commercial Licensing Bureau (CSCL) Corporations Division administers statutes related to the formation, life, and dissolution of Corporations, Limited Liability Companies, Limited Partnerships and Limited Liability Partnerships. If a person desires to form one of these entities or qualify an existing entity to transact business or conduct affairs in Michigan they must submit the appropriate documents to the Corporations Division. The Division is charged with reviewing the documents to make certain they substantially conform to the requirements of the applicable acts,

filing those documents that substantially conform, and maintaining an accurate record/image system of all filed documents. The Division furnishes accurate information from the official record, issues certificates of fact and good standing and prepares copies of filed documents as requested.

On average, the Division reviews 240,000 documents and 500,000 annual reports per year; another 140,000 reports are filed online each year. Additionally, during the last calendar year, the Division responded to over 130,000 telephone inquiries, prepared over 27,000 requests for copies and certificates; and sent out in excess of 100,000 pieces of correspondence (in the form of emails, faxes, and traditional mail).

The current application in use at the State of Michigan does not include online filing. Customers send documents via FAX or e-mail (which are then sent, with any attachments, to a FAX server). These FAX messages are processed every 5 minutes by a scheduled process and loaded into an Oracle database. Corporations staff use a Oracle Forms and Reports 6i based custom application to process the filed documents. There are approximately 14.2 million images in the current databases.

The statutes administered by the Corporations Division include:

- PA 284 of 1972 (Business Corporation Act)
- PA 162 of 1982 (Nonprofit Corporation Act)
- PA 327 of 1931 (General Corporation Act)
- PA 213 of 1982 (Limited Partnership Act)
- PA 23 of 1993 (Limited Liability Company Act)
- Sections 44 through 48 of PA 72 of 1917 (Uniform Partnership Act)
- PA 242 of 1969 (Trademarks and Service Marks)
- PA 75 of 1995 (Empowerment Zones)
- Over 100 "Special Acts" related to such corporations as cemeteries, summer resorts, fraternal organizations, churches, etc.

#### **Agency Performance Standards**

- 10 day statutory period to review the document and notify the submitter of refusal to file
- Provide expedited service (1 hour, 2 hours, same day, or 24 hours) if requested
- Agency target to review 95% of non-expedited documents within 3 days

#### **Current Environment Specifications**

Current environment in to which the Massachusetts solution will be installed and run.

##### Desktop Environment

- Windows 7
- Microsoft Office 2010
- Microsoft Internet Explorer 10
- Adobe Standard X and/or X Pro

##### Development Languages, Tools

- Oracle Forms and Reports 6i
- Java
- C#
- Classic ASP
- ASP.NET 2010
- Visual FoxPro and some 3<sup>rd</sup> party extensions

##### Development Framework

- .NET Framework 4

##### Development Platform

- Oracle Forms and Reports 6i
- Microsoft Visual Studio 2008, 2010, 2013

##### Database Server

- Oracle 11g

- MSSQL Server 2008

#### Web Server

- Microsoft IIS 7.x/2008[R2]

#### Application Server

- .NET Framework 3.5, 4.0

#### Interfaces

- Oracle APEX
- Biscom Faxcom (FAX interface)
- App-Worx (Job scheduler)
- Cypress Suite (printing services)

#### Security Environment

- SSL
- SecureID (State Security Standard for external network access and high risk Web systems)

#### Operating Systems

- Windows Server 2003 and 2008
- UNIX
- Virtual Machine Servers

#### Network Environment/Hardware

- Cisco Routers
- Dell, Sun, HP, Redhat servers
- Citrix ICA Client
- Citrix Metaframe

#### Reporting

- Oracle Forms and Reports 6i

### **Expected Environment Specifications**

#### Desktop Environment

- Windows 7
- Microsoft Office 2010
- Microsoft Internet Explorer 10
- Adobe Standard X and/or X Pro

#### Development Languages, Tools

- ASP.NET

#### Development Framework

- .NET Framework v4.x
- Web Services
- Windows Services

#### Development Platform

- Microsoft Visual Studio 2008, 2010, 2013

#### Database Server

- MSSQL Server 2008 R@ and SSRS reports

#### Web Server

- Microsoft IIS 7.x/2008[R2]

#### Application Server

- .NET Framework 3.5, 4.0

#### Interfaces

- CEPAS
- C3
- Kofax Scanner

#### Security Environment

- SSL
- SecureID (State Security Standard for external network access and high risk Web systems)

#### Operating Systems

- Windows Server 2003 and 2008

#### Network Environment/Hardware

- Cisco Routers
- Dell, Sun, HP, Redhat servers
- Citrix ICA Client
- Citrix Metaframe

#### Reporting

- SSRS

The newly purchased application will replace the current application and provide online filing functionality. Existing data must be migrated to the new application data structure. The new application requires customizations to provide functionality that is statutorily mandated for Michigan. This specific functionality is defined in Schedule B Business and Technical Requirements Specification Worksheet and will be met by the contractor at no additional cost.

### Required Standards and Certifications

Contractor has been advised and agrees that the State has methods, policies, standards and procedures that have been developed over the years. All services and products provided as a result of this modernization program must comply with all applicable State IT policies and standards.

The Contractor has identified specific hardware and software along with any environmental considerations in Exhibit C Approved Third Party Materials.

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. The State's Project Manager must approve any changes, in writing, before work may proceed based on the changed environment. The State may deny the exception request or seek a policy or standards exception.

The Contractor has reviewed all applicable links provided below and will comply..

#### Information Technology Environment Standards

##### A. Enterprise IT Security Policy and Procedures:

##### ***Information Standards and Planning***



Policy 1310  
Information Standard

##### ***Information Technology Security Awareness***



Policy 1325  
Information Technolo

### **Information Technology Access Control**



Policy 1335  
Information Technolo

### **Information Technology Information Security**



Policy 1340  
Information Technolo

Standards evolve with technology. The current versions of the standards can be found at the following links:

[http://www.michigan.gov/documents/dmb/1325\\_193160\\_7.pdf](http://www.michigan.gov/documents/dmb/1325_193160_7.pdf)

[http://www.michigan.gov/documents/dmb/1335\\_193161\\_7.pdf](http://www.michigan.gov/documents/dmb/1335_193161_7.pdf)

[http://www.michigan.gov/documents/dmb/1340\\_193162\\_7.pdf](http://www.michigan.gov/documents/dmb/1340_193162_7.pdf)

- B. The State's security environment includes:
- DTMB provided SQL security database
  - Secured Socket Layers
  - Secure ID (State Security Standard for external network access and high risk Web systems)
- C. The State's enterprise shared solution environments include:
- Query and Reporting Functionality through SAP BusinessObjects
  - Address Standardization Functionality through SAP Data Quality Management
  - Extract, Transform, and Load Functionality through IBM DataStage, QualityStage, and Information Analyzer
  - GeoData Services such as a geospatial data warehouse (MS SQL Spatial) and an enterprise ArcGIS Server as an application tier
- D. eMichigan Web Development Standard Tools:



eMichigan  
Standards.pdf

eMichigan Standards evolve with technology. The current version of the standards can be found at the following link:

[http://www.michigan.gov/documents/som/Look\\_and\\_Feel\\_Standards\\_302051\\_7.pdf](http://www.michigan.gov/documents/som/Look_and_Feel_Standards_302051_7.pdf)

- E. IT testing management tools

The Contractor will utilize a software product to manage all testing efforts related to the integration of the System. The automated testing of the integrations, configurations, unit testing and system testing will be conducted.

The State standard testing management tool is Microsoft's Team Foundation Server 2013.

F. The State Unified Information Technology Environment (SUITE):

The Contractor will manage the project in accordance with the State Unified Information Technology Environment (SUITE) methodology, which includes standards for project management, systems engineering, and associated forms and templates: <http://www.michigan.gov/suite>

**Contractor Approach Summary**

Lochbridge confirms that it will meet the standards for all modification to COFS introduced by the State and Lochbridge at no additional cost. Lochbridge confirms that it will complete and maintain all SUITE associated forms and templates required to support the COFS Project.

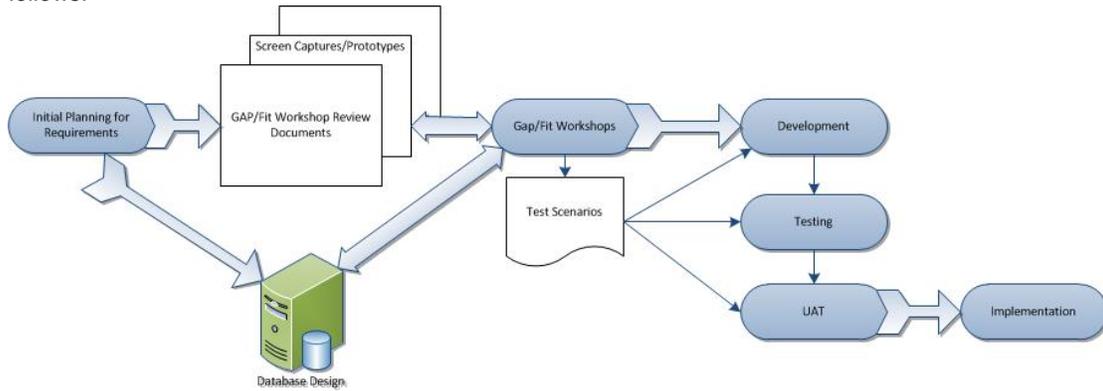
Lochbridge agrees that all requirements within this Contract will be met at no additional cost to the State unless noted herein.

Lochbridge will use a "modified agile" approach to the Corporations On-Line Filing System (COFS) project and contrast that with the typical "waterfall" approach that usually governs projects that are implemented in a big-bang manner. A summary of the modified agile approach on this project consists of the following main features:

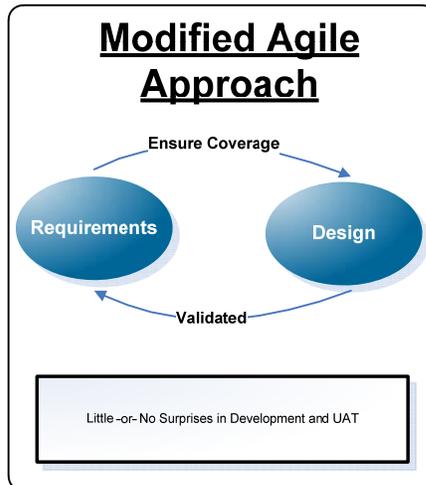
- At the very onset of the project, Lochbridge's Solution Business Process Lead, Tester and Technical Lead become familiar with the transfer solution, already implemented in the State environment. This familiarity with the solution will greatly aid in properly guiding the GAP/Fit Workshops. This is in addition to the Initiation and Planning activities performed during this same timeframe by the team, including Lochbridge's Project Manager.
- Create and execute regression tests cases on the base Massachusetts system (automated and manual) as near as possible to the onset of the project, helping to ensure a working base system before any changes are incorporated. Progress and results to be reviewed early with the State of Michigan (SOM).
- Engage early with the DTMB User Experience/Quality Assurance Team to conduct a Usability Review on the base transfer solution (before any enhancements are incorporated) and then use the mutually agreed upon recommendations for responsive design, usability and formatting, application security and accessibility, and ADA compliance to modify the base system. The resultant patterns will be in place/used for the additional application changes needed and confirmed from the Gap/Fit workshops.
- Similar to the Usability Review, Lochbridge recommends running the URL address through the W3C (World Wide Web Consortium) validator early in the project (before any enhancements are incorporated) to evaluate the level of ADA compliance on the base application and then use the mutually agreed upon recommendations for all code changes and enhancements going forward.
- The Requirements Validation and Design phases are combined, utilizing Gap/Fit workshops with appropriate Subject Matter Experts (SMEs) which continue for several weeks. Lochbridge's developers will use the approved output from these workshops for further development.
- As developers complete their work (i.e., dev/unit tests have completed successfully), Lochbridge executes the applicable system test cases for that specific piece of functionality. Periodically (i.e., monthly) Lochbridge's Technical Lead will demonstrate the new, changed functionality to the SMEs to garner important feedback that the requirements have been translated properly into the solution. The appropriate SOM SMEs for those functional areas are then asked to execute the test cases as well. This is done to garner valuable, timely feedback that this portion of the application is performing correctly so that any necessary adjustments can be identified early and changes made appropriately.

- A full User Acceptance Test is performed once all development and systems tests are complete. End to end test cases are executed by end users with Lochbridge support. This UAT timing/approach provides for key State resources to become familiar with the new solution and complements the training to be delivered shortly thereafter prior to go-live (following successful UAT completion).

Lochbridge's modified agile approach is depicted as follows:

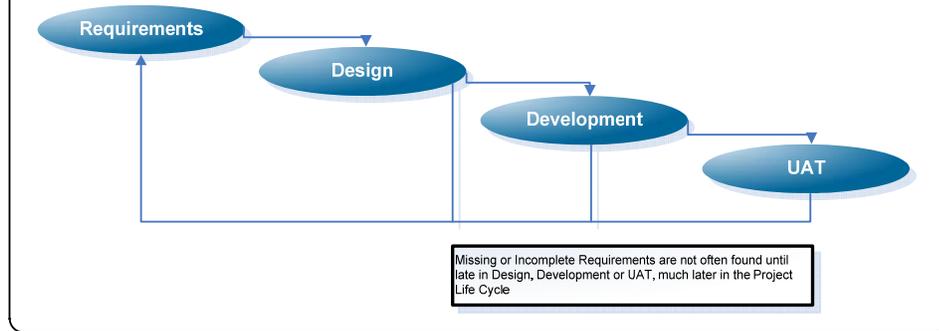


In contrast to a traditional waterfall approach, Lochbridge's modified agile approach combines the requirements validation and design phases, utilizing Gap/Fit workshops with appropriate Subject Matter Experts (SMEs).



Lochbridge's modified agile approach is in contrast to a traditional Waterfall approach, which is depicted below:

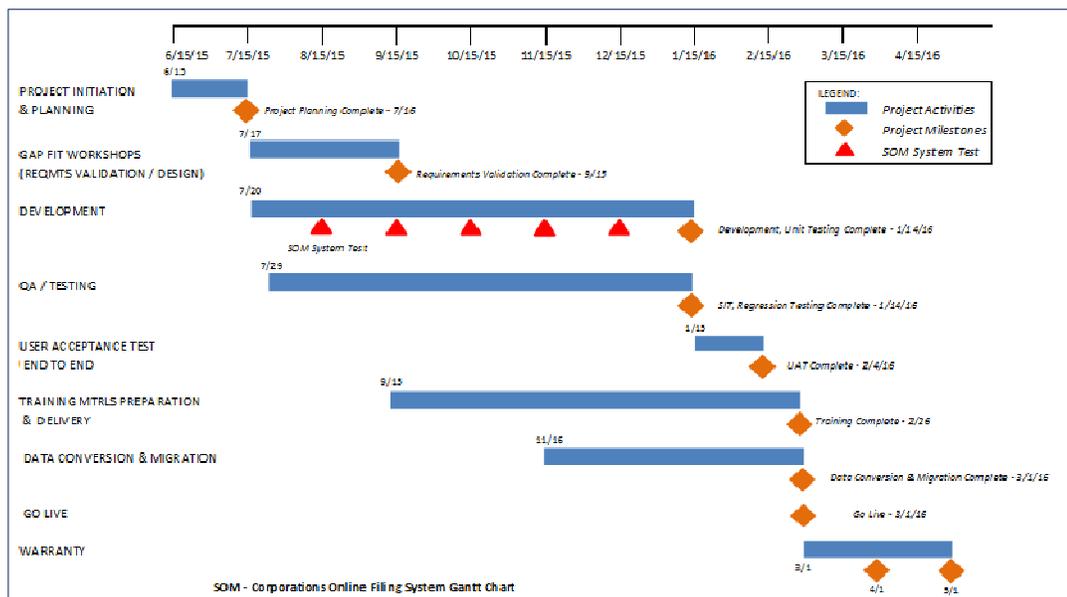
## Traditional Waterfall Approach



Key risks associated with the traditional waterfall approach include:

- No requirements validation occurs as part of the design phase.
- No immediate visual prototyping of the desired functionality early in the project. Potential for SMEs and users to be presented with an application in UAT that was not what they expected -or- what they “meant” by a given requirement.
- Requirements that are missed, misunderstood or incomplete are typically not discovered until late in the Design phase, the Development phase or the User Acceptance Testing (UAT) phase. As these phases are much later in the project life cycle, this could result in project delays, as well as cost and budget overruns.

Most importantly, this approach will result in a projected go-live of March 1, 2016, with a June 15, 2015 start. The following chart depicts the major activities described above.



In summary, the complete Lochbridge team makeup includes:

Project Manager – Diane Toscano  
 Technical Lead – Pankaj Kumar Sinha

Solution/Business Process Lead – Linda Ross

.Net Developers – Satya Guttula, John He

Test Support– non-key TBD

Conversion Support (DBA) – non-key TBD

Conversion Consultant – Steve Grafuis

Governance Support – Diane Toscano

All Lochbridge project resources will work on-site.

Lochbridge will use Changepoint for managing all of Lochbridge internal projects (timesheets, tasks, milestones, resources, financials, issues, risks, and status reporting).

**2. Services and Deliverables.** The Contractor must provide the following Services and Deliverables and deliver Schedule B - Business and Technical Requirements Specifications at no additional cost.

A. Business Requirements Validation and Verification

**Approach**

Lochbridge will utilize a modified agile approach to requirements, application design, development, testing, and implementation. Lochbridge’s modified agile approach to systems development is a proven way to leverage aspects of agile development and extreme programming, in combination with appropriate governance and checks and balances, which results in a high quality application delivered on schedule and within budget.

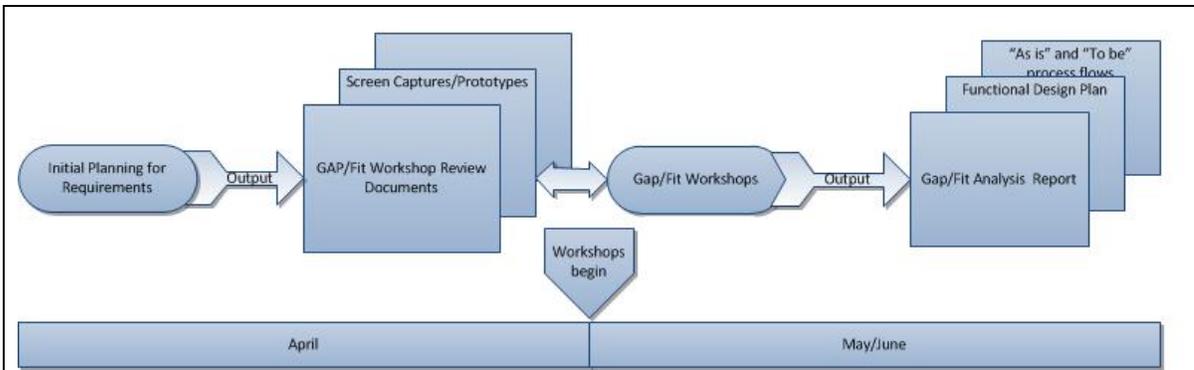
The Lochbridge Solution/Business Process Lead will conduct the Gap/Fit Workshops with the participation of the Lochbridge Technical Lead to address requirements validation.

During these workshops, the current State of Michigan process will be documented (“as is” process flows) and the Business Entities Electronic Filing and Imaging System purchased from the Commonwealth of Massachusetts will be reviewed against the requirements to determine where there are gaps.

After completion of the workshops, “as is “ and “to be” process flows, a gap/fit analysis report, an updated Requirements Traceability Matrix, updated data models, and test case scenarios will be submitted to the State of Michigan SMEs for approval. The benefits to the State’s CSCL Corporations Division and the COFS system project in adopting this modified agile approach are three-fold:

- The workshops provide a “cross-check” validating the need for a given requirement – reviewing existing screens and visual prototyping for the requirements helps the SMEs understand how the requirement will be rendered in the resulting solution.
- Requirements realization (in the design) occurs early in the project life cycle, reducing the probability of “surprises” in the development and UAT phases
- Immediate verification that all requirements have been taken into consideration in the design of the application – to help ensure complete coverage.

Further details regarding Lochbridge’s approach to elicit business requirements is depicted in the graphic below:



**Initial Planning for Requirements and Design. Duration: 1 month.**

The Lochbridge Solution/Business Process Lead and Technical Lead will review the requirements provided in Schedule B to:

1. Organize requirements into functional areas;
2. Create the first draft of the Gap/Fit Workshop Review documents (an example of a Gap/Fit Workshop Review Package has been provided in Attachment A – A.1 Sample Gap/Fit Workshop Review Package. The Gap/Fit Workshop Review Package for this project will be customized to fit the needs of this project.
3. Review/capture existing screens and develop prototypes (if applicable); and
4. Develop the initial database design.

The initial version of the Requirements Traceability Matrix (RTM) will be built with the requirement number, requirement description, requirement type (e.g., functional, technical, etc.), design specification reference number and any comments or questions the Lochbridge team has regarding the requirement.

Based on Lochbridge's initial analysis of the CSCL Corporations Division – COFS system project business requirements (provided in Schedule B), Lochbridge has organized the requirements into the following functional areas:

- A. High level explanation of Business Process (lifecycle) & Cosmetic Changes to 50 screens (**1 Workshop**)
  - a. Changing Logo
  - b. Changing State Name
  - c. Hide UCC Components for MI Instance
- B. New Business Submit Paperwork (**1 Workshop**)
- C. Document Receipt and Processing (**1-2 Workshops**)
- D. View Rejected (**1 Workshop**)
- E. Renew Assumed Name/Name Registration/ LLP (**1 Workshop**)
- F. Annual Reports and Statements (**1 Workshop**)
- G. Order Documents and Certifications (**1 Workshop**)
- H. Submit Documents for Existing Businesses (**2-3 workshops**)
- I. Reports: 20 SSRS Reports (**1 Workshop**)
  - a. Scope the total number of reports needed by MI
  - b. Identify which reports will be new
  - c. Identify which will have to be updated
- J. External Interfaces (**1-2 Workshops**)

As part of the Initial Planning for Requirements phase, Lochbridge will work with the State SMEs to determine the appropriate organization of the requirements.

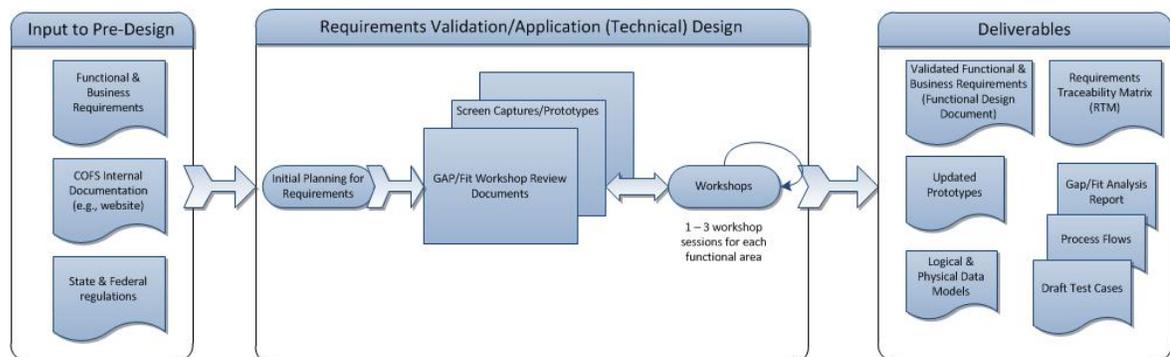
4-6 hours have been allocated for each workshop. Although most functional areas are estimated to complete within one workshop, several are estimated to take two or even three workshops to complete. If additional screens/workshops/reports are necessary within the scope of the current requirements the State will not be charged additional fees.

**Gap/Fit Analysis Phase (Duration: 7 weeks and Application (Technical) Design Phase (Duration: 8 weeks).**

Lochbridge will validate the detailed business and functional requirements provided in Schedule B during the Gap/Fit workshops. These workshops will be facilitated by the Lochbridge Solution/Business Process Lead, who is experienced in requirements elicitation and validation in the state government field, with assistance from the Lochbridge Technical Lead and strong participation from CSCL SMEs. Lochbridge will validate the documented business and functional requirements in accordance with best practices for Agile Modeling Requirements to help ensure the requirements are necessary, correct, unambiguous, complete, consistent, verifiable, modifiable, and traceable. The RTM will be updated during these workshops with any changes to the requirements and the priority assigned to each requirement (e.g., 1 = Mandatory (must have), 2 = Preferred (improves business process), 3 = Optional (nice to have))

**Gap/Fit Workshop Process**

The graphic below depicts the Gap/Fit Workshop process at a high-level, denoting the documentation and information that is used during the Initial Planning for Requirements and Design to create the input into the Requirements Validation/Application (Technical) Design Phase, and the output as a result of the Gap/Fit Workshops:



Gap/Fit Workshops will be conducted to identify and analyze the degree of gap and fit between the COFS system and the business requirements. In the workshop, participants:

- Identify business event-driven process scenarios.
- Perform a walk-through of each current State of Michigan business process from beginning to end for each process scenario.
- Verify with Subject Matter Experts (SME) that process steps are complete and that no steps have been left out.
- Show how the steps are supported by the COFS system to the maximum extent feasible.
- Review the COFS system against the requirements to identify “gaps” in the process not met by the COFS system.
- Document the gaps and provide a gap resolution strategy, noting detailed functional requirements, required interfaces, and required system-to-system data migrations.
- Record any action item or issue raised within the workshop for follow-up and resolution.

Workshop findings are summarized into a detailed Gap/Fit Analysis Report structured to mirror the business process.

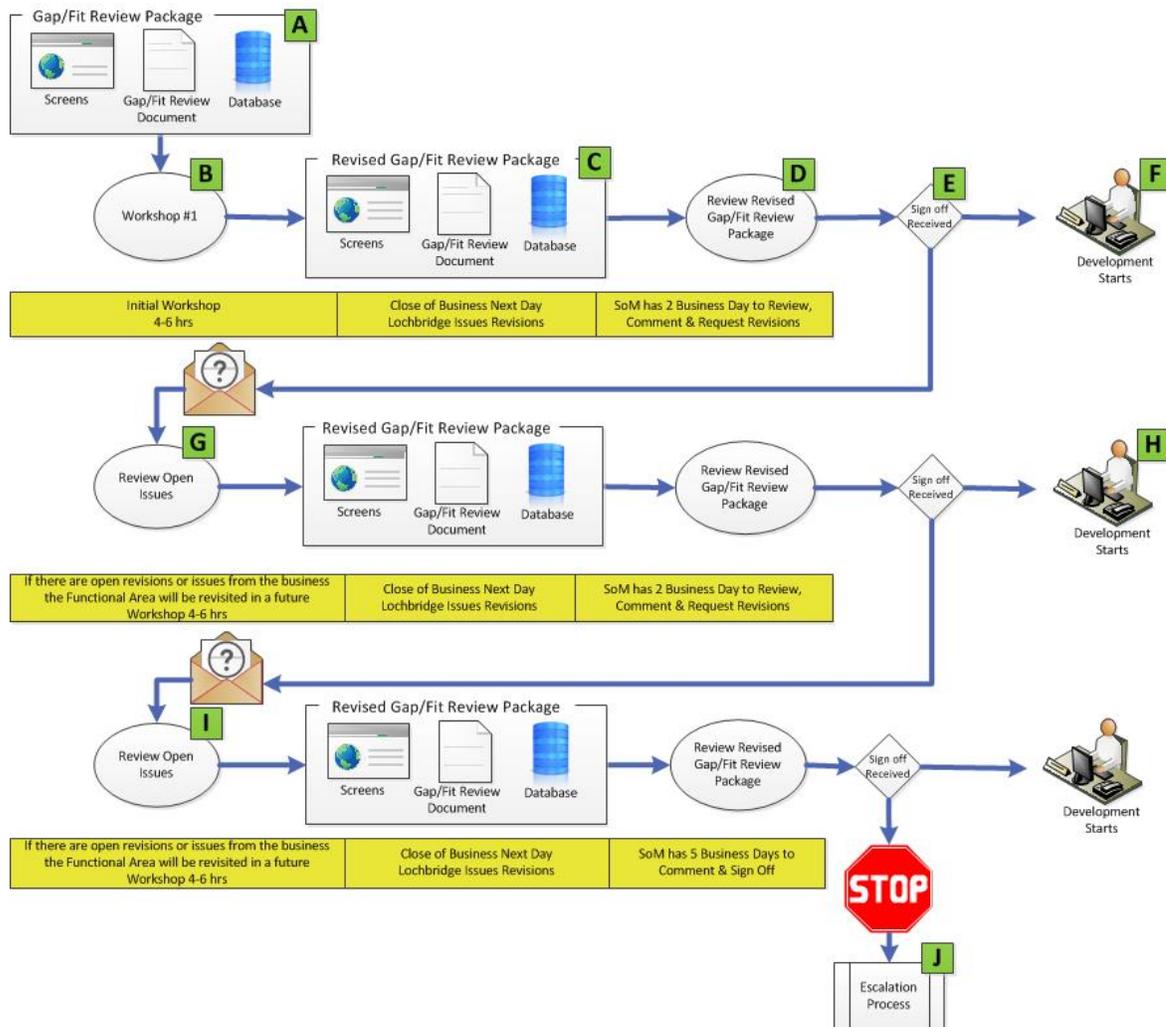
Lochbridge will provide the Gap/Fit Review Package one week prior to the applicable Gap/Fit workshop. The State attendees will review these materials prior to the Gap/Fit workshops. It is anticipated each workshop taking approximately 4 – 6 hours, and that all Gap/Fit workshops will be completed before mid-September, 2015. If additional Gap/Fit workshops are necessary within the scope of the current requirements the State will not be charged an additional cost.

The attendees at the Gap/Fit workshops will include:

- Lochbridge Solution/Business Process Lead
- Lochbridge Technical Lead
- State of Michigan SMEs

Note that at least one of the State attendees must have decision authority – workshops will not be conducted otherwise.

It is expected that a complete consensus will be reached on system functionality within the one to three Gap/Fit workshops per functional area. If additional Gap/Fit workshops are necessary within the scope of the current requirements the State will not be charged additional fees. The number of Gap/Fit workshops scheduled for each of these functional areas will depend on the complexity of the area. Lochbridge will schedule all Gap/Fit workshops over a 7 week period, providing time for feedback, updates and approvals. The graphic below depicts the workshop process which will be repeated for each of the functional areas defined above:



- The initial input (A) will be the Gap/Fit Review Package that was produced by the Lochbridge Solution/Business Process Lead and Lochbridge Technical Lead in the initial planning for requirements and design activities.
- The initial Gap/Fit workshop will be conducted (B), and Lochbridge will issue an updated Gap/Fit Review Package by the close of the next business day (C). State SMEs will have two full days to review and comment on the Gap/Fit package (D). If the Gap/Fit Review Package is deemed complete and is signed off (E), development of that functional area can begin immediately (F). If additional reviews are required, a second Gap/Fit workshop will be conducted (G).

- The exact same process and timing for revisions and review will be followed, and if the area is signed-off, development will begin (H). If not, a third Gap/Fit Workshop will be scheduled (I). Again the same process will be followed with two exceptions. First, the State will have five business days to sign-off on the Gap/Fit document for that area. Once sign-off is received, Development will begin.
- If after three (or four) Gap/Fit workshops and the associated updates, the State still is not able to sign-off on the functional area, then any remaining issues will be escalated (J) through the agreed upon project issues escalation process, at which time impact to the project schedule may occur.

**Leveraging Schedule B (Business and Technical Requirements for Efficiency in Business Requirements Phase**

As indicated above, the Lochbridge Solution/Business Process Lead and Technical Lead will review the requirements provided in Schedule B; any information provided by the State; and any related federal and state regulations in the initial planning for requirements and design activities to:

- Organize requirements into functional areas
- Create the first draft of the Gap/Fit Review Package
- Develop prototypes (if applicable)
- Develop the initial database design

This will allow Lochbridge to provide the Gap/Fit Review Package and initial design (prototypes will only be completed if it is determined a new screen is needed or an existing screen needs material changes) prior to the Gap/Fit workshops for CSCL review. Based upon Lochbridge’s experience, leveraging the functional and technical requirements, with any additional information provided by the State in the initial planning for requirements and design activities to develop a pre-Gap/Fit Review package results in efficiencies gained in the actual Gap/Fit workshops, because the Gap/Fit workshops will focus on design review and modification, rather than “design creation.”

Additional efficiencies are realized by utilizing State Subject Matter Expert availability/time in conducting both business requirements validation/confirmation and application design activities in the same Gap/Fit workshop(s), rather than holding separate workshops for each, as in a traditional waterfall approach.

**Business Requirements Review, Gathering, Revision and Confirmation**

The Lochbridge Solution/Business Process Lead and Lochbridge Technical Lead will perform planning, review and analysis of the business requirements during the Initial Planning Phase, in preparation for the Gap/Fit workshops and activities.

The revision and confirmation of business requirements will occur during the Requirements Validation/Application (Technical) Design Phase, as described above.

**Number of Workshops with CSCL Users**

Lochbridge will conduct an initial meeting with all CSCL Subject Matter Experts (SMEs) to communicate the modified agile approach to business requirements elicitation, including the acceptance of business requirements and to validate the goals and objectives of the project. This meeting will require a one to two hour commitment for all CSCL SMEs.

Lochbridge plans to schedule two 4-6 hour Gap/Fit workshops per week over a 7 week period (including a review/sign-off period) as detailed in the following graphic. Again, if additional Gap/Fit workshops are necessary within the scope of the current requirements the State will not be charged an additional cost:

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Workshop Kick-off	Workshop 1 FA- A	Update FA- A Packet and submit to SoM for review	Workshop 2 Review Open Items, FA- B	Update FA-B Packet and submit to SoM for review FA-A SoM Feedback
Week 2	Update FA-A Packet and submit to SoM for approval	Workshop 3 Review Open Items, FA-C1 FA-B SoM Feedback	Update FA-B Packet and submit to SoM for approval	Workshop 4 Review Open Items, Continue FA-C2	Update FA-C Packet and submit to SoM for review
Week 3	FA-A Sign off Due	Workshop 5 Review Open Items, FA-D FA-C SoM Feedback	Update FA-D Packet and submit to SoM for review Update FA-C Packet and submit to SoM for approval FA-B Sign off Due	Workshop 6 Review Open Items, FA-E	Update FA-E Packet and submit to SoM for review FA-D SoM Feedback
Week 4	Update FA-D Packet and submit to SoM for approval	Workshop 7 Review Open Items, FA-F FA-E SoM Feedback	Update FA-F Packet and submit to SoM for review Update FA-E Packet and submit to SoM for approval FA-C Sign off Due	Workshop 8 Review Open Items, FA-G	Update FA-G Packet and submit to SoM for review FA-F SoM Feedback
Week 5	Update FA-F Packet and submit to SoM for approval FA-D Sign off Due	Workshop 9 Review Open Items, FA-H1 FA-G SoM Feedback	Update FA-G and submit to SoM for approval FA-E Sign off Due	Workshop 10 Review Open Items, Continue FA-H2	
Week 6	FA-F Sign off Due	Workshop 11 Review Open Items, Continue FA-H3	Update FA-H Packet and submit to SoM for review FA-G Sign off Due	Workshop 12 Review Open Items, FA-I	Update FA-I and submit to SoM for review FA-H SoM Feedback
Week 7	Update FA-H Packet and submit to SoM for approval	Workshop 13 Review Open Items, FA-I1 FA-I SoM Feedback	Update FA-I and submit to SoM for approval	Workshop 14 Review Open Items, Continue FA-J2	Update FA-J and submit to SoM for review
Week 8	FA-H Sign off Due	FA-J SoM Feedback	Update FA-J and submit to SoM for approval FA-I Sign off Due		
Week 9			FA-J Sign off Due		

Lochbridge structured the requirements elicitation process in a way which will streamline the activities, making the best use of SME and Solution/Business Process Lead time. This structure will also allow Lochbridge to deliver requirements to the development and quality assurance teams early, allowing development work to begin early and provide a consistent flow of information.

- Mondays will be dedicated for the BA to prepare Functional Area (FA) Packages and Agenda for future Gap/Fit Workshops.
- Tuesdays and Thursdays will be dedicated to the facilitation of the Gap/Fit Workshops. Each Gap/Fit Workshop will begin with open items from previous Gap/Fit Workshops before new Functional Areas are discussed. Functional Areas may be pulled forward or pushed to the next Gap/Fit Workshop based on length of time required for each discussion. A schedule of workshops will be provided during the Workshop Kickoff meeting so that the SOM can plan to have the appropriate SMEs and decision makers attend each functional area. Any adjustments to the schedule will be approved by SOM to help ensure the appropriate SMEs and decision makers are available. Lochbridge will provide the appropriate Gap/Fit Review Package to the SMEs one week prior to the workshop to provide the opportunity to prepare for the workshop.

- Wednesdays and Fridays are dedicated for the Solution/Business Process Lead to update the Functional Area Packages and prepare for future Workshops.
- Gap/Fit Review Packages will be updated and submitted to the SOM for review by the close of business following the last workshop for each functional area.
- The State will have two days to review the updated package and provide feedback. Lochbridge will incorporate the feedback and submit the updated Gap/Fit Review Packages for approval by close of business the day after feedback is received.
- If, after 3 rounds of review, feedback, revision, submittal, the SOM does not feel they can sign-off on a particular Workshop Package, all work on that functional area will stop and the mutually agreed upon escalation procedure will be implemented.

Conducting the Gap/Fit Workshops in the order below will allow for the development team to get working quickly using the modified agile approach and reduce the amount of technical debt that is created as the project progresses.

Functional Area Schedule:

- A. High level explanation of Business Process (lifecycle) & Cosmetic Changes to 50 screens (1 Workshop)
- B. New Business Submit Paperwork (1 Workshop)
- C. Document Receipt and Processing (1-2 Workshops)
- D. View Rejected (1 Workshop)
- E. Renew Assumed Name/Name Registration/ LLP (1 Workshop)
- F. Annual Reports and Statements (1 Workshop)
- G. Order Documents and Certifications (1 Workshop)
- H. Submit Documents for Existing Businesses (2-3 workshops)
- I. Reports: 20 SSRS Reports (1 Workshop)
- J. External Interfaces (1-2 Workshops)

If additional screens/workshops/reports are necessary within the scope of the current requirements the State will not be charged additional fees.

#### **Updating Business Requirements Details**

Lochbridge will leverage the SUITE template (SEM-402) Requirements Specification to capture details regarding the business requirements as an output of the Requirements Validation/Application (Technical) Design Phase. Requirements will be validated in the Gap/Fit Workshops to help ensure the requirements are necessary, correct, unambiguous, complete, consistent, verifiable, modifiable, and traceable.

An example of the RTM is in Attachment A.2 Example RTM. The RTM requirement description will be updated as agreed upon by the entire team during this phase.

#### **Gap/Fit Analysis Report**

Lochbridge will summarize the results of the workshops into a detailed Gap/Fit Analysis Report structured to mirror the business process. The following information should be present in the analysis:

- Process Identifier
- Process Name: The process being analyzed
- Gap: Name of the process task
- Gap Analysis: Each gap is fully described and the shortcomings noted.
- Gap Resolution Strategy: The options for resolving the gap are described. They need to be of sufficient detail to be used by other migration team members who are responsible for resolving the gap. The implications of using each option are documented. This includes an estimate of the implementation effort (time and resources). From the options, the strategy for resolving the gap is selected and documented.

## Requirements Traceability Matrix (RTM) Creation

Lochbridge will leverage the SUITE template (SEM-0401) provided by the State of Michigan for the RTM. The RTM will be created as part of Initiation and Planning activities and will be updated as requirements are refined and gaps are addressed in the Gap/Fit Workshops. After the Gap/Fit Workshops and all the requirements have been validated, the requirements will be entered into Team Foundation Server (TFS) in order to link test cases associated with each requirement.

Below is an example of the requirements in TFS. The requirements in the TFS for this project will be customized to fit the needs of this project.

The screenshot shows a TFS requirement card. At the top, the requirement ID and title are displayed: "Requirement 7415: F02.02.00 - Include documents with certificates". Below this is a toolbar with icons for refresh, back, forward, and copy. A "Tags" section contains an "Add..." button. The requirement title "F02.02.00 - Include documents with certificates" is highlighted in blue. Below the title is a navigation bar with tabs: DESCRIPTION, ANALYSIS, STORYBOARDS, TEST CASES, OTHER, ALL LINKS (7), ATTACHMENTS, and HISTORY. The "DESCRIPTION" tab is active, showing a rich text editor with a toolbar (bold, italic, underline, link, unlink, list, list, indent, outdent, image) and the following text: "For the relevant document types, any certificates that are required to be generated after the document is filed (i.e. certificate of withdrawal) will be generated when the document is filed and will be scanned and included with the original document image."

During development, the RTM will be updated in TFS to reflect the program module associated with each requirement. The RTM is a living document that will change during the development life cycle and will trace each requirement from the goals and objectives through the development and implementation of the application.

## Ongoing Project Updates – Project Status Report and Project Schedule

The Lochbridge Solution/Business Process Lead will provide updates against the Requirements Validation/Application (Technical) Design Phase to the Lochbridge Project Manager on a weekly basis who will update the Project Status Report and Project Schedule, as appropriate, on a timely basis.

## State & Contractor Roles

It is important for Lochbridge to have on-site access to State stakeholders with the authority and ability to provide information pertaining to the system being enhanced, and to make pertinent and timely decisions regarding the requirements, and prioritization thereof. Working closely with stakeholders creates a collaborative atmosphere and will allow Lochbridge to review the requirements, produce a prototype which reflects the understanding, get feedback from the stakeholders, and then update the solution to reflect the improved understanding.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section.

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State of Michigan SMEs	<ul style="list-style-type: none"><li>Participate in requirements validation/Gap/Fit Workshops</li></ul>

	<ul style="list-style-type: none"> <li>• Review the Gap/Fit Review Package prior to the actual session</li> <li>• Understand the business and requirements and determine that the design fulfills those requirements</li> <li>• Prioritize requirements</li> <li>• Make pertinent and timely decisions regarding the requirements</li> <li>• Follow up on action items resulting from the Gap/Fit Workshops in the agreed upon time frame.</li> <li>• Provide timely feedback on Gap/Fit Workshop package materials</li> <li>• Responsible for scheduling State facilities for requirements validation/Gap/Fit Workshops</li> </ul>
State of Michigan Decision Maker	<ul style="list-style-type: none"> <li>• Participate in Gap/Fit Workshops for area(s) of expertise</li> <li>• Make business decisions</li> <li>• Approve Final Gap/Fit Review Package</li> </ul>
State Project Manager	<ul style="list-style-type: none"> <li>• Schedule appropriate people (i.e., functional and technical expertise) to the various workshops</li> <li>• Provide State facilities for requirements validation/Gap/Fit Workshops</li> </ul>
<b>Lochbridge Responsibility</b>	
Solution/Business Process Lead	<ul style="list-style-type: none"> <li>• Facilitate requirements validation/Gap/Fit Workshops</li> <li>• Analyze requirements to determine the system needs to fulfill those requirements</li> <li>• Help ensure system addresses the State's business requirements and enforces rules</li> <li>• Understand the business and make recommendations for improvement</li> <li>• Document results of requirements validation/Gap/Fit Workshops including final Gap/Fit documentation, draft Test Cases, RTM, and Requirements Specification Document.</li> </ul>
Technical Lead	<ul style="list-style-type: none"> <li>• Participate in requirements validation/Gap/Fit Workshops</li> <li>• Manage the physical design of the system and all its component parts.</li> <li>• Manage the development and transition of the complete system.</li> <li>• Assist with the creation and maintenance of the Gap/Fit Review Package.</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>• Provide overall calendar view of Requirements Validation/Gap/Fit Workshop timings</li> <li>• Assist in the detailed scheduling of various sessions</li> <li>• Ensure appropriate distribution/storage of pre and post session materials</li> <li>• Review all final deliverables prior to formally submitting for approval</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Final Gap/Fit Review Package	<p>The Final Gap/Fit Review Package will:</p> <p>Include the business requirements, business process flows, and technical specifications associated with the functional area including a prototype, report/data extract designs, and a data model along with explanatory and reference material as necessary.</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Be available by close of business the next business day after the workshop for review by the State</p> <p>Address all State corrections/comments/feedback appropriately</p>

Gap/Fit Analysis Report	<p>The Gap/Fit Analysis Report will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Be in a format agreed upon by the State of Michigan</p> <p>Be available 2 weeks after the final workshop for review by the State</p> <p>Address all State corrections/comments/feedback appropriately</p>
Detailed Requirements Specifications	<p>The Detailed Requirements Specifications document will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (SEM-0402)</p> <p>Be available 2 weeks after the final workshop for review by the State</p> <p>Address all State corrections/comments/feedback appropriately</p>
Requirements Traceability Matrix (RTM)	<p>The RTM will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (SEM-0401)</p> <p>Address all State corrections/comments/feedback appropriately</p>
Business Process Flows	<p>Business Workflows will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Include both “as is” and “to be” processes</p> <p>Include the business purpose, user steps, actors and escalation rules</p> <p>Address all State corrections/comments/feedback appropriately</p>
Draft test case(s) (SEM-0606)	<p>Test cases will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (SEM-0606)</p> <p>Address all State corrections/comments/feedback appropriately</p> <p>Be included along with the Final Gap/Fit Review Package for approval after each workshop.</p>
Structured Walkthrough (SEM-0187)	<p>At the end of the Requirements/Design Phase, a structured walkthrough will be conducted to review the deliverables.</p>

B. Technical Requirements

- a. Technical Architecture Plan
- b. Technical Design Plan
- c. Comply with eMichigan Standards
- d. Data Conversion
- e. Data Migration
- f. Image Migration
- g. Application Configuration
- h. Application Customization based on Gap Fit Analysis
- i. Third-Party Integration
- j. Interfaces

- i. CEPAS – Payment Processing
- ii. C3
- iii. Scanning/faxing tool

### **Approach**

As outlined in SOW Section A – Business Requirements Validation and Verification above, Lochbridge will utilize a modified agile approach to requirements, application design, development, testing, and implementation for the COFS application. Lochbridge's Application (Technical) Design approach is tightly integrated with the validation and verification of business requirements. The Lochbridge Technical Lead will develop preliminary design documents during the Initiation and Planning phase. Lochbridge will conduct Gap/Fit Workshops for each of the ten (10) organized functional areas (A-J - as defined in SOW Section A - Business Requirements section of this response), of which each functional area will be composed of a set of related functionality

During the Initiation and Planning for requirements and design activities, the Lochbridge Technical Lead will leverage the Functional and Technical requirements and software code provided to create the following set of technical information for the Gap/Fit packages:

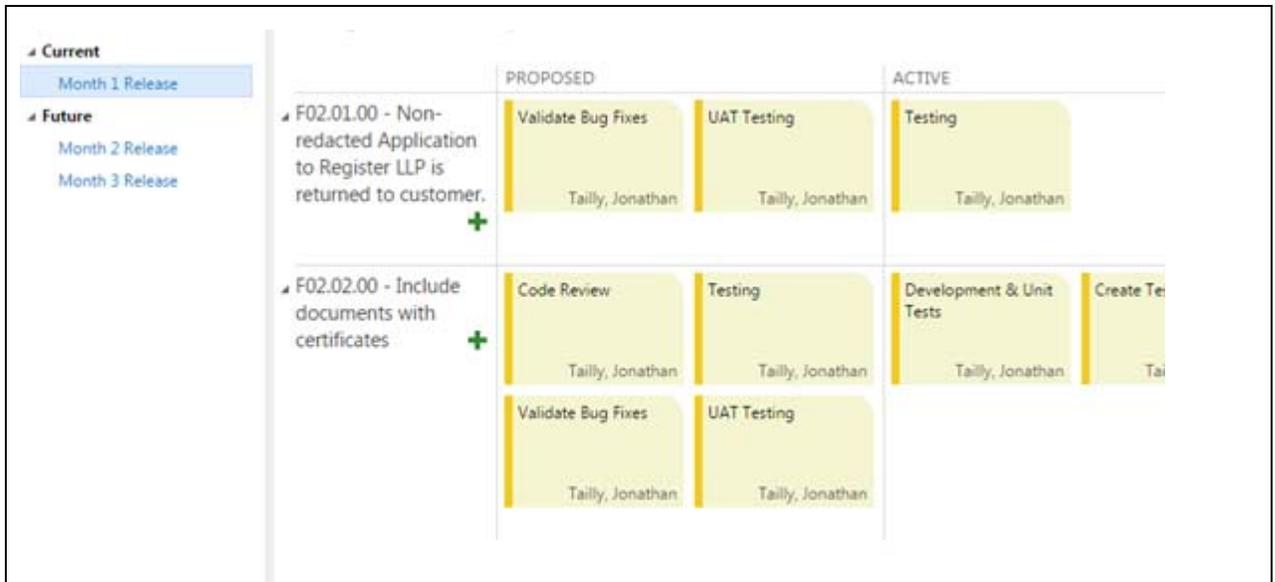
- a) Preliminary functional specification documents that will be used as an advanced starting point for the workshops.
- b) An overall design for the functional area, including any related database objects
- c) Screen/report prototypes
- d) Any special technical requirements that relate to the specific functional area of the workshop(s)
- e) Process flows

The technical outputs of the workshop(s) are a set of updated technical documents:

- Updated database models reflecting decisions made in the workshops
- Updated Screen and Report designs
- Enterprise Architecture Solution Assessment (EASA)
- Updated Functional Specifications/Requirements
- A set of test cases for the Functional Area

Requirements will be entered into TFS for traceability purposes. A "Development" task will be created under each requirement to track the progress on each task. When defects are created in TFS, they will be linked to the requirements which the developer can track under the same requirement their development task is created.

Below is an example of tasks created for each requirement. The tasks for this project will be customized to fit the needs of this project:



During the Application (Technical) Design Phase the Lochbridge Technical Lead will use the standard database design methodology to produce a physical database design, assessing data elements and candidate keys and progressing through third normal form.

While the initial physical database design is produced during the initial planning for requirements and design activities, it is subsequently refined by the Lochbridge Technical Lead via their participation in each workshop, by incorporating any changes to the overall design and data model. Therefore, at the end of the Application (Technical) Design phase, the result is a full physical data model that incorporates the requirements from each functional area.

Due to the vast amount of knowledge available from the State's requirements and the software code, Lochbridge can accomplish a significant amount of "pre-work," even before interfacing with State SMEs in the workshop(s). This will allow Lochbridge to provide the Gap/Fit Workshop package and initial design (prototype) prior to the workshops for CSCL SME review.

Based upon Lochbridge's experience, leveraging the functional requirements, technical requirements, and code during the Initiation and Planning phase to develop a pre-workshop packet results in efficiencies gained in the actual workshops, because the workshops will focus on design review and modification, rather than "design creation."

Additional efficiencies are realized by utilizing State Subject Matter Expert availability/time in conducting both business requirements validation/verification and application design activities in the same workshops, rather than holding separate sessions for each, as in a traditional waterfall approach.

#### **Technical Design Document Creation**

Lochbridge will utilize the State's SUITE templates (Functional and System Design Document-SEM-00501-0604 and System Design Checklist -SEM-0605) for the technical design documentation. The Technical Design Document will be an overview of the application design and architecture to be employed on the COFS solution and will contain the following items:

#### **Technical Architecture Plan**

During the Application(Technical) Design Phase, the Lochbridge Technical Lead will create a fully defined Technical Architecture Plan that will define each of the layers and fully document the functions that each of the layers will perform. During the Development Phase, the Technical Lead will help ensure that each piece of code is written in the correct layer. At a minimum, the Technical Architecture Plan will include the following information:

- Project Purpose, Scope and Objectives
- Assumptions and Constraints
- Project Deliverables

- Organizational Structure
- External Interfaces
- Roles and Responsibilities

### **Technical Design Plan**

The Lochbridge Technical Lead will be responsible for designing and documenting new functionality into the COFS application based on existing standards in the current system. The Technical Lead will also help ensure that the application design conforms to the State of Michigan's Enterprise IT Policies and Standards. At a minimum, the Technical Design Plan will include the following:

- **Page/Screen Layout Standards**

Lochbridge has reviewed the State's Look and Feel standards documentation, and will strive to comply with these standards.

- **Usability**

Lochbridge recommends that the usability review with DTMB User Experience/Quality Assurance Team occur during the Initiation and Planning Phase on the base application before any new development is introduced into the application. The usability review should result in recommendations in the areas of responsive design, usability and formatting, application security, Accessibility and ADA compliance.

The Lochbridge Technical Lead and Tester will work with the Lochbridge developers to implement the mutually agreed upon recommendations to the base application. Going forward these recommendations will be implemented in all code changes and enhancements and will become an integral part of UAT.

- **Security Considerations**

Lochbridge will create security architecture for the COFS application to document the approach for addressing all security considerations of the resulting solution. This document will outline the security plan for the application including the transfer of data between the application and any other system (C3, CEPAS, Kofax, VB6, etc.).

- **Network Deployment Diagram**

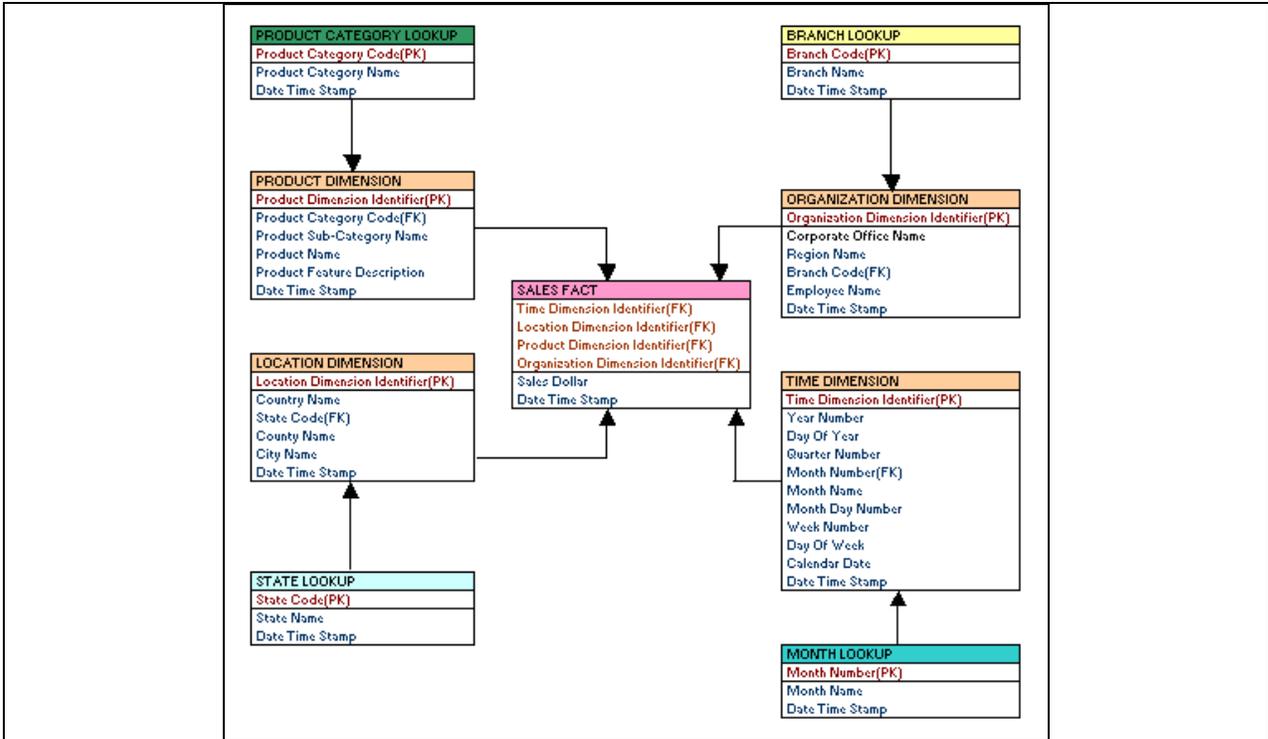
As part of Application (Technical) Design phase, Lochbridge will fully describe the Network Deployment.

- **Data Design**

During the initial planning for requirements and design activities, the Lochbridge Technical Lead will produce a preliminary data model using the current COFS data model and the functional requirements provided as part of the Contract.

As each functional area is addressed in the Gap/Fit Workshops, the COFS data model will be revised and enhanced to incorporate decisions made in the workshops. Lochbridge will also include additional options based on the knowledge of the domain data to help ensure future needs can be readily addressed as well. The Lochbridge Technical Lead will participate in each workshop and be responsible for the overall design and the incorporation of change(s) to the data model.

Standard data models of the type shown below (note: this is a generic example only) will be designed during this phase. This design will be accompanied by descriptive text for each entity.



- **Program Specifications**

During the Application (Technical) Design phase, the Lochbridge Technical Lead will compile any specifications that will be helpful for the development or maintenance teams. Diagrams and flow charts will be utilized to design the flow of the COFS application and how each page interacts with both the database and other pages.

**eMichigan Standards**

Lochbridge has reviewed and will comply with the State’s eMichigan standards provided in this Contract. Lochbridge will incorporate these standards into the COFS application as they apply to page layout, usability and formatting, security, and accessibility.

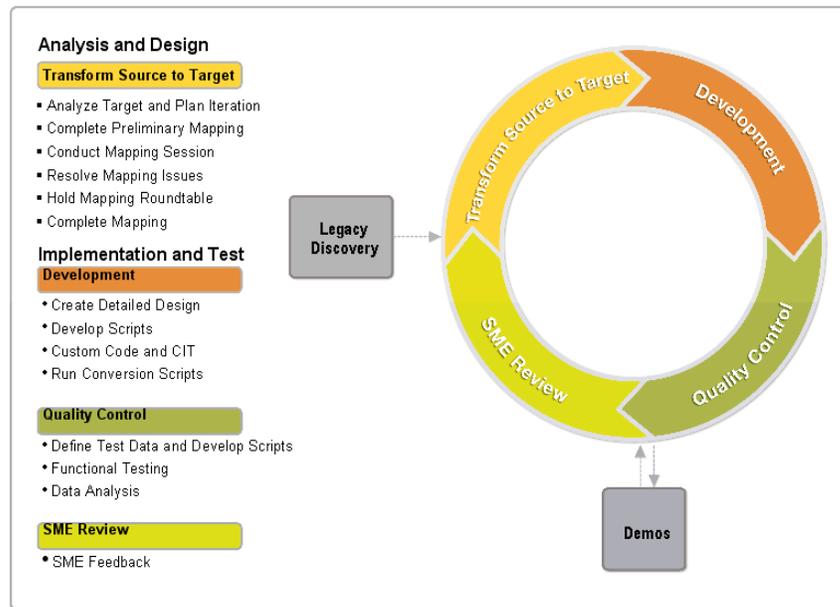
**Data Conversion/Migration**

Lochbridge will utilize the State of Michigan’s Suite Methodology Conversion document (SEM –0601) to develop a plan to convert the appropriate data for the COFS application. As part of the Application (Technical) Design Phase, Lochbridge will identify the conversion requirements for each table and data element in the Conversion Requirements Document. During the development phase the Lochbridge Technical Lead will work with the Lochbridge Tester to continually update the conversion documents to accurately depict any changes that have been made.

The graphic below depicts the standard Lochbridge data conversion methodology. However, Lochbridge will work with the State to determine the most efficient and appropriate way to migrate the data into the new COFS application database structure and build scripts, programs or batch jobs to facilitate the data migration. If tailoring of this approach is needed to map to SUITE, the Lochbridge Technical Lead will work with the State Data Migration Coordinator to help ensure compliance with State standards.

# Data Conversion Iterations

Reduce Risk By Continuous Collaboration with Application Development



## Data Conversion Iterations

Lochbridge's data conversion and migration approach begins with the analysis of existing data. The identification and analysis activities continue throughout the conversion iterations as a part of the data mapping activity. During each step of the conversion process, both State and Lochbridge resources will review the data mapping, conversion, cleansing approach, and the final converted data.

During Quality Control, all conversion scripts, programs and jobs are tested before the final production conversion, as well as load tested to help ensure that the final conversion will run in a timely and efficient manner.

It is Lochbridge's experience that this iterative data conversion methodology, helps to ensure the quality of the data conversion to be significantly better than traditional approaches due to the integration with the development process.

- **Conversion Requirements Definition**

The Lochbridge Technical Lead and Developer(s) will utilize the outputs/information from the Gap/Fit Workshops to capture conversion requirements for the COFS application. These initial conversion requirements will act as input into Lochbridge's Conversion Analysis and Design phase (noted in graphic above) and described in the Conversion Design process below.

- **Conversion Design**

Conversion Design involves three (3) major stages: Identification, Analysis and Mapping

- Identification: During the identification stage, all data sources of interest are collected and identified.
- Analysis: During the Analysis stage, the identified data sources will be studied and analyzed to determine their relationship to one another and what rules govern valid transactions.
- Mapping: The Mapping stage accepts the output of the Identification and Analysis Stages to create a mapping matrix that includes rules that must be followed in order to convert source data to the target COFS application.

- **Data Mapping**

The Mappings stage involves the activities of mapping data, determining source disposition, documenting

the results, identifying and resolving data mapping issues, refining the mapping process, identifying risks, and resolving issues.

- **Conversion Program Design**

The Lochbridge Technical Lead will create the detailed mapping specifications, data transformation rules and conversion script specifications based upon the information gathered and refined during the Conversion Design stages. In addition, the Lochbridge Technical Lead will consider several challenges of any data conversion effort:

**Data cleansing:** The Lochbridge Technical Lead will work with the appropriate State SMEs to determine the appropriate approach to cleansing of the existing data, which may involve manual and/or automated means.

**Data mapping and transformation:** The Lochbridge Technical Lead will work with the appropriate State SMES to analyze and understand the coding mechanisms in place in the original system(s) and translate them to the new COFS application database. Valid entries and business rules for each data element will be defined, while paying close attention to changes in business process that the new COFS application may bring.

- **Conversion Development**

During the Application Development Phase, the Lochbridge Technical Lead and Lochbridge Developer(s) will utilize the conversion specifications and data transformation rules to develop the conversion scripts, software, reports, and any batch jobs required for the COFS application data conversion.

- **Conversion Testing**

Once the conversion code is complete, unit tested and reviewed, it will be system tested. During the conversion system testing, the conversion code and procedures will be ran and tested using the real source data and the target COFS application database. During conversion testing, the conversion requirements assumptions are proven; the conversion procedures are refined; conversion validation criteria is tested and refined; the identified defects and issues are corrected; improvements in operational support procedures and the conversion platform are identified and implemented.

#### **Extract, Transformation and Load**

The Lochbridge Development Team and Tester will iteratively exercise the conversion processes (mapping rules, conversion scripts, software/code, batch jobs, etc.) to produce production-like outputs for review within the COFS application and/or its database. The COFS application will be used to view and process converted data in various test environments, confirming the capabilities and quality of both the conversion and the application. The Lochbridge Technical Lead and tester will use SQL Server queries to perform comparisons of the data sources.

As the conversion artifacts are exercised, the Lochbridge Development Team and Lochbridge Tester will monitor, gather and document important conversion information such as: run times, disk space and other resource usage. Where needed, optimization and tuning will be performed to determine that the production conversions are efficient and timely. The source and target data are warehoused after each significant conversion test to allow issue resolution and comparison of conversions.

- **Conversion Review and Verification**

#### **SME Review**

After the Lochbridge Development Team and Lochbridge Tester have completed System Testing of the Conversion process and artifacts, the appropriate State SMEs will conduct a review of the converted data. The SME review activity will provide an opportunity to verify that the target database is being populated completely and accurately with the appropriate source data. The COFS application will be used by the State SMEs to view and process converted data in various test environments, to confirm resulting quality, quantity and use of both the converted data and the system functionality.

#### **Conversion UAT**

A User Acceptance Test (UAT) of the conversion process will be used to demonstrate the

functionality, accuracy, completeness, and integrity of the conversion process for the COFS application. UAT of the conversion artifacts will verify that the extraction programs, SQL-loader scripts, tables and the data cleansing procedures function as specified. Conversion UAT will also:

- Test the functionality of the user interface developed for manual data entry
- Verify that the COFS application processes and programs are functioning properly with the converted data
- Verify that the conversion process can be balanced and reconciled
- Help ensure that all data included in the Contract requirements is successfully converted via the conversion process.

The Lochbridge Tester will work with the Lochbridge Technical Lead to determine the appropriate scheduling and timing for Conversion UAT in the planning phases of the project and will document the cadence, roles and schedule in the Test Plan.

- **Conversion Implementation Execution**

Lochbridge will create the Conversion Implementation Plan during the conversion development and testing activities. The conversion implementation plan will be finalized and proven during the data conversion used to build the data conversion UAT databases. The process of conducting conversion implementation will involve:

- Cleansing and purging data.
- Converting the data.
- Certifying the converted data.
- Supporting the conversion.

- **Convert Data for Implementation**

Lochbridge will execute the Conversion Implementation Plan to follow the same approach/procedures that were tested and proven during the data conversion and review activities, namely:

- Data Cleansing and/or purging;
- Data Conversion (Extract, Transformation and Load);
- Data Certification/ Review by the Lochbridge Team;
- Providing post-conversion support.

- **Production Validation**

Lochbridge will provide support to the State SMEs in the final validation of the converted COFS application data. Scheduling and resource identification will be confirmed in the Conversion Implementation Plan

- **Conversion Phase Completion**

Lochbridge will complete all conversion activities prior to the actual “go-live” date of the COFS application, to help ensure the data is ready for use in the new system.

**Error Correction**

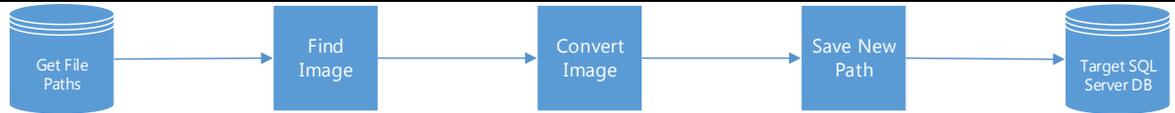
Lochbridge will correct all errors, unless specifically agreed to in writing by the DTMB Project Manager, before “go-live.”

**Image Migration**

Assumption:

It is expected that there is not any image conversion/transformation expected as a part of the conversion of documents from legacy to new COFS system. All current images are in TIFF format. MA system generates and uses PDF images. The State believes the application can be modified/updated to use TIFF images along with PDF images or convert from TIFF to PDF when those images are accessed.

Lochbridge will explore this solution further with the State. Already, Lochbridge has been exploring the do-ability of converting from TIFF to PDF including testing the process below:



The image paths could be extracted from the Oracle database and a Python script written to convert the images from TIFF to PDF. ImageMagick then used to convert the images and the new path saved to the new SQL Server database.

A proof of concept was built to test the performance of the solution and Lochbridge found that their solution could convert between 1 to 4MB of TIFF per second depending on the image size for 3.5GB to 14 GB per hour. Lochbridge initial estimates showed that the full conversion might take between 75 and 300 hours. The image conversion may be started in the early phase of the project and executed in batch until completed. Lochbridge made some assumptions but feel that additional discussions would be of benefit to determine the pros and cons of 1) converting everything or 2) modifying the application to use TIFF images along with PDF images or convert from TIFF to PDF when those images are accessed. In essence, Lochbridge can support the State's direction of modifying the application but also want to work together to explore any other possible solutions at no additional cost to the State.

**Application Configuration**

Lochbridge will implement all the requirements requiring application configuration changes. Lochbridge will provide changes to the configuration file and database as part of each build in the installation plan. Application configuration will include:

- Roles and level of access for each role  
Lochbridge will document all roles and functions and create a matrix to indicate which functions apply to which roles and the appropriate access level. Below is an example of the matrix. The matrix for this project will be customized to fit the needs of this project:

**Role: User 1**

Users with this role will have the following access rights for functions types assigned:

Functions	Access Level
Function A	Add/Modify/Delete
Function B	Add/Modify/Delete
Function C	View Only
Function D	View Only

- Working Hours for Quality of Service
- URI of services and third-parties
- Configuration strings for databases  
The database changes will be provided in SQL scripts which will be run manually on the database. Database scripts are run manually to validate that they are executed successfully. Incremental changes will be provided with each build, but a master set of changes will be provided when the application will be deployed in production.

File changes will be provided in the build itself so no manual work is required for those.

**Application Customization based on Gap/fit Analysis**

During the Initiation and Planning for requirements and design activities, the Lochbridge Technical Lead will leverage the Functional and Technical requirements and software code provided to create the following set of technical information for the Gap/Fit Workshop(s):

- a) Preliminary functional specification documents that will be used as an advanced starting point for the workshops.
- b) An overall design for the functional area, including any related database objects

- c) Screen/report prototypes
- d) Any special technical requirements that relate to the specific functional area of the workshop(s)
- e) Process flows

The technical outputs of the workshop(s) are a set of updated technical documents:

- Updated database models reflecting decisions made in the workshops
- Updated Screen and Report designs
- Enterprise Architecture Solution Assessment (EASA)
- Updated Functional Specifications/Requirements
- A set of test cases for the Functional Area

The Technical Lead will design/development the COFS enhancements using the information from the updated RTM, process flows, and Gap/Fit Analysis report

### **Third-Party Integration**

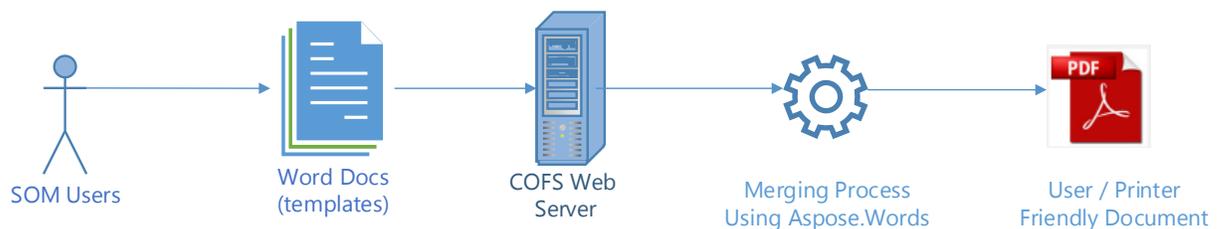
The application will use the existing COFS Third-Party components:

- ABCPDF.Net Pro, version 8
- PixTools v 7.5
- ASP Encrypt v2.3
- Crystal Reports Runtime was required when the State of Michigan compiled the application, however, it is not used for reporting within the application. It is currently unclear on what Crystal Reports Runtime is needed for.

Changes to the existing third-parties components are not expected within the requirements. To create templates and merge the templates with database data, the application will use a templating and mail merge component.

- **Template and Mail Merge Approach**

For the templates and mail-merge, the application will use Word documents using mail-merge fields. The merge with data will be done programmatically using a third-party component called Aspose.Words. Using this method, any user with Word knowledge will be able to modify the templates. Aspose.Words includes the capability of transforming Word documents into PDFs so the user will get a user-friendly document from the resulting operation. These PDF's could also be stored in the system as-is and be used as images for documentation purposes.



### **Interfaces**

Lochbridge will analyze the current integration processes and the functional requirements to produce a System Integration Plan.

Each of the systems may require a different manner of interfacing with their data. Lochbridge will do an assessment

of each and determine the most appropriate manner of integration. The manner of integration will depend on a few factors such as:

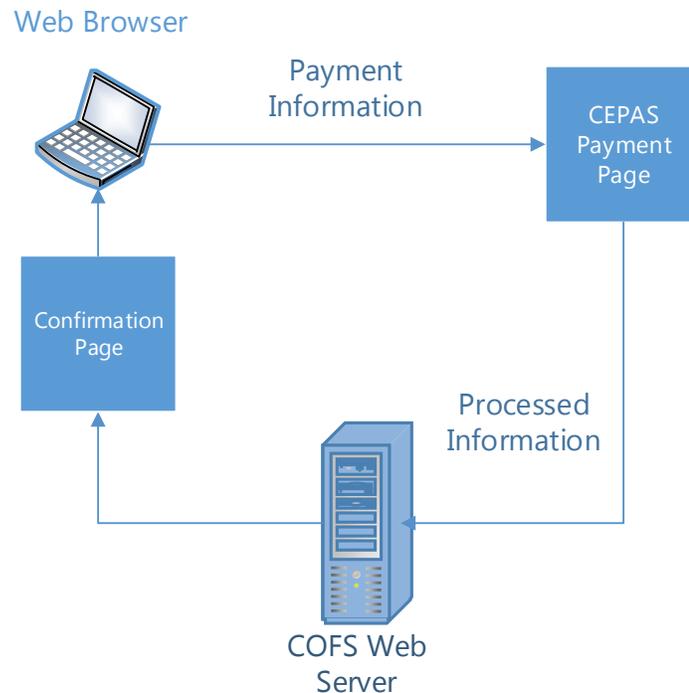
- Level of access provided to the system;
- Security requirements for the data; and
- Potential to re-utilize existing interfaces.

The System Integration Plan will contain technical information and details regarding how each of the integrations will be accomplished, as well as data contracts specifying how each system will communicate.

- **CEPAS – PayPoint - Payment Processing**

The Payment Processing interface will use CEPAS which is an external system to COFS. The application redirects to the payment pages for both a credit card transaction or to use an Account on file.

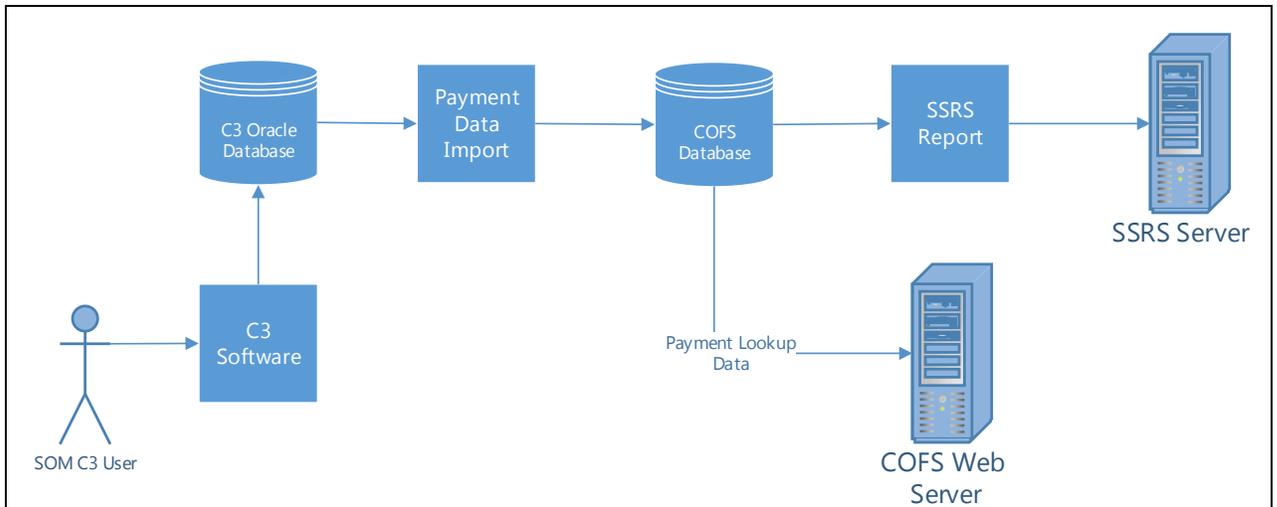
This type of credit card integration requires the application to redirect to the payment processor page and pass the required information (amount, payment type, etc.). Once the payment is processed, the payment processor sends a request to the back end system with the payment information to store in its database.



The State of Michigan existing credit card processor is PCI compliant and Lochbridge understands that the SOM/DTMB and Treasury teams have well documented procedures to assist Lochbridge in this integration.

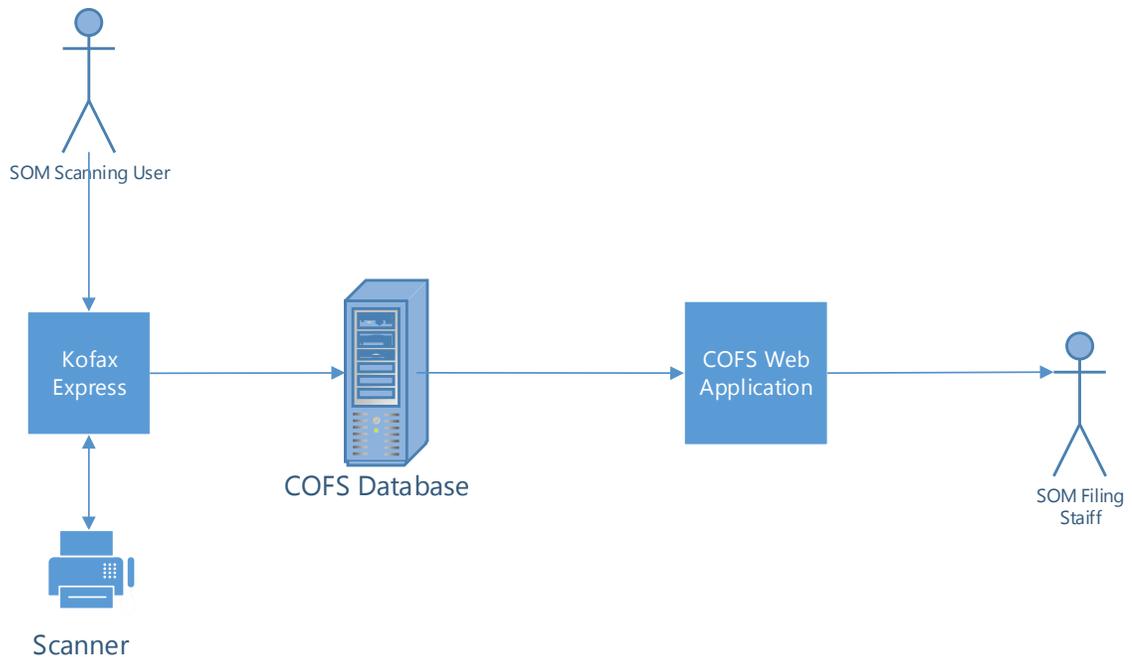
### **C3**

CIS Central Cashiering is a web-based database which uses Oracle Forms and Reports. Lochbridge will create a scheduled job that will pull information from the C3 database to the COFS database. Reports will be built from the imported data in the COFS database. The information will then be available in SSRS for users with appropriate access to view.



**Scanning/Faxing**

The MA solution has VB6 based rich-client application to perform the scanning and indexing. The same application connects to the database and makes the required entries. This functionality must be updated to interface with Kofax and to utilize supported technology. The State of Michigan will use Kofax Express to add scanning capability to the application. The State of Michigan will install and configure Kofax Express so that it is functional with the State's scanning devices. Lochbridge will provide the configuration to save the information in the correct COFS database tables. The understanding of the process is that a user uses Kofax Express which transforms the Scanning data into the database for filing information. The data will then be stored into the COFS database as well as the image itself. The user will then be able to validate that the imported data is correct.



**Updated Requirements Traceability Matrix (RTM)**

During the Application Development Phase the Lochbridge Technical Lead will help ensure that the Program Module

column is filled in for each item in the RTM. Lochbridge understands that RTM is the master list of items that will need to be developed and that development will not be considered complete until all the items on the RTM are completed and the RTM is updated.

**Ongoing Project Updates – Project Status Report and Project Schedule**

The Lochbridge Technical Lead will provide updates against the Application Development Phase to the Lochbridge Project Manager on a weekly basis who will update the Project Status Report and Project Schedule, as appropriate, on a timely basis

**State & Contractor Roles**

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources.

<b>Responsible Role</b>	<b>Responsibilities</b>
	<b><i>State Responsibility</i></b>
State of Michigan SMEs	<ul style="list-style-type: none"> <li>Provide support to the creation of Technical Requirements components</li> <li>Provide timely feedback on artifacts developed</li> <li>Provide support in facilitating system interfaces/integration discussions and development with CEPAS, C3 and the Scanning/faxing tool</li> <li>Approve updates to Technical Requirements Components</li> <li>Approve update to RTM</li> </ul>
State of Michigan Project Manager	<ul style="list-style-type: none"> <li>Identify and provide resources to provide insight and assistance in the development of technical artifacts (i.e., design, security, conversion, interfaces)</li> <li>Coordinate Usability Review(s)</li> </ul>
Data Migration Coordinator with a DBA profile	<ul style="list-style-type: none"> <li>Review and approve database migration process</li> <li>Provide database definitions</li> <li>Provide database accesses</li> <li>Facilitate database operations</li> </ul>
	<b><i>Lochbridge Responsibility</i></b>
Technical Lead	<ul style="list-style-type: none"> <li>Lead development team in coding of application and interfaces.</li> <li>Build and manage creation of database</li> <li>Review completed code and uphold “look and Feel” standards.</li> <li>Work with development team to perform unit testing</li> <li>Update Technical Design Document</li> <li>Updates the Screen and Report Layout Design Document</li> </ul>
Solution/Business Process Lead	<ul style="list-style-type: none"> <li>Assist with creation of Technical Design Document</li> <li>Assist with updates to the Screen and Report Layout Design Document</li> <li>Facilitate any changes needed to update the RTM</li> </ul>
Tester	<ul style="list-style-type: none"> <li>Incorporate the Conversion and Migration Test Plan into the overarching COFS Test Plan</li> <li>Coordinate with State on questions and problems relating to conversion and migration test plan</li> <li>Create detailed scripts required to conduct the conversion and migration test, including expected results</li> <li>Identify the approach to help ensure data will not be lost in conversion</li> <li>Identify the test environment to be used and take steps to help ensure the test will not interfere with other testing</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>Provide overall schedule/timings of activities relating to this Phase</li> <li>Ensure appropriate distribution/storage of relevant deliverables/artifacts</li> <li>Review all final deliverables prior to formally submitting for approval</li> </ul>
Developer(s)	<ul style="list-style-type: none"> <li>Code application and Interfaces</li> <li>Perform unit tests on completed code.</li> </ul>

DBA	Develop the Data Conversion and Migration Strategy Identify the appropriate source of the data Provide final decision on automated or manual method for conversion Identify default values as appropriate Clarify data element definitions, record layouts, and file descriptions Fully participate in reviews of data mappings and converted data
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**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Software Development	Creation of software including development of interfaces will: Generate an application that passes unit testing and is ready for system and integration testing. Generate interfaces that pass unit testing and are ready for system and integration testing. Follow the "Look and Feel" standards that were documented in the Application (Technical) Design phase.
Technical Architecture Plan	The Technical Architecture Plan will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Include the following information: <ul style="list-style-type: none"> <li>○ Project Purpose, Scope and Objectives</li> <li>○ Assumptions and Constraints</li> <li>○ Project Deliverables</li> <li>○ Organizational Structure</li> <li>○ External Interfaces (i.e., System Integration Plan)</li> <li>○ Roles and Responsibilities</li> </ul> Address all State corrections/comments/feedback appropriately
Technical Design Plan (SEM-0501/0604)	The Technical Design Plan will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Include the following information: <ul style="list-style-type: none"> <li>○ Page/Screen Layout Standards</li> <li>○ Usability</li> <li>○ Security Considerations</li> <li>○ Network Deployment Diagram</li> <li>○ Data Design</li> <li>○ Program Specifications</li> </ul> Address all State corrections/comments/feedback appropriately
Project Plan	The project plan will be updated as necessary.
Requirements Traceability Matrix (SEM-0401)	The RTM (SEM-0401) will be updated with the design modules.
Security Plan (DTMB-0170)	The Security Plan will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Leverage the SUITE template provided by the State of Michigan (DTMB-0170) Include information regarding security roles, policies and standards, compliance, controls, etc. Drafted during the Initiation and Planning phase and finalized during the

	<p>Implementation phase. Address all State corrections/comments/feedback appropriately</p>
<p>Conversion Plan (SEM-0601)</p>	<p>The Conversion Plan will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Leverage the SUITE template provided by the State of Michigan (SEM-602) Detail the conversion design, including data mapping and cleansing. Drafted during the Requirements/Design phase and finalized during the Implementation phase. Address all State corrections/comments/feedback appropriately</p>
<p>Structured Walkthrough (SEM-0187)</p>	<p>Structured walkthroughs will be conducted to review appropriate deliverables</p>

C. Testing

- a. Integration
- b. Regression
- c. ADA Compliance
- d. User Acceptance

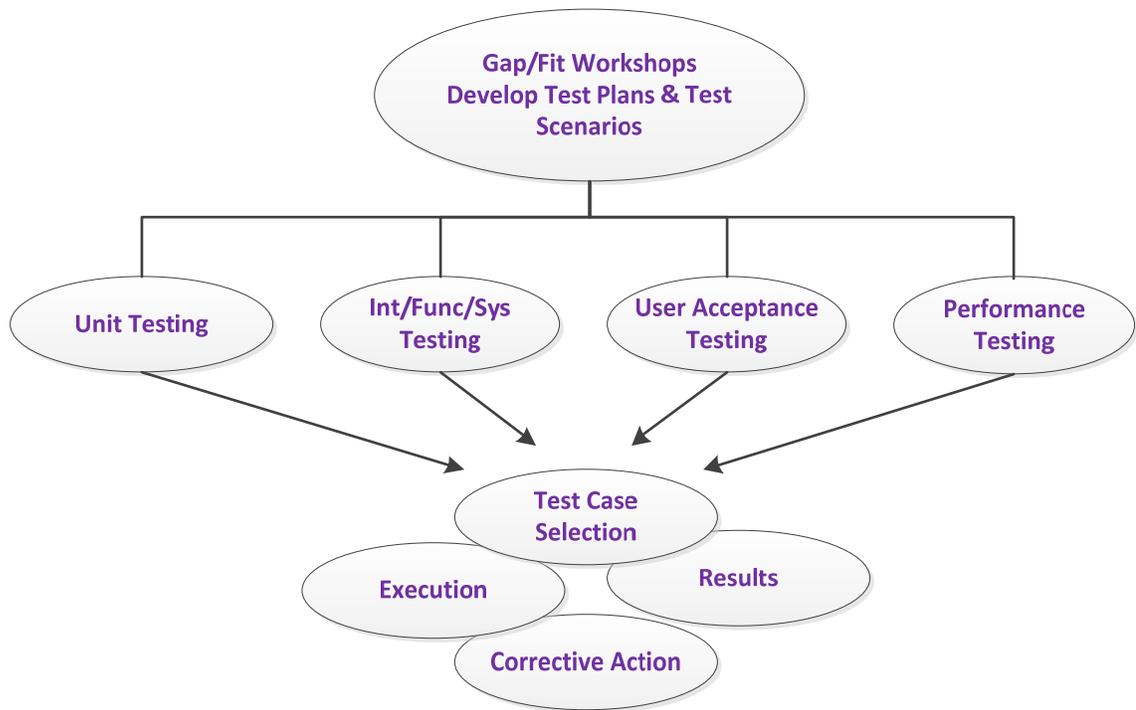
**Approach**

Lochbridge will provide a comprehensive software quality approach that aligns with critical customer quality priorities and the State's document *Testing Process Manual Version 1.0*. Lochbridge will incorporate SUITE Test methodologies, including the following templates:

- Test Plan (SEM-0602 or equivalent)
- Test Type Approach and Report (SEM-0603 or equivalent)
- Test Case (SEM-0606 or equivalent)
- Defect Tracking Log (SEM-0186 or equivalent)

Lochbridge provides broad experience, expertise, and process efficiencies required to fulfill the quality objectives of COFS. During the Test Phase, Lochbridge will apply, blend and manage Lochbridge resources, processes and technology to help ensure an appropriate level of quality in the resulting COFS. Lochbridge's approach will continuously test all aspects of the COFS for quality and correct system integration.

## COFS Testing Approach



Lochbridge is responsible for the creation of well-organized test cases, to fully support UAT sessions, in which the Lochbridge Tester will lead and work with the State SMEs during their UAT execution. The resulting COFS will encompass all tested requirements and validation of operational efficiencies to acceptable performance for all users.

Lochbridge will use the testing capabilities in TFS for unit, system integration, and UAT testing. This allows us to manage the testing process from test case development through defect management and provides continuous feedback on the operation of the latest version of COFS. This will help ensure the system is working as designed at the end of each development cycle before Lochbridge hands the environment over to State testers for UAT. TFS will allow the automation of test cases as well as manual test cases, if needed.

Unit, System Integration, Regression, and User Acceptance testing will occur frequently; code to be deployed for Lochbridge testing approximately, but no later than every 4 weeks.

A full User Acceptance Test is performed once all development and systems tests are complete. End to end test cases are executed by end users with Lochbridge support. This UAT timing/approach provides for key State resources to become familiar with the new solution and complements the training to be delivered shortly thereafter prior to go-live (following successful UAT completion).

### Test Plan and Test Schedule

The Lochbridge Tester will update the Test Plan and Test Schedule to document the strategy that will be used to verify and help ensure that the COFS meets its design specifications and requirements. Test coverage in the test plan will show the requirements that will be verified during what stages of the product life cycle, and will be derived from the COFS design specifications and requirements.

An example Test Plan is provided in Attachment A – A.3 Example Test Plan. A similar Test Plan document will be created during the Initiation and Planning Phase and updated (as appropriate) by the Lochbridge

Tester during the Test Phase.

**Test Cases/Scripts**

Test case development will begin during the Gap/Fit Workshops and will be refined during the Application Development and Test Phase(s). The test cases developed during these phase(s) will include both manual and automated test cases. The performance test scripts will be developed after the completion of the Unit, System Integration, and Functional Testing phases.

The Test cases will also document what will be executed during the CSCL testing effort(s). The test cases will be used to test the COFS application functions identified by the Test Plan, and will include interface testing scripts. The number and type of test cases created will be dictated by the Test Plan and the approved workshop documentation. A test case will identify the input values to be provided to the application, the procedures for applying those inputs, and the expected application values for the procedures being tested.

**Test Data**

The Lochbridge Tester will lead Lochbridge resources in creating, converting and/or loading test data into the appropriate testing environment(s), including any required via direct manipulation of database tables.

For UAT, Lochbridge and State SME's will identify the test data that will be required to be in the COFS system prior to executing Test Cases. The Lochbridge Tester will review data as loaded by the technical team to make sure it will meet anticipated testing requirements.

An advantageous option for test data is the ability to create "data rollback points", allowing test data to be restored to a specific point in time. The Lochbridge Tester will work with the Lochbridge technical team to determine the best practices for using SQL Server recovery models to accomplish this goal.

Since Performance/Stress Testing will require significant amounts of data to complete the effort, this will be a good candidate for either the use of "live data", and/or the creation of required data via direct manipulation of the system database.

Lochbridge staff has participated in many projects that make use of sensitive data, and if "live Production" data is required for any effort, Lochbridge will conform to SOM data security policies.

**Kick-off Meeting**

The Lochbridge Tester will schedule a kick off meeting with appropriate State staff, and the agenda will contain components of the Test Plan and Schedule of Testing phases. An example of a Testing kick-off meeting agenda is provided below. The agendas for this project will be customized to fit the needs of this project:

**Sample Testing Kick-Off Meeting Agenda**

Team Introductions	10 minutes	All
Testing Strategy Overview	15 minutes	Lochbridge Tester
Roles and Responsibilities	15 minutes	Lochbridge Tester
Test Case writing	15 minutes	Lochbridge Tester
Defect Tracking	15 minutes	Lochbridge Tester
Test Team Communication	15 minutes	Lochbridge Tester
Schedule and Milestones	15 minutes	Project Manager
Questions	20 minutes	All

**Unit Testing**

Unit testing is a method by which individual units of source code or modules are isolated and tested to

determine if they are correct. A component of Lochbridge's proven Agile development methodology is the utilization of test-driven development. Test-driven development is where developers first incorporate a unit test condition, then design and write code to support that test. Since test cases will be documented during the Gap/Fit Workshops, as each Developer begins to write code, they will already know the test conditions that must be passed.

Unit testing will be conducted throughout the development cycle. As modules are coded, peer review and build verification tests will be available to help ensure compliance with unit testing procedures. Unit testing will be aligned closely with the development schedule and the Test Plan will include the cadence for when testing will take place and the corrective action strategy to follow for defect resolution

TFS allows us to define a set of automated unit test cases to run post build. Unit test cases will be run by the development team prior to moving the code to the QA or test environment. Below is an example screen depicting test case setup in TFS. Screen depicting test case setup in TFS for this project will be customized to fit the needs of this project:

Test Case 2704: Organization - Edit - Validate mandatory fields required for associating Products

Organization - Edit - Validate mandatory fields required for associating Products

STATUS		CLASSIFICATION	
Assigned To	Sutherland, Shirley	Area	Fundraising Manager
State	Ready	Iteration	Fundraising Manager\Sprint 4
Priority	2		
Automation status	Automated		

Automated test name: FRM.TestAutomation.Scripts.OrganizationTests.TC2704\_OrganizationEditValidateMandatoryFieldsRequiredForAssociatingProductsTest

Automated test storage: frm.testautomation.dll

Automated test type: CodedUITest

Buttons: Save, Save and close, Cancel

### **Functional/System Integration Testing**

Lochbridge's approach for Functional/System Integration Testing is outlined as:

- Validate the functionality approved in the design phase.
- Determine that data is being handled correctly as user input, file transfer, and any automated processes.
- Utilize Test Cases/Scripts that reflect the business scenarios provided by the SMEs.
- Utilize unscripted testing activities (i.e., free-form or negative testing) to test alternative paths through the system and abnormal patterns of usage.
- Verify that the various system subcomponents pass data correctly, thus producing a properly operating system. If an error condition is encountered, display appropriate message to user.

- Verify test environment readiness; such that hardware, system software, and application software components are functioning properly, as are manual and automated system components.
- Where applicable, batch processes and reports will be validated, including daily, weekly, monthly, and quarterly cycles.
- Validate both functionality and system architecture: that the functionality in the design has been provided and that the various components of the architecture work in unison.
- Validate functionality against the design, exercise the application code, evaluate system performance and determine that the user workflow is supported.

Functional and System Integration testing will be performed by the Lochbridge Tester with assistance from the Solution/Business Process Lead. Below is an example of the test script in TFS. The test scripts in TFS for this project will be customized to fit the needs of this project:

The screenshot shows a TFS Test Case page with the following details:

- Title:** Organization - Edit - Validate mandatory fields required for associating Products
- STATUS:** Assigned To: Sutherland, Shirley; State: Ready; Priority: 2; Automation status: Automated
- CLASSIFICATION:** Area: Fundraising Manager; Iteration: Fundraising Manager\Sprint 4
- STEPS:**

Action	Expected result	Attachments
1. Log into application and click on Organization in the menu	Manage Organization page is displayed	
2. Edit an organization of type cold storage or distributor and expand the Products section	Section is expanded	
3. Click Associate Product button with out selecting a product	Error message displays specifying to select a contact for association	

**Regression Testing**

The objective of regression testing is to help ensure that changes (enhancements, fixes, configuration, etc.) have not introduced new issues/defects.

An initial regression test will be performed on all requirements specified in the 'Regression Testing' section of Schedule B Business and Technical Requirements document during the Initiation and Planning phase against the base application to validate that the application is performing as expected before any new development is introduced into the application.

Regression Testing will be executed periodically through the Testing phase. All regression test cases will be stored in the TFS tool. Automation of the regression test cases is dependent on the limitations of the TFS tool. Test cases that may not qualify for automation will be subjected to manual regression testing. A list of such test cases will be documented in the TFS test plan.

**Performance Testing**

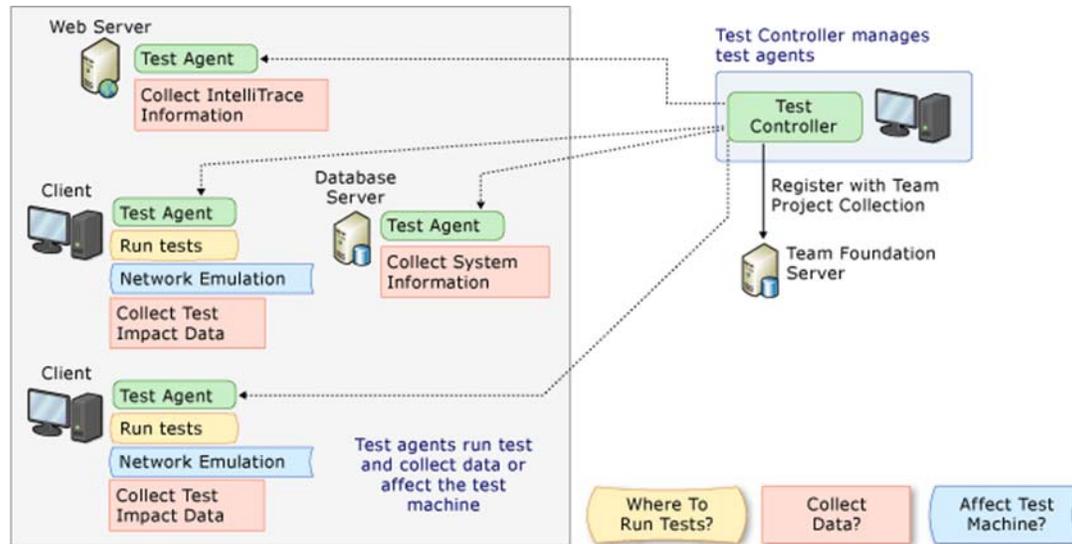
The objective of performance testing is to determine how the application performs in terms of responsiveness and stability under a particular workload. Load tests will be performed simulating a concurrent number of users performing a specific number of transactions with a set duration. All aspects of the application (database, application server, etc.) will be monitored to uncover any bottlenecks in the application software.

The following performance indicator levels will be defined in the Test Plan: CPU Utilization, memory consumption, user experience response time, throughput, and network latency. Lochbridge will work with the State to setup the appropriate environment to do this type of testing.

Baselines will be documented as part of the Performance Test Plan and typically include: Average (average expected volume), Peak (maximum expected volume), Double Peak and Endurance (average volume run for an extended period). The schedule of the Performance Test(s) (time and cadence) will be documented in the Test Plan.

A performance test report that includes current response rates per transaction type and scenario will be generated upon cycle completion and will include server parameters monitored for root cause analysis purposes. Lochbridge staff executing Performance and Stress testing will include all specific findings and recommendations to improve the COFS performance during these reporting cycles.

Visual Studio 2013 Ultimate will be used to conduct performance testing. The ideal test setup is to have multiple machines to create load on the web server as shown in the diagram below but a single machine can be also used. The test controller and test agent can be installed on the same machine. During the implementation of the performance testing, Lochbridge will discuss with the State of the appropriate setup with the available resources from the State.



The objective of UAT is to provide confidence that the delivered system meets the business requirements of both the sponsors and users. UAT determines that the requirements of the specification are met in the application. Each individual test case exercises a particular condition of the user's environment or feature of the system and will result in a pass or fail outcome.

The SOM UAT environment will be used to validate that all requirements and related system functions have been addressed properly. The project must have a high degree of confidence in the results obtained from testing in this environment, One approach to achieve the best results from UAT is to make the SOM UAT environment as close to production as possible.

Prior to the start of UAT, the Lochbridge Tester will validate that all users participating in the testing have login/password combinations that will successfully access the system. The Lochbridge Tester will also coordinate with the technical team administering the environment to establish data rollback procedures and schedule the reset of data to a baseline state for subsequent cycles of UAT testing.

Lochbridge will achieve UAT objectives through the following protocol:

**Identified State UAT Testers**

UAT will be performed by State end users (UAT Testers) selected by CSCL State staff to fully test and validate the newly created COFS system. State selection of staff is needed to determine size

and scope of forthcoming training from Lochbridge staff

Testing Readiness and UAT tester training material as needed for UAT

The Lochbridge Tester will work with the State SMEs to select UAT test cases from the documented test cases per Gap/Fit Workshop design documentation. The Lochbridge Tester will consult the State UAT testers in the creation of additional test scripts as determined by the State tester to use during UAT sessions.

UAT Training and assistance during UAT sessions

The Lochbridge Tester will provide UAT facilitation assistance during the UAT testing efforts. This will provide the State's UAT testers with "area experts", that will help the UAT testers proceed with the demands and requirements of the UAT process as it relates to common workflow, entry scenarios, expected outcomes and defect tracking.

#### **UAT Test Environment Verification**

The Lochbridge Tester will prepare and execute a checklist to validate the UAT is ready for testing activities prior to the start of testing. The checklist will include the items listed below:

#### **Environment Verification Checklist**

Action	Completed	Date	Initials
Correct build of software is in place	√		
Server parameters as required	√		
Workstations are setup correctly	√		
System data is set as required to begin testing	√		
Users can execute successful login to system	√		
Users can navigate the screens of the system	√		
Data lookups can be performed	√		
Updates can be made to system	√		
Reports can be generated	√		
Interfaces are available and can be accessed through the system	√		

Test cases will be stored in the TFS tool. UAT test execution is performed by the State SMEs and will begin after system integration and regression testing have been completed.

Below is an example of a manual test case in TFS. The manual test cases in TFS for this project will be customized to fit the needs of this project:

## Test Cases 3717: Change colors on initial view

Tags [Add...](#)

### Change colors on initial view

STATUS		CLASSIFICATION	
Assigned To	Jamal Hartnett	Area	FabrikamFiber
State	Design	Iteration	FabrikamFiber\Release1\Spri...
Priority	2		
Automation status	Not Automated		

STEPS SUMMARY TESTED USER STORIES (1) ALL LINKS (2) ATTACHMENTS (1) ASSOCIATED AUTOMAT...

Action	Expected Result	Attachments
1. Open the home page for the web site	Home page is displayed	
2. Click settings icon	Settings page is displayed	
3. Change the default template to modern and click submit	The home page is displayed with the modern look see attached screenshot	<a href="#">homepagemodern.png (49K)</a>

[Click to type here to add a step](#)

In order for the UAT testing effort to proceed in an effective and orderly fashion, members of the State's UAT Team must be familiar with the COFS functionality as described in the System Design Specification and with the tools and procedures for test preparation and execution. The Lochbridge Tester will be responsible for making certain that all UAT team members have the required knowledge to execute testing.

For UAT, the Lochbridge Tester will provide training for State UAT testers on the testing tools and procedures, test preparation and execution through a series of presentations and on-the-job support / shadowing roles. Lochbridge will utilize Workshop materials to provide the State UAT testers with insight and clarification of the COFS functionality. It is important that State testers are fully versed in the COFS workflow, its detail and its processes. To help ensure this risk is minimized or eliminated, Lochbridge recommends that the UAT testers are the same State resources who participated in the workshops.

In addition, the Lochbridge Solution/Business Process Lead and Technical Lead will be available throughout the UAT phase to answer general questions related COFS processes and anticipated results. By doing so, Lochbridge will reduce any frustration that may arise as a result of the UAT testers not understanding basic workflow and system construct. At the same time, should any gaps be identified as legitimate concerns, they will be documented as such by Lochbridge staff.

### Defect Log/Tool

Proper management of issues helps ensure the best possible resulting system. Therefore, Lochbridge recommends the use of TFS as the defect tracking and reporting mechanism to identify defects and prioritize the manner in which they shall be addressed. Administration of the TFS defect tracking will be simple and straightforward, with a user interface that is easily accessible and intuitive for use by all project team members (State and Lochbridge). If it is decided by the State that TFS will not be used as the defect tracking and reporting mechanism, the open source Bugtracker application, hosted on the State's infrastructure may be used.

### Defect Management

Defects found during System Integration/Functional, Performance/Stress and User Acceptance Testing phases will be routed to Lochbridge for resolution. The Lochbridge Tester will be responsible for triage of defects found by the State SMEs during UAT, to determine the severity of the defect, enter or help enter the defect details, and assign the appropriate Lochbridge Developer to the defect. Key defect information will be tracked; in summary this information will include:

- Description, severity, priority, and status.
- Test Type and Test case where defect was found
- Requirements impacted by the defect
- Steps to re-create the defect
- Any attachments that can help clarify the defect

TFS will further provide a mechanism for being able to easily lookup information regarding entered defects, and a mechanism to generate reports.

### **Defect Definitions**

The following defect definitions and severity levels will be used by Lochbridge when communicating the severity of a system defect.

#### *Severity Level of Error 1 = Business Critical Failures*

- a) materially affects the operations of the State's business or marketability of its service or product;
- b) prevents necessary work from being done; or disables or materially impairs (i) any major function of the Software or
- c) the State's use of any major function of the software

#### *Severity Level of Error 2 = System Defect with Work-around*

- a) a Severity Level 1 Error for which the State has received, within the Resolution time for Severity Level 1 Errors, a work-around that the State has accepted in writing; or
- b) an Error, other than a Severity Level 1 Error, that affects operations of the State's business or marketability of its service or product.

#### *Severity Level of Error 3= Minor Error*

An isolated or minor Error in the Software that meets each of the following requirements:

- a) does not significantly affect Software functionality;
- b) can or does impair or disable only certain non-essential Software functions;
- c) does not materially affect the State's use of the Software; and
- d) has no or no more than a minuscule effect on the operations of the State's business or marketability of its service or product.

A Test Defect Summary report (see the Test Results/Reporting section below) will be made available and will show a comprehensive listing of all outstanding issues as found within each specific requirement.

Lochbridge confirms that the provision of defect fixes for any failed functionality stemming from the State-installed existing MA solution is in the scope of this Contract for up to 240 hours of development time at no additional cost. If the amount of time required for initial defect fixes exceeds the estimated 240 hours of development time, Lochbridge will work through the change control process with the SOM to address this without compromising the overall timeline.

### **Defect Correction**

Test Defect Correction is a fundamental component of the overall testing strategy and processes. Lochbridge defines defects as "any testing abnormality that results from the execution of the Test Case/Script". Lochbridge will manage incidents/defects to closure (fixed, retested, re-opened,

cancelled, etc.).

Corrective actions and defect resolution will apply to the Integration, Functional, System, Performance, and User Acceptance Testing efforts. Each specific defect will be corrected in the code of the testing phase in which it was found. The project defect tracking tool (e.g. TFS) will contain an archived work log/promotion history of defect resolution activities

### Defect Tracking

TFS will be used to record and report on defect activities encountered during UAT. This will help ensure that defects are tied to the appropriate test case and requirements. Below is an example of a defect associated with a test case in TFS. The defect associated with a test case in TFS for this project will be customized to fit the needs of this project:

Test Case 2704: Organization - Edit - Validate mandatory fields required for associating Products

Organization - Edit - Validate mandatory fields required for associating Products

**STATUS**

Assigned To: Sutherland, Shirley  
State: Ready  
Priority: 2  
Automation status: Automated

**CLASSIFICATION**

Area: Fundraising Manager  
Iteration: Fundraising Manager\Sprint 4

STEPS SUMMARY TESTED USER STORIES (1) ALL LINKS (2) ATTACHMENTS ASSOCIATED AUTOMATION

ID	Work Item...	Title	Assigned To	State	Comment
Shared Steps (1)					
2916	Bug	Edit Organizations - Incorrect message for Associate Product when no product is ...	Sjariel, Ber...	Closed	Created by...
Tests (1)					
1770	User Story	Associating products to an organization of Manufacturer type (FRMWA-3.13)	Tailly, Jona...	Closed	

Save Save and close Cancel

TFS provides the ability to describe the steps taken in order to re-create the defect as depicted below:

Bug 4353: Orders - There is no validation for mandatory fields when Adding a seller

Classification links defects to project and sprint it was found in

Defect linked to user story and test case

Orders - There is no validation for mandatory fields when Adding a seller

Assigned To: Yat Sin, Charles  
 State: Closed  
 Reason: Verified  
 Resolved Reason: Fixed

CLASSIFICATION  
 Area: Fundraising Manager  
 Iteration: Fundraising Manager/Sprint 7

PLANNING  
 Stack Rank: <None>  
 Priority: 2  
 Severity: 3 - Medium

REPRO STEPS SYSTEM INFO TEST CASES (1) HISTORY ALL LINKS (2) ATTACHMENTS

Orders - There is no validation for mandatory fields when Adding a seller

I click on Add seller button then on the Add to Order button. No error message is displayed.

we need messages for the mandatory fields and also for the brochure code which should be mandatory also

ID	Work Item...	Title
Parent (1)		
3590	User Story	Order Entry: allowing Group Leaders and Sellers creation(FRM
Tested By (1)		
4005	Test Case	Orders - Edit - Mandatory fields on Add Seller section

Save Save and close Cancel

### **State Usability Review**

Lochbridge recommends that the usability review with DTMB User Experience/Quality Assurance Team occur during the Initiation and Planning Phase on the base application before any new development is introduced into the application. The usability review should result in recommendations in the areas of responsive design, usability and formatting, application security, Accessibility and ADA compliance.

The Lochbridge Lead Developer and Tester will work with the Lochbridge developers to implement the mutually agreed upon recommendations to the base application. Going forward these recommendations will be implemented in all code changes and enhancements going forward and will become an integral part of UAT.

### **ADA Compliance Testing**

Similar to the Usability Review, Lochbridge recommends running the URL address through the W3C (World Wide Web Consortium) validator during the Initiation and Planning phase to evaluate the level of ADA compliance on the base application before any new development is introduced into the application.

The Lochbridge Lead Developer and Tester will work with the Lochbridge developers to implement the mutually agreed upon recommendations to the base application. Going forward these recommendations will be implemented in all code changes and enhancements going forward and will become an integral part of UAT.

### **Test Results / Reporting**

While System and Performance/Stress Testing are executed, the Lochbridge Tester will gather and compile results in a manner that will facilitate reporting on the testing status of the project upon completion of the phases. The testing reports will be created in TFS. The testing results reporting will provide COFS stakeholders with the information they require to make sound decisions for the project. The following are examples of the types of reporting information associated with the testing tasks of the COFS project. The types of reporting information associated with the testing tasks for this project will be customized to fit the needs of this project:

- Test Execution Status will provide an overview of what work has been completed, and what work is left to perform



Fixed	- Developer has fixed the bug and reassigns to proxy for deployment
Retest	- Proxy assigns to Tester after deployment
Verified	- Tester confirms the bug has been resolved
Retest Failed	- Retest failed and reassigned back to the Proxy
Canceled	- Bug reported was deemed not to be a bug
Closed	- Bug is closed

**Requirements Traceability Matrix**

Lochbridge will leverage the SUITE template (SEM-0401) provided by the State of Michigan for the RTM. During the Testing Phase, as each requirement is tested, the Lochbridge Tester will update the RTM to reflect current status. The date the current status value is entered/changed will also be required to be entered. Test cases will be explicitly marked by Test Type with a completed status in the RTM for each requirement listed before testing can be considered complete. The Lochbridge Tester will review the matrix for accuracy, as the RTM will become a leading auditing tool showing that all the requirements have been tested.

**Ongoing Project Updates – Project Status Report and Project Schedule**

The Lochbridge Tester will provide updates against the Testing Phase to the Lochbridge Project Manager on a weekly basis who will update the Project Status Report and Project Schedule, as appropriate, on a timely basis.

**State & Contractor Roles**

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources.

Responsible Role	Responsibilities
	<b><i>State Responsibility</i></b>
State SMEs	<ul style="list-style-type: none"> <li>• Participate in testing activities/reviews</li> <li>• Execute UAT tests</li> <li>• Report issues found during testing, conduct re-tests when requested</li> <li>• Review, provide feedback and approve testing deliverables</li> </ul>
State Project Manager	<ul style="list-style-type: none"> <li>• Schedule appropriate people to perform needed testing tasks</li> <li>• Provide state facilities for testing activities</li> </ul>
	<b><i>Lochbridge Responsibility</i></b>
Lochbridge Solution Business Process Lead / Tester	<ul style="list-style-type: none"> <li>• Overall coordination of the test effort, including test planning, test management, test status reporting, and preparing the test results.</li> <li>• Create Test Strategy and Test Plan</li> <li>• Responsible for test case/scripts identification and preparation.</li> <li>• Responsible for scheduling test execution, output review, reporting on any test incidents and defects.</li> <li>• Manages defect resolution, regression testing for defect fixes including providing inputs for either retesting or deferring an outstanding error</li> <li>• Assist and support the State personnel through facilitation of UAT Kick-off and UAT sessions.</li> <li>• Works with the State SME in preparing for execution of test case scenarios and test scripts.</li> <li>• Performs test preparation, including test case creation, data identification, and documenting test scenarios and their sequence in the test execution.</li> <li>• Executes tests cases for Intra-System Integration, Functional,</li> </ul>

	<p>System, and Inter-System efforts</p> <ul style="list-style-type: none"> <li>• Works with the State SMEs in preparing performance scenarios and performance test scripts.</li> <li>• Determines recommended mix of transactions and user volume to generate load and volume to test the system response.</li> <li>• Provides periodic updates on the status/results of various test activities</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>• Provide overall schedule/timings of activities</li> <li>• Ensure appropriate distribution/storage of relevant deliverables/artifacts</li> <li>• Review all final deliverables prior to formally submitting for approval</li> </ul>

**Deliverables and acceptance criteria:**

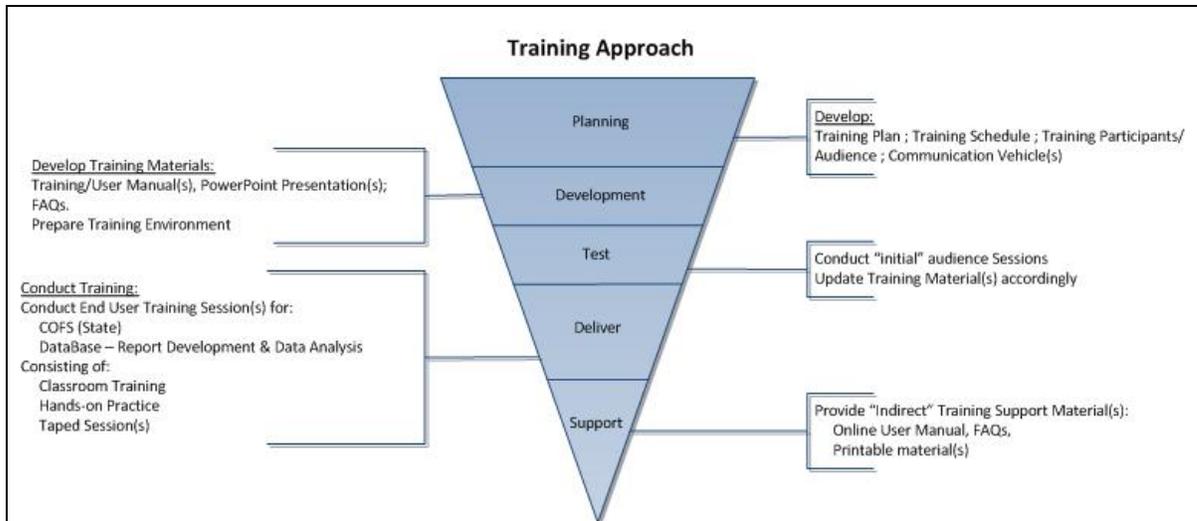
<b>Deliverable</b>	<b>Acceptance Criteria</b>
Test Plan (SEM-0602 or equivalent)	<ul style="list-style-type: none"> <li>• Show the Test types to be performed</li> <li>• Define scope of testing</li> <li>• Define the environments</li> <li>• Detail the testing timelines</li> <li>• Documentation of resources involved in testing</li> <li>• Show the execution to be performed</li> <li>• Finalization of the Test Plan and securing of State approval prior to beginning the test phase</li> </ul>
Test Cases/Scripts (SEM-0606 or equivalent)	<ul style="list-style-type: none"> <li>• Documentation of the Test Cases/Scripts according to the requirements in this Contract and defined through the Gap/Fit Workshops</li> <li>• Test Case/Scripts with easy readability</li> <li>• Provision of comprehensive scripts that test all features of the system from end to end</li> <li>• Steps to help ensure any design changes are reflected in the Test Cases/Scripts</li> <li>• Finalization of the Test Cases/Scripts</li> </ul>
Test Environment: Defect Tracking Tool Implementation (SEM-0186 or equivalent)	<ul style="list-style-type: none"> <li>• TFS installation and configuration</li> <li>• Documentation that details defect entry criteria</li> <li>• Training on use of tool</li> </ul>
Test Environment: Creation with data	<ul style="list-style-type: none"> <li>• Documentation that details the configuration and setup that was required to setup the Test environment for System Integration, Functional, Performance, and UAT Testing.</li> <li>• Key data field listing to prevent unwanted manipulation of data</li> <li>• Archiving data recovery model points</li> </ul>

Test Environment: Verification	<ul style="list-style-type: none"> <li>• Correct build of software is in place</li> <li>• Server parameters as required</li> <li>• Workstations are setup correctly</li> <li>• System data is set as required to begin testing</li> <li>• Users can execute successful login to system</li> <li>• Users can navigate the screens of the system</li> <li>• Data lookups can be performed</li> <li>• Updates can be made to system</li> <li>• Reports can be generated</li> <li>• Interfaces are available and can be accessed through the system</li> </ul>
Test(s) Completion	<ul style="list-style-type: none"> <li>• Executive summary of effort</li> <li>• Archive of test steps and execution results</li> <li>• Open issues report</li> <li>• Failed test cases/defects</li> <li>• Results</li> <li>• Lessons learned documentation</li> </ul>
Defect Correction(s)	<ul style="list-style-type: none"> <li>• Report of found defects and their confirmed resolution</li> <li>• Documentation of sign off by the State of any excluded defects</li> </ul>
Performance/Stress Test Result Report (SEM-0603 or equivalent)	<ul style="list-style-type: none"> <li>• Documentation of detailed steps required to conduct the performance, and stress test, including expected results</li> <li>• Description of the data used for tests</li> <li>• Description of how each test will be performed and the types of tests to be performed</li> <li>• Description of the validation process of each test to help ensure proof of the results and action taken</li> <li>• Explanation of any performance and/or volume issues and mitigation to correct these problems</li> </ul>
User Acceptance Test (UAT)	<ul style="list-style-type: none"> <li>• All test cases developed for the effort</li> <li>• Training materials used during testing</li> <li>• Completed checklists</li> <li>• List of issues found during execution</li> <li>• Lessons learned documentation</li> <li>• Copies of all signoff forms that include recommendation of readiness for Production</li> </ul>
UAT Test Result Report (SEM-0603 or equivalent)	<ul style="list-style-type: none"> <li>• Documentation of overview of the test results and status of each test</li> <li>• Inclusion of documentation on defects identified</li> <li>• Percentage of tests that passed or failed</li> <li>• Explanation of any design issues that were identified as the results of that week's test and listing of all design issues to date and the plan to correct these issues</li> <li>• Inclusion of any problems with the testing environments and mitigation to correct problems</li> </ul>
Updated Documentation	<ul style="list-style-type: none"> <li>• Test Case/Scripts are updated with most current information</li> <li>• Changes made to the Test Case/Script templates to meet project requirements</li> </ul>
Project Plan Component(s)	<ul style="list-style-type: none"> <li>• Project Plan which contains all Testing activities</li> <li>• Project Plan that matches the events as they are detailed in the Test Plan</li> </ul>

Updated Requirements Traceability Matrix (SEM-0401)	<ul style="list-style-type: none"> <li>• RTM reflects test status / changes made during Test phases</li> </ul>
Structured Walkthrough (SEM-0187)	<ul style="list-style-type: none"> <li>• At the end of the Testing phase, a structured walkthrough will be conducted to review the deliverables</li> </ul>

- D. Implementation
  - a. Training
  - b. Deployment Checklist
  - c. Implementation Schedule/System Availability

<p><b>a. Training</b></p> <p><b>Approach</b></p> <p>Training is best performed as close to a go-live date as possible in order for the users (non-technical and technical) to retain what they have learned and utilize it in their everyday responsibilities of the COFS system.</p> <p>The approach to the instructor-led training areas is to provide custom content consistent with the needs of the COFS Project, rather than more generic, generally available marketplace training. Content for these training sessions will be developed by the Lochbridge Team resources, supplemented by best practices/lessons learned from non-team Lochbridge Practice personnel - primarily from Lochbridge's Architecture/Development, Data Warehousing/Business Intelligence, Quality Management and IT Operations Practices.</p> <p>Lochbridge will base the training curriculum upon several factors, including the participants (CSCL users versus non- CSCL users), the functionality of the system given the participants utilizing the system, and/or the administration (technical or non-technical) of the system. The classroom training will begin with a high-level introduction and interaction with the system and will progress deeper into low-level end-user system functionality and business processes and workflows.</p> <p>The phased training process will assist the State in identifying training objectives, uncovering the training needs for the project, establishing which training needs to be delivered and updated, and the tactical procedures for carrying out training activities.</p> <p>The phased training process includes:</p>
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- **Planning**
  - Create Training Plan. (SEM-0703).
  - Create Training Schedule.
  - Determine target audience for planning role-based training to help ensure end users are trained on the correct system functions.
  - Determine communication vehicle(s) to broadcast the training schedule to CSCL and non-CSCL users.
- **Development**
  - Outline of curriculum design for the different types of training and duration offered to the target audience.
  - Development of training material to support the training program such as training/user manuals, PowerPoint presentations, FAQs, online user aids, etc.
  - Prepare training environment.
- **Test**
  - Conduct walkthrough meetings and initial training sessions.
- **Deliver**
  - Conduct training sessions for CSCL users.
  - Conduct database training sessions for report development and data analysis.
- **Support**
  - Provide "indirect" training materials such as online user manuals, FAQs, etc. for both CSCL and non- CSCL users.

### **CSCL Users**

Lochbridge will conduct the following training sessions for CSCL users:

- A. Administration Training for CSCL personnel – The COFS administration training session will include all functions of the system including managing users and system maintenance.
- B. Non-administration for CSCL personnel – The COFS non-administrators training sessions will include all functionality without the administrative modules.

### **Public Users**

Due to the large and dynamic corporate user base dispersed throughout the State, Lochbridge will provide CBTs and quick reference guides that can be hosted on the CSCL website. The CBTs and quick reference guides will provide information for the submission of online forms, online annual reports and statements, online order system, name availability, and annual reporting. Lochbridge will

use Camtasia software to create CBTs with professional results. Quick Reference guides would be created in Microsoft Word and converted to PDF files for external users.

### **Database / Report Development / Data Analysis**

Lochbridge will conduct training on database understanding to allow selected users the ability to develop reports and analyze data.

### **Training Plan**

Lochbridge will create the Training Plan (SEM-0703) and secure approval no later than the 20 business days prior to completion of the construction effort. The training plan may be revised, as necessary, during the testing and training phase.

The Training Plan shall:

- i. Be based on a Training Needs Analysis. This analysis shall include:
  - a. An assessment of the target audience: their knowledge, skills and readiness for training.
  - b. An assessment of available resources and project timeframes.
- ii. Describe facilitator-led training supported by a training database and technology solutions.
  - a. Lochbridge will utilize the State Training facilities or State-approved alternative facilities for facilitator-led classroom training.
- iii. Include:
  - a. Training sessions available for various users
  - b. Training content
  - c. Schedules
  - d. Events and activities
  - e. Resources from both Lochbridge and State
  - f. Time commitments

### **Training Materials**

The Lochbridge Solution/Business Process Lead will conduct an initial session for a small group of CSCL users to test the effectiveness of the training material before it is delivered to a wider, general audience. The training materials will be updated by the Lochbridge Solution/Business Process Lead, as necessary based on the feedback from this test.

### **Training/User Manual**

Lochbridge will create the following training/user manuals:

- COFS Administration Manual that includes system maintenance and manage users sections.
- User Manual that includes all functionality.
- User Manual for corporations that includes Submission of documents, re-submission of documents, and assumed name renewals.

Lochbridge will develop all training manuals to incorporate navigational information and procedures with specific process data. An instructor manual will be developed that includes all the necessary instruction notes, guides and tips to properly train instructor-led training classes. Each class session will also be supported by the development of Online User Aids, Quick Reference Guides, Workflow diagrams, and Presentations. All training materials will be linked to Online Policy documentation where appropriate. The idea is for the trainee to use these materials to help transition to the new system easily both in a classroom setting and through online self-paced study, and to provide step-by-step tools to clearly and correctly perform specific actions in the system.

Manuals will:

- Include curriculum by functionality, with sufficient examples and exercises to accomplish the stated training objective of assuring that end users gain the skills necessary to perform their job functions in the new system.
- Include sections on how to use online training aids.
- Reflect fictitious information to protect confidentiality of individuals/corporations unless specifically authorized by CSCL management.

All training materials shall be delivered to, and become the property of CSCL and the State of Michigan, upon the completion of the system implementation.

#### **On-line User Aids**

CSCL will create all online help screens and Lochbridge will provide a link on each page to access the online help.

The Online Users Guide will:

- Address the usage of the system from a business process (workflow) perspective, describing how to accomplish business processes associated with the new system.
- Be easy to use by enabling users to quickly locate the particular help they need with options such as "how do I?" and step-by-step procedures.
- Provide links to Frequently Asked Questions (FAQ)
- Reflect fictitious information to protect confidentiality of individuals/corporations unless specifically authorized by CSCL management.
- Be created in a format that can be modified.

All training materials shall be delivered to, and become the property of CSCL and the State of Michigan, upon the completion of the system implementation.

#### **Training Material Format(s)**

Lochbridge will create all training materials in an electronic format that can be modified by the State as well as hard copies as required for training sessions and/or review.

#### **Hard Copy Material(s)**

Materials that require hard copies such as training manuals will be created using tools such as MS Word and PowerPoint or other tools if so approved by the State Project Manager.

#### **Training Data**

- The State of Michigan will maintain a test/demo area for training users that will be updated and rebuilt on demand with a standardized base set of data.
- Lochbridge and the State will work together to create, develop and maintain base data for all training activities. (note: this may include fictitious data, if needed to protect confidentiality of individuals/corporations).

#### **Training Material(s) Test**

Lochbridge will conduct training walkthrough meetings with the State to review, test, and approve all training materials.

#### **Initial Session**

Lochbridge will conduct an initial training session for a small group of CSCL users to test the effectiveness of the training and training material.

#### **Modification**

Lochbridge will incorporate feedback from the walkthrough meetings and the initial training sessions into the documentation and submit all updates for approval.

#### **Conducting Training Sessions**

The State approximates that there will be 50 CSCL users. The State will require the Contractor at the minimum provide separate training for separate type of users:

- Administrators (approximately 10 users)
- Document Review (approximately 15 users)
- Business Service/Marks & Annual Filings (approximately 25 users)

The State requires that the training of CSCL users shall be a minimum of two, four-hour sessions per user type and two offerings of each session to accommodate business and staffing needs.

The Contractor will provide a total of three, four-hour additional training sessions over and above the minimum sessions described above, if necessary within the scope of the current requirements, at no additional cost to the State.

After each training session, users will have access to the testing environment to practice performing job responsibilities. Instructor-led classroom sessions will place emphasis on class participation. Learning will be hands-on, and will take place at the designated training centers or locations identified by the State. The Lochbridge Solution/Business Process Lead will utilize a variety of instructional design methods in order to give the participants the best learning environment possible.

#### **Testing Environment**

Lochbridge will conduct all training sessions in a testing environment, separate from the production environment.

#### **Timing**

Training for the CSCL staff will coincide with the project schedule for system implementation and will be completed prior to the implementation of the system.

#### **Training approach for CSCL**

The Instructor-led classroom training will offer topics based on system role and show participants how the system works and how to perform common tasks, with end users performing the tasks themselves in a classroom/lab setting. Each end user will have a computer on which to practice.

### **Indirect Training Support**

#### **On-Line User manual**

Lochbridge will create an online User Guide with easy to use navigation and a sophisticated search feature. It will include detailed screen descriptions and system procedures.

Lochbridge will capture written feedback during User Acceptance Testing and modify the training material as appropriate and required.

#### **On-Line Frequently Asked Questions (FAQ)**

Lochbridge will provide FAQ pages in a format that CSCL staff can add, change or delete content as old problems go away or new problems are identified. Lochbridge will design the FAQ pages in a way that will allow the presentation by role such as Administrator and non-Administrator and by CSCL user and public user. The FAQ pages will include:

- Features hardest to understand
- Features generating the most calls

#### **Print Capabilities**

Lochbridge will provide the capability to print all online user aids including online user guides and FAQ pages.

### **Ongoing Project Updates – Project Status Report and Project Schedule**

The Lochbridge Solution/Business Process Lead will provide updates against the Training Phase to the Lochbridge Project Manager on a weekly basis who will update the Project Status Report and Project Schedule, as appropriate, on a timely basis.

The Lochbridge Solution/Business Process Lead will collect and report information on classroom training including:

- Progress to Schedule (classes scheduled v. classes actually held, total planned to be trained v.

- number actually trained).
- Number and category of staff trained.
- Material covered by trainer.
- Proficiency attained in each section/module by trainee, based on analysis of evaluation.

**State & Contractor Roles**

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources.

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State Subject Matter Experts, System Users	Provide support in the development of the training plan, training materials Attend training sessions as participant, provide agency business perspective in training sessions if requested Review, provide feedback and approve training documentation
State Project Manager	Schedule appropriate people to attend training sessions Provide State facilities for training
	<b>Lochbridge Responsibility</b>
Solution/Business Process Lead	Create training materials including manuals and user aids Conduct training sessions Create training plan
Project Manager	Provide overall schedule/timings of training activities Ensure appropriate distribution/storage of relevant deliverables/artifacts Review all final deliverables prior to formally submitting for approval

**Deliverables and acceptance criteria**

Deliverable	Acceptance Criteria
Training Plan (SEM-0703)	Training Plan addresses all feedback/concerns presented by the State
Training System (separate environment)	Training environment has been established that can be refreshed on an as needed basis Training environment contains appropriate data (i.e., fictitious, masked, etc.)
Training Materials	All training material has been updated with feedback Training Materials have been approved by State
Training Execution	Indicate all persons so identified to receive training, have in fact completed the training Reflect that all training material, per feedback from those trained and the State Project Managers, has been updated
Structured Walkthrough (SEM-0187)	At the end of the Training phase, a structured walkthrough will be conducted to review the deliverables

**b. Deployment Checklist**

Software deployment is defined as the process of putting software and software solutions into use or action and ultimately driving business success. The deployment checklist identifies objective criteria that must be met for the project to successfully “go-live”. Listed below are typical go-live criteria that Lochbridge has used on past projects as part of the deployment checklist:

- System Functionality: Critical parts of the system work as specified: Specify exactly which Testing is completed such as user acceptance testing, performance tests in terms of response time, load tests, security tests, integration tests between the new system and legacy systems, data verification

testing, etc.

- **Data Readiness:** Data required to operate the system has been loaded and verified. Data conversion has been completed and verified as accurate. Report testing is complete.
- **User Readiness:** This may involve User training, new/revised business process training, user equipment, help screens, tutorials, documentation, etc. Verify that users have developed enough competency to use the system effectively and efficiently.
- **User Support:** User support staff is in place, including any special help to be provided on launch day.
- **Operational Readiness:** Support infrastructure, equipment, tools and procedures are in place and ready for use. Operational staff are trained. Technical support staff is in place and prepared to handle prioritizing and fixing problems which encompass network, security, functionality, performance, data, reporting, and legacy systems impacts.
- **External Factors:** Interfacing Organizations and departments have been communicated with and are ready for launch.

Prior to implementation, Lochbridge will facilitate meetings/ conference calls on a daily basis to determine the status of each criteria, discuss contingency plans and potential risks, and to identify new issues or barriers that would affect a "go live" decision. The Lochbridge team along with the State stakeholders will determine whether the critical deployment criteria has been satisfied to make the "go-live" decision. Below is a section of a deployment checklist used by Lochbridge on previous State projects which will be used for this project:

Deploy/Delay Criteria	Completed Y/N	Projected Completion	Approved Y/N	Priority	Deploy/Delay
<b>Active UAT Defects</b>					
SDS-0327	N	12/16	N	0-Critical	Delay
SDS-0922	N	TBD	N	1-High	Deploy
SDS-0916	N	12/22	N	1-High	Deploy
<b>Total Active Deficiencies:</b>	<b>3</b>				
<b>Total Active Deficiencies Critical:</b>	<b>1</b>				
<b>CHANGE CONTROL REQUESTS</b>					
SDS010- Remove Requirement for RCCI	Y	Completed	Y	1-High	Deploy
SDS011- Multiple Design Changes for Phase I	Y	Completed	Y	1-High	Deploy
SDS012 - Restrict Certain Collections from Creating UIC's	Y	Completed	Y	1-High	Deploy
SDS014 - Update the Business Rules for Early Childhood to be optional	Y	12/10	Y	1-High	Deploy
SDS015 - requirements reword and retire	Y	12/15	N	1-High	Deploy
<b>Data Conversion - External Data Sources</b>					
	Y	N/A for Phase I	Y		Deploy
<b>Connections to External Data Sources</b>					
UIC Master	Y	Completed	N/A	0-Critical	Deploy
Direct Certification Database	Y	Completed	N/A	0-Critical	Deploy
<b>Data Conversion - (SRSD)</b>					
	Y	Completed	Y	0-Critical	Deploy
<b>Application Turnover (DIT)</b>					
	N	No later than 2/13	N	1-High	Deploy
<b>e-Michigan Approval</b>					
DIT 170 Approval	Y	Completed	Y	1-High	Deploy
	N	12/10	N	1-High	Deploy
<b>System Interfaces Ready</b>					
CTEIS	N	12/8	N	1-High	Deploy
MEDS	N	2/16	N	1-High	Deploy
SRSD	N	3/2	N	1-High	Deploy
OEAA	N	1/30	N	1-High	Deploy
<b>Load/Performance Testing and Tuning</b>					
	N	Review pre-deployment results by 12/9	N	1-High	Deploy
<b>Ability to Load Large Files</b>					
	N	No later than 12/10	N	0-Critical	Delay
<b>RTM: Open UAT Items that require resolution</b>					
RQID 43.01b	N	12/09	N	0-Critical	Delay
RQID 62	N	12/09	N	0-Critical	Delay
RQID 85	N	12/09	N	0-Critical	Delay
RQID 123	N	12/09	Y	1-High	Deploy
RQID 123.02	N	12/09	Y	1-High	Deploy
RQID 123.04	N	12/09	Y	1-High	Deploy
RQID 123.07	N	12/09	Y	1-High	Deploy
RQID 123.09	N	12/09	Y	1-High	Deploy
RQID 123.1	N	12/09	Y	1-High	Deploy
<b>Early Childhood Manual Created for the Field</b>					
	N	CEPI Responsibility	N/A	1-High	Deploy
<b>UIC Manual</b>					
	N	CEPI Responsibility	N/A	1-High	Deploy
<b>Stakeholder Communications</b>					
CEPI	N	Wk of 12/15	N/A	1-High	Deploy
MDIT	N	Wk of 12/15	N/A	1-High	Deploy
MDE	N	Wk of 12/15	N/A	1-High	Deploy
Intermediate School Districts	N	Wk of 12/15	N/A	1-High	Deploy
Local Education Agencies	N	Wk of 12/15	N/A	1-High	Deploy
Public School Agencies	N	Wk of 12/15	N/A	1-High	Deploy

The specific "readiness" areas will be identified overall in the Cutover Plan. The project's Cutover Plan (see Section 2.K.k in this SOW) will be built during the Testing Phase and will contain a very detailed list of activities needed to deploy the solution. This can amount to literally hundreds of detailed tasks, with associated timings, dependencies, critical paths, resource responsibility and milestones. As implementation nears, the Deployment Checklist tool is used by the Lochbridge and State PMs for the management of issues, issue resolution and schedule updates on a daily basis.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources.

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State PM	<ul style="list-style-type: none"> <li>• With the Lochbridge PM, lead deploy/delay decision-making activities</li> <li>• Work closely with the Lochbridge PM to identify, define, and resource the necessary tasks for implementation, installations</li> <li>• Approve deliverables, schedules/WBS relating to this phase</li> </ul>
CSSL and DTMB SMEs	<ul style="list-style-type: none"> <li>• Provide information relating to any business/technical constraints or considerations regarding implementation</li> <li>• Provide information relating to State environment processes, standards, protocols to support implementation/installation</li> <li>• Review and provide feedback for deliverables relating to this phase</li> <li>• Participate in planning for implementation, installations, warranty support</li> <li>• Participate in deploy/delay decision-making activities</li> </ul>
	<b>Lochbridge Responsibility</b>
Lochbridge PM	<ul style="list-style-type: none"> <li>• With the State PM, lead deploy/delay decision-making activities</li> <li>• Identify, define, and resource the necessary tasks for implementation, installations, working with the State PM</li> <li>• Deliver/develop deliverables, schedules/WBS</li> </ul>
Lochbridge Solution/Business Process Lead Lochbridge Technical Lead Lochbridge Tester	<ul style="list-style-type: none"> <li>• Participate in knowledge sharing regarding State environment processes, standards, protocols to support implementation/installation</li> <li>• Support the development of deliverables relating to this phase</li> <li>• Participate in planning for implementation, installation support</li> <li>• Participate in deploy/delay decision-making activities</li> <li>• Perform necessary activities (defect issue resolution, etc.)</li> <li>• Verify successful test completion, successful installations, etc. within the State environment</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Deployment Checklist	<p>Necessary items have been identified and are completed successfully prior to deployment</p> <p>Deployment Checklist has been approved by the State</p>

**c. Implementation Schedule/System Availability**

Once the decision has been made that all necessary areas of the project are in a “deploy” status, the Implementation Schedule details the specific tasks to be performed to move the solution into Production over the deployment horizon (usually over a weekend). Many of these tasks have critical dependencies so, in order to meet the timing requirements to get the system up and running, hourly (sometimes minutes) planning and tracking are required, culminating in the date/time that the system is to be available for end users. Notifications to various people on progress over the course of the deployment time period are crucial so as keep the deployment moving, including problem identification/resolution, execution of contingency/backout plans if required, etc. The Lochbridge PM will develop and distribute a contact list for deployment including home/work email addresses and home/work/mobile phone/emergency contact numbers.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section.

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State PM	<ul style="list-style-type: none"> <li>• With the Lochbridge PM, lead implementation go-live decision-making</li> </ul>

	<ul style="list-style-type: none"> <li>activities</li> <li>• Work closely with the Lochbridge PM to identify, define, and resource the necessary tasks for implementation, installations</li> <li>• Approve implementation schedule/WBS</li> </ul>
CSCS and DTMB SMEs	<ul style="list-style-type: none"> <li>• Provide information relating to any business/technical constraints or considerations regarding implementation go-live</li> <li>• Participate in planning for implementation, installation support</li> <li>• Review and provide feedback to the Implementation schedule/WBS</li> <li>• Participate in implementation go-live decision-making activities</li> </ul>
<b>Lochbridge Responsibility</b>	
Lochbridge PM	<ul style="list-style-type: none"> <li>• With the State PM, lead implementation go-live decision-making activities</li> <li>• Identify, define, and resource the necessary tasks for implementation, installations, working with the State PM</li> <li>• Deliver/develop the Implementation schedule/WBS</li> <li>• Develop go-live contact sheet</li> </ul>
Lochbridge Solution/Business Process Lead Lochbridge Technical Lead Lochbridge Tester	<ul style="list-style-type: none"> <li>• Provide information relating to any business/technical constraints or considerations regarding implementation go-live</li> <li>• Participate in planning for implementation, installation support</li> <li>• Review and provide feedback to the Implementation schedule/WBS</li> <li>• Participate in deploy/delay decision-making activities</li> <li>• Execute any assigned tasks in accordance with schedule/WBS</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Implementation Schedule/System Availability	Implementation Schedule has been approved by the State System is available for end users
Structured Walkthrough (SEM-0187)	A structured walkthrough will be conducted to review appropriate deliverables

- E. System Documentation
  - a. Roles and Security Configuration
  - b. Configured Users Mapping
  - c. Configured Objects Identification Mapping
  - d. Standard and Custom Fields
  - e. Workflow, Assignment, Escalation Rules
  - f. Queues
  - g. Data Quality and Cleansing Process (Data retention and disposal)

Lochbridge will meet all of the listed requirements and deliverables for SOW Section E – System Documentation and create detailed system documentation to include roles and security configuration, configured users mapping, configured objects identification mapping, standard and custom fields, workflow, assignment, escalation rules, work queues, data quality and cleansing process, third-party integration, customizations, checklist of deployment tasks.

**Approach**

**Document Management and Accessibility**

To assist in overall team communication and collaboration, Lochbridge will create a SharePoint repository to serve as an Electronic Project Library (EPL) through the warranty period. The SharePoint EPL will be hosted on the State's infrastructure and the Lochbridge Project Manager will administer permissions for EPL access, and will determine initial and ongoing access rights to the EPL as well as folder and file level access, based upon agreed-upon standards.

### **Structure**

Lochbridge has direct, relevant experience in providing a SharePoint EPL for State project documents. The following will be as a starting point for discussion regarding repository structure:

- Project Administration (contract, contract amendments, budget/invoice tracking)
- Project Team Info
- Project Control
- Project Management Plan
- Detailed Project Work Plan/Schedules
- Project Issues Log/Report
- Project Risks Log/Report
- Project Changes (CCR tracking log, CCRs, CCR approvals)
- Documents and Artifacts
  - Formal Deliverables
  - Requirements
  - Design
  - Development
  - Testing
  - Implementation
  - Transition/turnover
  - Maintenance
- Archived (Historical) Documents

### **General Rules**

#### **Ownership / Property of SOM**

All documentation created will be the property of the State.

#### **Level of Detail**

The Lochbridge Technical Lead will produce technical specifications/documentation from the workshops with suitable details for the construction phase. These may include prototypes, report/screen layouts, requirements specifications, sequence diagrams, operations manual content, etc., as necessary to capture the technical details required and to explain the components, features and use of the hardware and software.

The entire Lochbridge Team will further refine documentation and deliverables throughout the life cycle of the COFS Project. Through this refinement process, the combination of business and technical documentation will be at a level of detail necessary to successfully deploy and support the solution.

#### **Version Control**

Lochbridge will use SharePoint's versioning capabilities for proper control of draft, current, and/or historical documents. In addition, the EPL should be backed up as part of the overall system maintenance.

Microsoft Word documents, when going through the review process, will employ the track changes facility. When the document is approved, the track changes option will be removed and the final document will be stored in an approved documents folder in the EPL.

#### **Identifiers**

Documents will follow defined project naming conventions and the Lochbridge PM will develop an initial folder/file structure to aid in overall project administration.

Whenever possible, all documents will be created with a Table of Contents that allows for jumping to a relevant section. Some documents (Microsoft Visio 2013 for example) will be unable to support this requirement unless included as part of another document.

### **Format and Tools**

The primary tools to be used for documentation will be products the State already has, such as Microsoft Word, Visual Studio 2013, Microsoft SQL Server Management Studio, and Microsoft Visio. Visual Studio 2013 will be used to generate sequence diagrams. Microsoft SQL Server Management Studio will be used to reverse engineer a complete ERD. API Reference Guides will be created using software products called Sandcastle and Sandcastle Help File Builder that are available via Microsoft Public License. All of these tools will allow for the creation of unlimited copies.

### **Approval Process**

Lochbridge will provide the State an interim review of written deliverables prior to submission of a formal review. The interim review will allow the State to provide feedback. Unless noted differently in the project's schedule, once the deliverable has been formally submitted, the State will have five (5) business days for review. The State will notify Lochbridge in writing by the end of the review period either stating that the deliverable is approved or describing any deficiencies that shall be corrected prior to approval. Lochbridge will correct any deficiencies within five business days and resubmit the deliverable in a form that shows all revisions made to the original version delivered to the State. Upon receipt of a corrected deliverable, unless noted differently in the project's schedule, the State will have five business days to review the corrected deliverable and confirm that the identified deficiencies have been corrected.

### **Roles and Security Configuration**

Lochbridge will provide a mapping of all the roles and their associated security mapping. Lochbridge will describe the purpose of each role and the high-level functions that are available with this role. An SSRS report will be built to generate the roles and permissions security matrix of the application. This will help ensure that the information is up-to-date and that it reflects the actual permissions of the application. A copy of the SSRS report will be provided to the State of Michigan upon completion of the project.

Here is an example of the high-level information on each role. Each role for this project will be customized to fit the needs of this project:

#### **Administrator**

**Purpose:** The administrator role is to be used to administer the lowest level configuration items of the system. This role shouldn't be given to any user that operates on the system.

**Security:** The administrator has access to all the forms and batches in the system. The administrator has no restriction on the type of entities it can access.

#### **Corporation User**

**Purpose:** This is the default role for online users

**Security:** This role has access to file reports, order certificates, renewals, and other operations available to registered online users.

The SSRS report will have a mapping that will look like the following diagram.

Roles / Permissions	Filing	Certificates	Name Reservation	Administration	System Queue	Printing	Scanning
Administrator	X	X	X	X	X	X	X
Front-Desk User	X		X		X	X	
Scanner Access							X
Manager	X			X	X	X	X
Corporation User	X	X					

### Configured User Mapping

Lochbridge will provide a mapping between the user and their effective security. The information will be provided in an SSRS report with basic filters (role like “administrator”, permission like “Queue” or the name of a specific user). This will provide the State a way to have a fresh copy of the information when they require it. Lochbridge will provide a copy of the user mapping at the completion of the project to validate that permissions are correct. Here is an example of the user mapping report. The user mapping report for this project will be customized to fit the needs of this project:

Users	Roles	Filing	Certificates	Name Reservation	Administration	System Queue	Printing	Scanning
System	Administrator	X	X	X	X	X	X	X
MyCorpUser	Corporation User	X	X					
jsmith	Manager, Front Desk user			X	X	X	X	X
tperez	Manager, Front Desk user			X	X	X	X	X
sroberts	Front Desk user					X	X	X

### Configured Objects Identification Mapping

Lochbridge will build upon the existing “Corporation Database Layout” documentation that has been provided during the proposal phase. The same level of information will be provided for the new database tables and fields added during the project.

Table: tblCertificate						
Purpose: One row is inserted per Certificate document Requested. A single request may contain multiple rows in this table. It contains the information for mailing / emailing and the pointer to the request image.						
Column Name	Data Type	Constraints /Rule Names	Length	Default Value	Descriptions	
CertificateNumber	char	Not Null	11		Set by Certificate Forms	
NotifierID	int	Null	4		Set by Certificate Forms	
CID	Char	Null	6		Set by Certificate Forms	
RequestID	Varchar	Null	4		Set by Certificate Forms	
CertificateType	char	Not Null	3		Set by Certificate Forms	
EntityName	Varchar	Null	175		Set by Certificate Forms	
ProcessDateTime	DateTime	Null	8		Set by Certificate Forms	
VirtualDir	Varchar	Null	50		Updated by BE Approval	
FilingMethodDate	DateTime	Null	8		Updated by BE Approval	

Also the system documentation will provide specific information on the configuration of the data used by the system. For example, the documentation will provide how to configure a new Fee for a specific service level. The documentation on how to configure a new Fee for a specific service level for this project will be customized to fit the needs of this project:

Field	Type	Description	Example
FeeID	int	Auto Generated	
StartDate	DateTime	Fee is valid from the start date	2015-12-01
EndDate	DateTime	Fee is valid before the end date	2016-12-01
ServiceLevelID	int	Foreign Key to service level table	
Value	decimal	Amount of the fee	25.00

As described in the data migration section, a data migration mapping will be provided for the relevant tables in the existing Oracle Database of the legacy Michigan system.

### Standard and Custom Fields

Lochbridge will provide a data dictionary in Excel format with the following Excel tabs:

- Tables
  - Schema Name
  - Table Name
  - Table Description
- Fields
  - Schema Name
  - Table Name
  - Field Name
  - Default Value
  - Is Nullable (Y/N)
  - Data Type
  - Max Length
  - Decimal Precision
  - Decimal Scale
  - In Primary Key (Y/N)
- Foreign Keys
  - Foreign Key Name
  - Schema Name
  - Table Name
  - Column Name
  - Reference Schema Name
  - Reference Table Name
  - Reference Column Name

An example Data Dictionary from the Lochbridge/MDE Secure Site project is provided in Attachment A - A.4 Example Data Dictionary. The data dictionary for this project will be customized to fit the needs of this project. A script will be provided to generate the latest Fields and Foreign Keys data sheets.

### Workflow, Assignment, Escalation Rules

Lochbridge will provide workflows and processes as part of the online documentation. The business workflows will be drawn during the JAD sessions with the help of the State. The documentation will be provided in a format accessible to the state and will include the assignment and escalation rules. The information provided will include what user group is responsible for each step of the workflow and the escalation rules will be defined as well as what user group it should be escalated to.

### Queues

Lochbridge will list the queues that are available to the system. Each queue will be described as well as its priority rules, access roles and expedited service level associated with each queue. For example purposes, the online filing queue will be described as the following (more details to come during the implementation phase of the project):

#### Daily Operations Queue

Description: This queue is used by back-end users to approve the corporation filings. The queue is sorted by priority. Each item of the queue are locked exclusively. If a new item is added in the queue with a higher priority than another item, the item will be added to the

queue in the correct position. The items are always stored by the required response time.

User Permission: Administration, Filings

Priority Rules:

- 1 hours
- 2 Hours
- 9 Hours
- 24 Hours

Expedited Service Level: Multiple expedited service levels: 1 hours, 2 hours, 9 hours, 24 hours. The queue expedited service is valid during the business hours. Any items that cannot be completed during regular business hours will be completed the next day.

**Data Quality and Cleansing Process (Data retention and disposal)**

Lochbridge will define a plan to archive and cleanse data with the State. Any data cleansing will require that all child elements be also cleansed or archived. This type of data archival is done through SQL Server jobs. The type of data that is normally targeted by data cleansing are log tables or temporary data used on incomplete forms. Temporary data can normally be cleansed within 24 hours. Log information should be kept as long as possible. For performance purposes, logs are normally shipped to another source of data once they are past their normal operation relevancy. Logs can then be destroyed after any legal binding period of time is reached.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section..

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State SMEs	<ul style="list-style-type: none"> <li>• Provide support to the creation of System Documentation components</li> <li>• Participate in system documentation reviews</li> <li>• Approve updates to System Documentation components</li> </ul>
State Project Manager	<ul style="list-style-type: none"> <li>• Schedule appropriate State SMEs to support the creation and review of System Documentation</li> </ul>
	<b>Lochbridge Responsibility</b>
Technical Lead	Create System Documentation components <ul style="list-style-type: none"> <li>• Update components frequently over the course of the project</li> <li>• Perform informal and formal reviews of content</li> </ul>
DBA	<ul style="list-style-type: none"> <li>• Create Database for related system documentation</li> </ul>
.NET Developers	<ul style="list-style-type: none"> <li>• Update components frequently over the course of the project</li> <li>• Code reports and tools to build system documentation</li> </ul>
Project Manager	<ul style="list-style-type: none"> <li>• Provide overall schedule/timings of relevant activities</li> <li>• Ensure appropriate distribution /storage of relevant deliverables/artifacts</li> <li>• Review system documentation prior to formally submitting for approval</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
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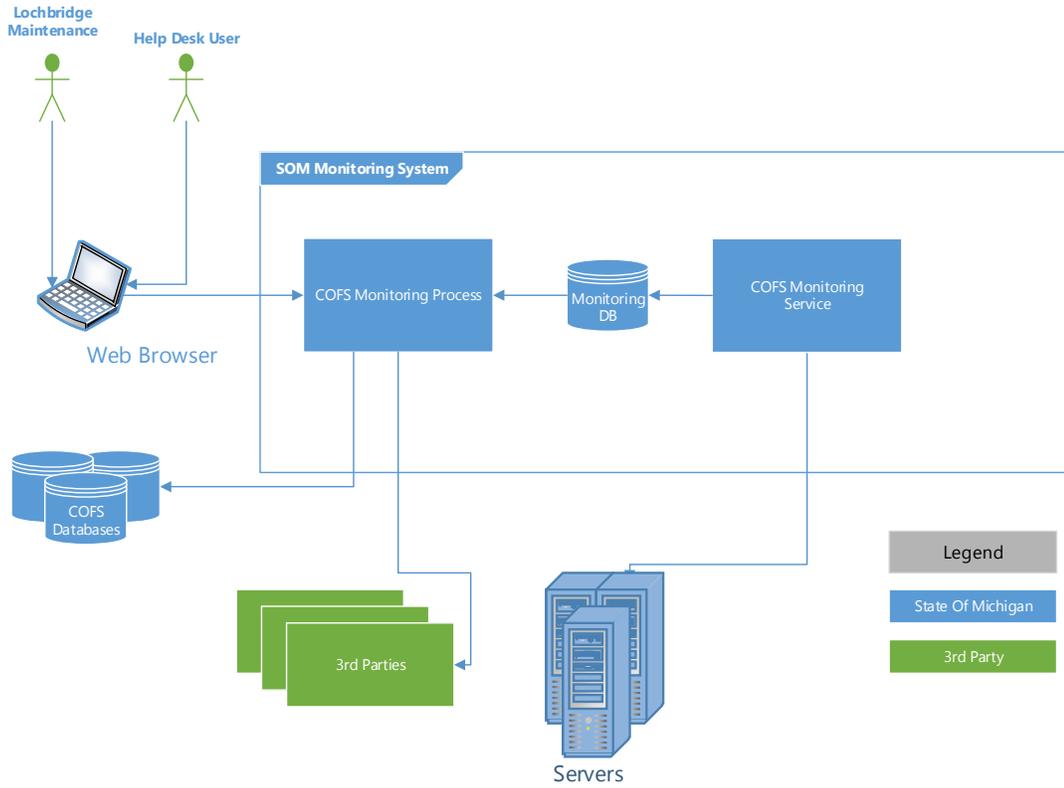
<p><b>System Documentation</b> (Roles and Security Configuration, Configured Users Mapping, Configured Objects Identification Mapping, Standard and Custom Fields, Workflow, Assignment, Escalation Rules, Queues, Data Quality and Cleansing Process)</p>	<p>System Documentation will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Leverage any applicable SUITE templates provided by the State of Michigan Drafted during the Requirements/Design phase and finalized during the Implementation phase. Address State corrections/comments/feedback as appropriate</p>
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F. Maintenance and Support – Schedule C

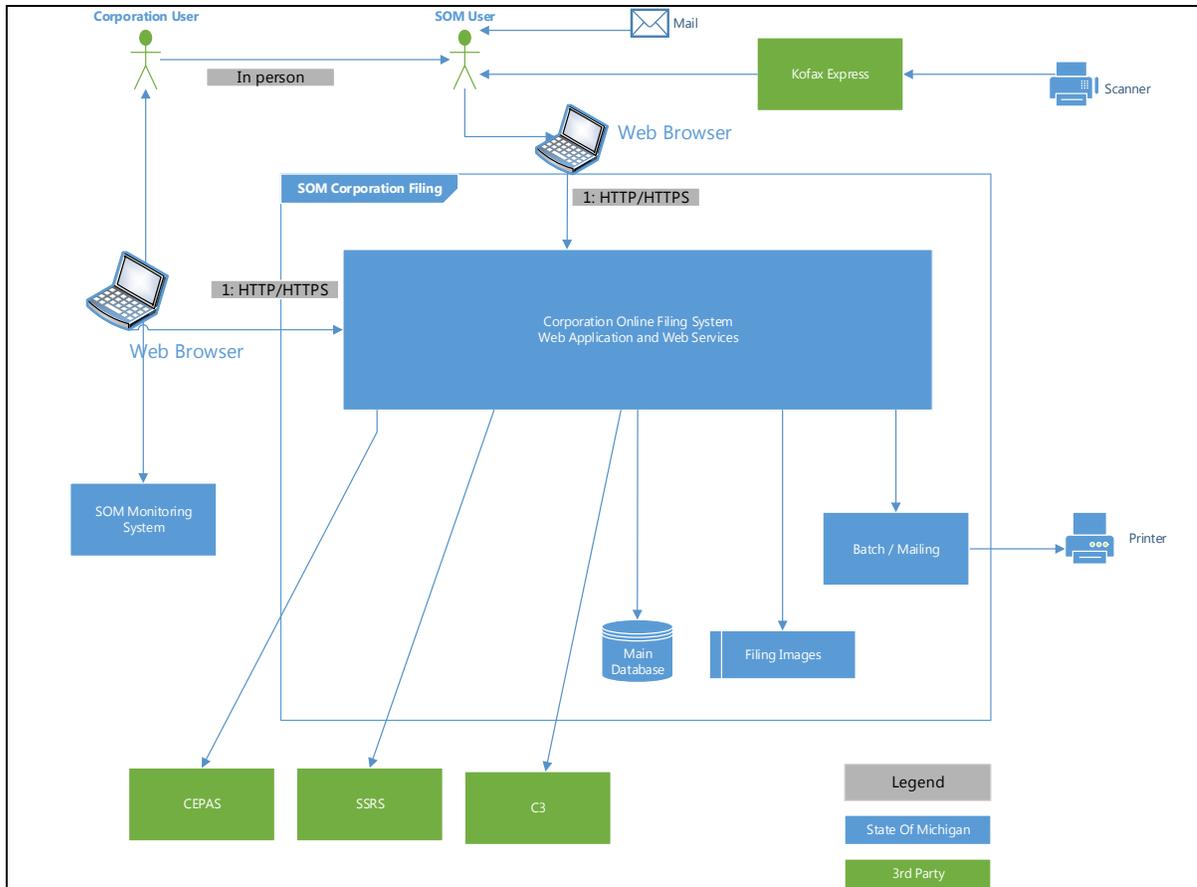
<p>See Schedule C Maintenance and Support for more details. The State of Michigan will use SOM Single Point of Contact resources for the COFS solution as first line support and Lochbridge will provide the necessary training to those resources. The Lochbridge Maintenance Team will provide Second Line Support for normal and emergency matters and keep the system documentation up-to-date. This documentation will be important for knowledge transfer in future transition activities (when so requested by the State).</p> <p>A service monitoring page for the system will be built. The page would have the latest status on third-party service availability, database connections and system availability. This page will provide the Lochbridge maintenance staff as well as the State of Michigan Help Desk with a quick view of the overall system status to diagnose problems that are not related directly to the system. The page will have a simple layout with a “red/green” system to determine if a system is down or not.</p> <p>For example:</p> <div data-bbox="467 1371 1052 1619" data-label="Figure"> <pre> Databases cofs-corp-db01 [red error icon] Last Error: "Cannot connect to database" cofs-corp-db02 [green status icon]  Servers cofs-corp-web01 [green status icon] cofs-corp-kofax01 [green status icon] </pre> </div> <p>The service monitoring page will be built at the beginning of the maintenance phase at no additional cost to the State. A small additional effort might be needed to develop a status monitoring tool that will take the pulse of systems outside the main application, if the State chooses to elect at a cost no more than \$9,600.00. The system will be built with flexibility in mind so that new modules can be written as the application grows and new monitors are required.</p> <p>The service monitoring pages will add value to the solution by saving time when problems will occur. Due to</p>
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the simplicity of design of these solutions, those solutions will be robust and stable and not require any maintenance outside configuration changes. If changes are required, Lochbridge will provide at no additional charge.

### Monitoring Diagram:



Full System Context Diagram



Lochbridge's planned resources for Second Line Support is summarized below:

- Linda Ross, Solution Business Process Lead/Tester – part-time (50%)
- Satya Guttula, .NET Developer – full-time (100%)
- TBD, .NET Developer/DBA – part-time (50%)
- Diane Toscano, Project Manager, Governance and Oversight – part-time (10%)

See SOW Section 2.5 Contractor Resources for the resource plan for the entire project, warranty, maintenance and supplemental services.

If it is mutually determined and agreed upon that the work load in Maintenance and Support does not warrant the above resources, Lochbridge will re-size the team to what would be needed to full-fill the obligations during this Phases and adjust their prices accordingly to Schedule C Exhibit B Support Fees and Schedule D Pricing

#### G. Transition Services

##### **Approach**

Lochbridge's experience in successful system transition lies in building the foundational base of expertise surrounding the functional and technical components of the solution, as well as providing opportunities for increasing hands-on support during the transition period. Building the foundational base of expertise comes from many sources, including:

- Sharing draft, interim and updated documentation with the State throughout the project

- Participation in, and collaboration during, Requirements and Design sessions as well as when documents, deliverables are being developed
- Formal training classes
- Tool training
- UAT training
- Specific knowledge transfer (deep dives into each functional area of the solution with DTMB members)
- Paired programming/mentoring: fixing live application defects in QA, matching Lochbridge personnel with the DTMB resource that will assume responsibility for that area, etc.
- Participation in the execution of installation and implementation tasks/activities

Through interactions during the course of the support/transition period, Lochbridge will gain insight into these areas and identify gaps that must be addressed for successful knowledge transfer and transition. The Transition Plan will layout the activities and their timings for successful knowledge transfer/transition with the goal being a self-sufficient State support team fully capable of supporting the COFS solution.

**Transition Plan Creation**

Development of the Transition Plan will occur once the SOM communicates their desire to proceed with the system transition. The tasks identified in the plan will be detailed in an overall schedule and monitored/controlled appropriately through project PM processes.

**Transfer Evaluation Report Creation and Walkthrough**

Periodically, Lochbridge will provide the State with a progress/status report of transition/knowledge transfer activities and their associated effectiveness (Transfer Evaluation Report) culminating in a Final Report delivered to the State. Issues identified during the course of the transition will be communicated via this mechanism with recommendations to resolve the issues. The project PMs will review the reports and reach consensus on any subsequent actions (such as additional solution training, additional one-on-one support, formal technical training in development techniques or tools).

Lochbridge will provide the SOM with the initial Transfer Evaluation Report, and conduct a walkthrough. Updates to the Transfer Evaluation report will be provided by the Lochbridge PM in subsequent status reports and status meetings. Lochbridge will provide the SOM with the final Transfer Evaluation Report, and conduct a walkthrough, at least 10 business days prior to completion of the Transition.

**Ongoing Project Updates – Project Status Report and Project Schedule**

As mentioned, Lochbridge will produce a schedule/WBS to track knowledge transfer/transition activities at the proper level of detail. Project status reporting and PM meetings will provide the opportunity for review of progress and effectiveness in developing a highly-functioning State support team.

**State & Contractor Roles**

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section..

<b>Responsible Role</b>	<b>Responsibilities</b>
	<b><i>State Responsibility</i></b>
DTMB SMEs	Participation in transition activities throughout the duration of the transition period, as detailed in the Transition Plan Review project documentation and actively support content development through the review/feedback process
State Project Managers	Work with Lochbridge to identify and manage transition activities Review, provide feedback and approval of deliverables
	<b><i>Lochbridge Responsibility</i></b>
Lochbridge SMEs	Identify transition activities and review/manage in conjunction with the

	<p>State PMs</p> <p>Submit, adjust and seek approval of deliverables in accordance with timings detailed in the project schedule</p> <p>Provide mentoring and support to DTMB personnel</p> <p>Develop and conduct necessary training in functional and technical aspects of the solution</p>
Project Manager	<p>Provide overall schedule/timings of transition activities</p> <p>Ensure appropriate distribution/storage of relevant deliverables/artifacts</p> <p>Review all deliverables prior to formally submitting for approval</p>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
SEM-0701 Transition Plan – including Schedule/WBS	<p>Complete the sections of SEM-0701, including functional, technical and infrastructure related areas to be transitioned</p> <p>Detailed activities identified to address SOM readiness to support the COFS solution</p> <p>Transition activities documented in a WBS format, including milestones, tasks, timings, resources</p>
Execution of Transition Plan	State personnel prepared to maintain/support the COFS solution
Transfer Evaluation Report	Weekly status provided on transition plan elements
Final Transfer Evaluation Report	Successful completion of all transition activities identified in the transition plan/schedule

**Assumptions**

- Transition activities will only be initiated at the request of the SOM

H. Warranty

For the Warranty period (60 days after implementation or at the completion of issues identified during this time, whichever is later) , Lochbridge resources support is summarized below (see SOW Section 2.5 Contractor Resources for the resource plan for the entire project, warranty, maintenance and supplemental services level Lochbridge support):

- Lochbridge Solution/Business Process Lead – full-time
- Lochbridge Technical Lead – full-time
- Lochbridge .NET Developer/DBA – full-time
- Lochbridge .NET Developer – full-time
- Lochbridge Project Manager – part-time (50%)

The Warranty period is a critical time where many post-deployment activities occur:

- Completion of activities deemed not necessary for deployment (if any)
- Post-deployment issues are quickly identified and resolved
- Creation, Review and Approval of the SEM-0016 Post Implementation Evaluation Report (PIER)
- Conduct project closeout activities
  - Archive project records
  - Document project results achieved
  - Finalize budgetary information (actuals)
  - Complete the PIER report (including Lesson Learned session team-wide)

- Transfer operational and support responsibilities to the maintenance team
- Celebrate team project success
- Creation, Review and Approval of the PMM-0104 Project Closure Report
- Review contractual Acceptance Criteria, achieve Acceptance

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section..

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State Project Managers	<ul style="list-style-type: none"> <li>● Review, provide feedback and approve SEM-0016 Post Implementation Evaluation Report (PIER)</li> <li>● Review, provide feedback, and approve PMM-0104 Project Closure Report</li> <li>● Co-Lead Lessons Learned session</li> <li>● Co-lead in team success celebration</li> <li>● Provide overall Acceptance once all project and warranty activities are complete</li> </ul>
State Subject Matter Experts	<ul style="list-style-type: none"> <li>● Provide support to assist in completing any activities deemed not necessary for deployment (if any)</li> <li>● Provide support to assist in the identification and resolution of post-deployment issues</li> <li>● Participate in team Lessons Learned session</li> <li>● Participate in team success celebration</li> </ul>
	<b>Lochbridge Responsibility</b>
Lochbridge Project Manager	<ul style="list-style-type: none"> <li>● Co-Lead Lessons Learned session</li> <li>● Create SEM-0016 Post Implementation Evaluation Report (PIER)</li> <li>● Complete (or assign) project closure activities</li> <li>● Create, incorporate, finalize PMM-0104 Project Closure Report</li> <li>● Co-Lead team success celebration</li> </ul>
Lochbridge Subject Matter Experts	<ul style="list-style-type: none"> <li>● Resolve any activities deemed not necessary for deployment (if any)</li> <li>● Identify and resolve post-deployment issues</li> <li>● Complete any assigned project closeout activities</li> <li>● Participate in team Lessons Learned session</li> <li>● Transfer operational and support responsibilities to the maintenance team (if necessary)</li> <li>● Participate in team success celebration</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
SEM-0016 Post Implementation Evaluation Report (PIER)	Completed necessary sections of SEM-0016, including Lessons Learned
PMM-0104 Project Closure Report	All necessary project closeout activities successfully complete Completed necessary sections of PMM-0104
Acceptance	All contractual obligations met as defined in the Statement of Work Project Deliverables approved, Stage exits achieved Warranty requirements met

I. Supplemental Services (Future Enhancements and/or Legislative Mandates)

Commencing at the end of the Warranty period Lochbridge will provide supplemental support personnel that will address the requirements for known enhancements provided in Schedule B Business and Technical Requirements known as Supplemental Services of the Contract as well as other enhancements needed during this support period. Lochbridge will work with the State to identify, prioritize and provide ongoing status of enhancements during the support period.

At minimum, Lochbridge must provide two releases per year for Supplemental Services. The content of each release must be based on feedback from the State's business approver.

For each application release, Lochbridge will perform the following activities:

- Scope Definition and Prioritization
- Schedule Confirmation and Scope Approval Requirement Gathering
- Specification Review and Approval
- Development
- Quality Assurance (QA), Quality Control (QC), and Regression Testing
- Front-End Verification (FEV) Release
- Training for the State's Team
- UAT Release and Support
- Functional Training
- Production Promotion
- Post Production Release Support

Lochbridge will follow the activities as listed above per release and that the content of each release must be based on feedback from the State's business approver. The content for each release will be mutually agreed upon and defined in the Scope Definition and Prioritization activities.

Lochbridge's planned resources to support future enhancement is summarized below (see SOW Section 2.5 Contractor Resources for the resource plan for the entire project, warranty, maintenance and supplemental services level Lochbridge support):

- Linda Ross, Solution/Business Process Lead – part-time (50%)
- TBD, .NET Developer – part-time (50%)

As described in SOW Section 2.K.g System Maintenance Plan, Lochbridge will work with the SOM to capture necessary information to properly support CSCL/DTMB requests and create a Business Function/Service/Application Criticality Request for use on future enhancements.

If it is mutually determined and agreed upon that the work load in Supplemental Services does not warrant the above resources, Lochbridge will re-size the team to what would be needed to full-fill the obligations during this Phases and adjust their prices accordingly to Schedule D Pricing.

- J. Issue/ Risk Management
  - a. Initial Issue and Risk Assessment
  - b. Issue and Risk Management Strategy
  - c. Issue/Risk process

In SOW Section 2.K a brief description of the timing and contents proposed to develop for the Issue/Risk Management Plan.

There is a strong relationship among Issues, Risks and Change Requests, namely:

Issues are events that are occurring now or have already occurred. An issue is not an event or item that may occur at a time in the future. If something is definitely going to happen or it has already happened, then it is an issue. If it is something that might happen – whether it is very likely or very unlikely – then it is a risk. An issue can turn into a risk and risk may result from an issue. An issue can be associated to a risk. Prompt issue resolution can minimize project changes.

In the remainder of this section, details are provided on Initial Issue and Risk Assessment, Issue and Risk Management Strategy and the Issue/Risk process. These details will be incorporated into the project's Issue/Risk Management Plan. Approach outlined below is consistent with the SUITE PMM and will be used for this project.

Lochbridge agrees that there will be no additional cost to the State for the evaluation of Issues, Risks and Change Requests.

**a. Initial Issue and Risk Assessment**

During Initiation and Planning, Lochbridge will identify initial issues/risks by interviewing the State Project PMs (and any others designated by the State Project PMs) to identify their concerns and to record those appropriately within Changepoint. These issues/risks may fall into any of the following categories:

- External
- Financial
- Functional
- Quality
- Performance
- Project Management
- Resource
- Schedule
- Scope
- Technical
- General/Other

As part of the interview process, Lochbridge's Project Manager will review a list of actual project issues/risks encountered on other projects and the type of analysis and/or mitigation strategies developed.

The following list can then serve as "thought-starters" for identifying initial issues/risks during the interview process:

Possible Project Issues/Risks	Possible Ways to Address
<p><b><u>Scope</u></b></p> <ul style="list-style-type: none"> <li>• Scope changes</li> <li>• Requirements change</li> <li>• Requirements not adequately defined</li> <li>• Use of deliverable/solution not clearly defined</li> </ul>	<p>Agile approach designed to address and accommodate early identification of scope issues</p> <p>Use of formal change control process, attention to issue and risk management</p> <p>Use cases developed early as part of Requirements phase. Feedback, approval processes in place</p>
<p><b><u>Time</u></b></p> <ul style="list-style-type: none"> <li>• Timeline changes</li> <li>• Insufficient resources &amp; time</li> <li>• Errors in estimates</li> <li>• Poor time allocation</li> <li>• Changes in environment</li> </ul>	<p>Get the team actively involved in detailed planning and estimating.</p> <p>Get early feedback and address slips directly with stakeholders</p> <p>Address resource needs early and often</p> <p>Communicate environment changes and examine impacts to timelines</p>
<p><b><u>Cost</u></b></p> <ul style="list-style-type: none"> <li>• Funding uncertainty</li> <li>• Loss of funding</li> <li>• Errors in cost estimates</li> </ul>	<p>Proper use of change control and contracting processes</p> <p>Attention to estimates versus actuals,</p>

<ul style="list-style-type: none"> <li>• Price changes</li> <li>• Inadequate productivity</li> <li>• Inadequate contingency planning</li> </ul>	<p>trends</p> <p>Strong relationships that foster communication surrounding cost or funding pressures</p>
<p><b><u>Quality</u></b></p> <ul style="list-style-type: none"> <li>• Inadequate attention to quality</li> <li>• Substandard design</li> <li>• Inadequate quality assurance efforts</li> <li>• Changes in development tools</li> <li>• Production disruption</li> </ul>	<p>Complete testing at all stages of SDLC</p> <p>Peer Reviews</p> <p>Frequent checkpoints by PM</p> <p>Deliverable development, feedback, revision and approval processes</p> <p>Early identification of changes affecting quality</p>
<p><b><u>People</u></b></p> <ul style="list-style-type: none"> <li>• Poor project organization</li> <li>• Inadequate leadership</li> <li>• Loss of sponsor</li> <li>• Loss of key team members</li> <li>• Poor project attitude</li> <li>• Team friction</li> <li>• Poor conflict resolution</li> <li>• Poor vendor management</li> <li>• Lack of user involvement in design, testing and implementation</li> </ul>	<p>Determine whether extra resources could either be involved or shadow any work dependent on a single member of team.</p> <p>Help ensure complete records of work are available at any point</p> <p>Strong relationships built early in the project</p> <p>Team building exercises</p> <p>Define project “success” in terms stakeholders can relate to (i.e., why is this important to me?)</p> <p>Periodic lessons-learned sessions</p> <p>Emphasize importance of listening skills, collaboration</p> <p>Foster open communication channels up, down, and sideways</p>
<p><b><u>Communications</u></b></p> <ul style="list-style-type: none"> <li>• Poor communications planning</li> <li>• Inadequate communications</li> <li>• Insufficient stakeholder involvement</li> </ul>	<p>Identify key stakeholders, build strong communication plan</p> <p>Use various media to communicate key project messages</p> <p>Frequent team meetings</p> <p>Take time and validate that messages are being understood</p>
<p><b><u>Procurement</u></b></p> <ul style="list-style-type: none"> <li>• Processes may not be in place to deliver to project needs</li> <li>• Technology may be immature</li> <li>• Wrong solution delivered</li> <li>• Poor relations with vendor</li> </ul>	<p>Understanding own and other’s procurement standards and processes</p> <p>Involvement of the right people (specifications, funding, contracts, purchase orders, invoicing)</p> <p>Contract management</p>
<p><b><u>General/Other</u></b></p> <ul style="list-style-type: none"> <li>• Undetected project issues/risks</li> <li>• Lack of mitigating action for identified risks</li> <li>• Undetected project showstoppers</li> </ul>	<p>Frequent review of team concerns, issue status, issue escalation results, risk, risk probability, risk severity, mitigation strategies, contingency planning, managing “realized risks”</p>

Items surfacing during the interviews will be jointly classified as either an issue or a risk and entered

appropriately into Changepoint for assignment, further analysis and action.

**b. Issue and Risk Management Strategy**

Issue and Risks will be identified, evaluated, analyzed and addressed in parallel with the creation of the formal Project Plan and then ongoing throughout the life of the project. As mentioned above, initial interviews with the State PMs (and any others they may designate) will be conducted shortly after project kick-off to capture those initial concerns. On an ongoing basis, the project team will be responsible for identifying concerns which will then be evaluated to classify initially as either an issue or a risk. In addition, the State and Lochbridge PMs are in a unique position to detect issues/risks that may not have been clearly articulated as well as managing the ones that have been articulated. With ultimate responsibility for project-wide communications as well as overall performance monitors, they have access to a wide array of independent data sources for identifying issues and risks that may otherwise go undetected. Possible sources of items in this category are:

- Articulated problems for which no one claims ownership
- Discrepancies between verbal status, metrics analysis, or project repository status
- Changes in work patterns around a project deliverable
- Reports during meetings that may impact other teams or deliverables
- Access to Subject Matter Experts from other State agencies or contractors
- Availability of and access to the hardware and software environments

An item classified as an issue (occurring now or already occurred), the strategy is to capture it in Changepoint, establish categories and priorities of all issues, assign responsibility to each issue and track that each issue is resolved with minimal impact to the project’s performance.

There are both similarities and differences in the strategy to handle concerns classified initially as a risk (something that might happen). Similar to the handling of issues, risks need to be identified and captured in Changepoint and a risk owner is assigned with the responsibility for developing, documenting and executing risk action plans. Then, risks are handled differently in that it involves assigning a level of priority based on the probability of occurrence and impact to the project, definition of mitigation strategies, and the monitoring of risk items and mitigations.

Lochbridge follows the SUITE PMM guidance on risk ranking/scoring, thresholds, response approach, avoidance, transference, mitigation, acceptance and action plans as described below:

Risk Ranking / Scoring Techniques

The following tables represent the risk impact/probability matrix used to internally score the risks for the purpose of prioritization. The resulting product from multiplying risk probability and impact determines the severity rating (score) of the risk. The higher the risk score the more important it is that the risk is managed.

		Probability				
		1-Low	2-Low/Medium	3-Medium	4-Medium/High	5-High
Impact	5-High	Low (5)	Medium (10)	High (15)	High (20)	High (25)
	4-Medium/High	Low (4)	Medium (8)	Medium (12)	High (16)	High (20)
	3-Medium	Low (3)	Medium (6)	Medium (9)	Medium (12)	High (15)
	2-Low/Medium	Low (2)	Low (4)	Medium (6)	Medium (8)	Medium (10)
	1-Low	Low (1)	Low (2)	Low (3)	Low (4)	Low (5)

Score	Severity
1-5	Low
6-12	Medium
13-25	High

The risk response matrix below should be used to consider the appropriate action required for a risk in relation to its impact / likelihood. Guidance on the review periods for each level of risk are the

minimum level of review required, but certain risks might warrant more regular reviews.

Impact	High 3	Implement Further Actions to Reduce Risk; Continue Existing Controls; Generate Contingency Plan; Review at least every 2 weeks	Urgently Take Further Remedial Action to Reduce Risk; Contingency plan on standby; Review at least every week	Take Immediate Further Remedial Action to Reduce Risk; Contingency plan on standby; Review Continuously
	2	Tolerate; Continue existing Control Measures; Possible Contingency Plan; Review at least 2 weeks	Implement Further Actions to Reduce Risk; Continue Existing Controls; Generate Contingency Plan; Review at least every 2 weeks	Urgently Take Further Remedial Action to Reduce Risk; Contingency plan on standby; Review at least every week
	Low 1	Tolerate; No action: Continue Control if Required; Review at least monthly	Tolerate; Continue existing Control Measures; Possible Contingency Plan; Review at least 2 weeks	Implement Further Actions to Reduce Risk; Continue Existing Controls; Generate Contingency Plan; Review at least every 2 weeks
		1 Low	2 Probability	3 High

Severity Rating	Assessment of Severity/Risk Rating Description	Ranking
High	Significant impact on project baselines	3
Medium	Controllable impact on cost, schedule and performance	2
Low	Minor impact on cost, schedule and performance	1

**Risk Response Approach and Risk Action Plan**

A risk response approach is identified for each risk. A risk action plan is developed as appropriate to support the risk response approach.

**Risk Avoidance**

The goal of risk avoidance is to eliminate the risk or threat entirely. Risk avoidance usually involves modification of the project management plan by extending the schedule, changing the strategy, or reducing scope. However, it is difficult to completely avoid or eliminate a risk, and one of the following three risk response approaches is typically used.

**Risk Transference**

Transferring a risk does not eliminate the risk. Transferring gives another party responsibility for the risk management.

**Risk Mitigation**

Action should be taken as early as possible to reduce the probability of a risk’s occurrence and its impact to the project. For risk mitigation to occur, the project assesses mitigation costs, which must be appropriate given the probability of the risk and its consequences. Mitigation alternatives may include implementing procedures that will reduce the problem, such as utilizing less complex processes, conducting more specific or regressive testing or ensuring appropriate parties review work (such as using peer reviews). Mitigation may also involve adding resources or time to the project plan.

**Risk Acceptance**

Acceptance indicates that the project team has decided not to change any plans to mitigate the risk. When accepting risk, the project team will develop a risk action plan in order to reduce the consequences should the risk event occur.

Risk Action Plan

The risk action plan includes the agreed-upon specific actions that will be taken to implement the chosen response strategy, budget and times for responses, contingency or fallback plans, and the level of residual risk expected to remain after the strategy is implemented.

A decision must be made at the time of a risk triggering event to determine the appropriate response. The decision will be on a case-by-case basis, based on the nature and timing of the event.

Issues and risks will be reviewed frequently: by the State and Lochbridge PMs at least weekly, in weekly team project meetings, and in executive steering committee meetings. Additional visibility is provided through the use of Changepoint which makes this issue/risk related information available on demand for people with appropriate access. Critical issues are also reported on status reports (weekly PM status, 4UP report).

**c. Issue/Risk process**

The key to a successful issue/risk process is that it is employed continuously throughout the life of the project and status is visible to all team members. Project managers, team members, and other stakeholders should always be on the lookout for areas that could negatively impact the project and use the defined means to address them appropriately. The process consists of the following steps:

- A concern is identified (any stakeholder)
- The concern is captured on Changepoint, classified as either an issue or risk (PMs)
- Issues are assigned by the PMs for resolution
- Risks are scored, owner assigned, risk response are determined and action plans developed (if needed)
- Issues and risks are reviewed regularly by the PMS (minimum weekly), updated, and communicated appropriately – weekly team meetings, weekly status reports, executive steering committee, monthly 4UP status report

The formal process will be documented in the Project Plan (in the Issue Management Plan and Risk Management Plan components of this document) and steps followed for review, revision and approval per the WBS provided.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section.

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State Project Manager	<ul style="list-style-type: none"> <li>▪ Arrange for SOM facilities, as needed</li> <li>▪ Coordinate SOM resources for the project</li> <li>▪ Facilitate communication between different SOM Departments/Agencies</li> <li>▪ Conduct regular and ongoing review of the project to confirm that it meets original objectives and requirements</li> <li>▪ Resolve project issues in a timely manner, escalate if needed</li> <li>▪ Provide acceptance and signoff of deliverables/milestones</li> <li>▪ Utilize change control procedures</li> <li>▪ Make key decisions needed by the project</li> </ul>
	<b>Lochbridge Responsibility</b>
Lochbridge Project Manager	<ul style="list-style-type: none"> <li>▪ Establish Lochbridge team communication protocols</li> <li>▪ Develop the project charter</li> <li>▪ Develop the project plan and schedule, and update as needed</li> <li>▪ Serve as the point person for all project issues</li> <li>▪ Coordinate and oversee the day-to-day project activities of the project</li> </ul>

	<p>team</p> <ul style="list-style-type: none"> <li>▪ Assess and report project feedback and status</li> <li>▪ Manage project issues, project risks, and other concerns (escalate if needed)</li> <li>▪ Document and archive all important project decisions</li> <li>▪ Proactively propose/suggest options and alternatives for consideration</li> <li>▪ Utilize change control procedures</li> <li>• Prepare project documents and materials</li> <li>• Initiate change requests</li> <li>• Work with State PMs to determine appropriate assignment of change requests to team members for analysis, documentation and estimation</li> <li>• Prepare agenda/materials for CCB meetings</li> <li>• Communicate CCB decisions/resolutions to appropriate stakeholders</li> <li>• Work with State PMs and/or others to execute or assign for execution of approved changes (contract modification, schedule adjustment, re-base lining, etc.)</li> </ul>
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**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Project Management Plan	<p>The Project Management Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (PMM-0102)</p> <p>Document how the project will be planned, executed, monitored, controlled and closed including the following sub-plans:</p> <ul style="list-style-type: none"> <li>○ Resource Management Plan (i.e. Staffing Plan)</li> <li>○ Project Budget Estimate</li> <li>○ Communication Management Plan</li> <li>○ Change Management Plan</li> <li>○ Quality Management Plan (i.e. includes Test Plan)</li> <li>○ Issue/Risk Management Plan</li> </ul> <p>Be completed at the end of the Initiation and Planning Phase for review by the State</p> <p>Address all State corrections/comments/feedback appropriately</p>
Risk Management Plan	<p>The Risk Management Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>provide details on Initial Issue and Risk Assessment, Issue and Risk Management Strategy and the Issue/Risk process</p> <p>Address all State corrections/comments/feedback appropriately</p>

**K. Plans**

- a. Project Plan
- b. Detailed Project Schedule
- c. Application Design Plan
  - i. Configuration and Installation Design
  - ii. Integration Design
  - iii. User Interface Design
  - iv. Data Migration Design
- d. Application Development Plan
- e. Implementation Plan
- f. Enterprise Architecture (EA) Solution Assessment (EASA) Worksheet

- g. System Maintenance Plan
- h. Transition Plan
- i. Disaster Recovery Plan
- j. Issue/Risk Management Plan
- k. Cutover Plan
- l. Change Management Plan

In order to establish early mutual understandings amongst the project stakeholders, one of the very first tasks the Lochbridge Project Manager will undertake after project launch (Initiation and Planning Phase) is development of the Project Charter. This charter will provide a high-level description of the project and form the basis for development of the Project Plan. The Lochbridge PM will work closely with the State PMs in further developing the content on the following topics (over and above that known from this Contract process):

- Agency goals and business needs
- High-Level project description
- Measurable project objectives
- Project scope (in scope, out of scope)
- Assumptions
- Constraints
- High-level project plans
- Project authority
- Approval information

The Lochbridge Project Manager will develop the Project Charter by populating known information from the Contract process as well as engaging key project team members, including the State PMs, Executive Steering Committee members, and other stakeholders. Building these relationships early also provides an opportunity to begin development of initial lists of issues/risks that are of concern as the project is initiated.

#### **a. Project Plan**

During Initiation and Planning, there is a heavy emphasis on communication between various stakeholders. This communication includes the setting of expectations at many levels, through varying types of media (plans, schedule, meetings, etc.). This is also the phase where project working relationships are defined and established. Lochbridge's collaborative approach relies heavily on teamwork and appropriate expectation-setting as key components to overall team success. The Project Plan provides a foundation for the management efforts associated with successful execution of the project. The Lochbridge Project Manager will work closely with the State Project Managers to develop a final Project Plan that will be reviewed and approved by the State. If changes are needed based on project needs, the State will offer acceptance to such change.

Lochbridge will formally follow the SOM SUITE Project Management Methodology which will be tailored to conform to the agreed upon overall approach. The overall approach and use of SUITE will be stated quite clearly in the final Project Plan. Lochbridge will provide additional details regarding their proposed use of "modified agile" approach to the Requirements and Design SEM phases and use of automated and manual testing as described elsewhere in this Statement of Work. Lochbridge will also describe in full their proposed use of the Changepoint tool for execution of the PMM and as a means of establishing close collaboration between team members. This final Project Plan document draft will be submitted by the Lochbridge PM to the State PMs in the first month of the project for review and feedback.

The contents of the Project Plan will follow the PMM-102 format:

- A. General information
- B. Purpose
- C. Project Summary (including project description, project deliverables/reviews, approach, results/completion criteria, and critical success factors)
- D. Project Schedule
- E. Human Resource Management Plan

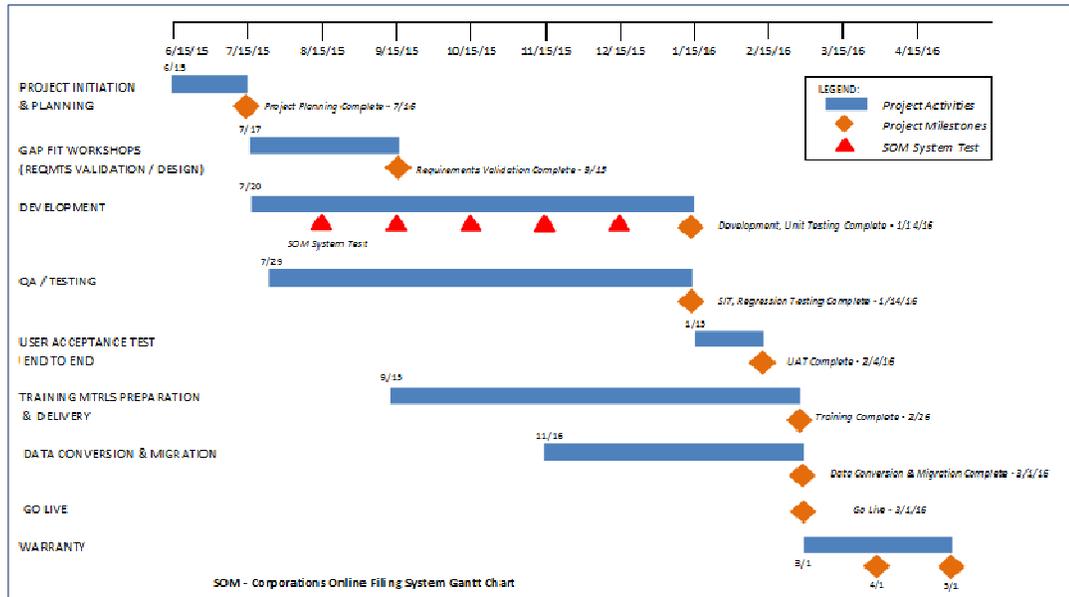
- F. Project Budget Estimate
- G. Communication Management Plan
- H. Change Management Plan
- I. Quality Management Plan
- J. Risk Management Plan
- K. Issue Management Plan

The content of the final Project Plan (including the sub-project plans described above) will rely heavily on aspects of the approach detailed within this proposal, including but not limited to:

- Proposed Schedule
- Proposed Resource Plan
- Proposed Pricing (for budget tracking)
- Proposed Meetings, Project Reporting (for communication management)
- Proposed Issue/Risk and Change Management
- Proposed Deliverable Reviews, Walkthroughs, Unit/System/Acceptance Testing Approach (for quality management)

**b. Detailed Project Schedule**

The project schedule is an important roadmap as it provides the project team, sponsors, and other stakeholders with a picture of the project’s status at any given time. The following Gantt Chart summarizes the overall detailed schedule:



This chart depicts major project tasks and durations as well as high-level milestones. The detailed project schedule that supports these tasks/timings is provided in Schedule D Pricing. This detailed schedule constitutes the proposed project work breakdown structure (WBS). Lochbridge will develop and maintain this detailed schedule in the SOM instance of Changepoint.

**c. Application Design Plan**

**i. Configuration and Installation Plan**

A configuration and installation plan will be built during the project and delivered with the final release of the application. A draft of the configuration and installation plan will be delivered with the first release and will be maintained as development progresses.

## **ii. Integration Design**

The application will integrate with 3 external interfaces:

- CEPAS
- C3
- Kofax Scanning Product

The application also requires the capability to create easy to modify documents which will be used in a mail-merge process to create documents (in example: Revocation Certificates).

### **Approach**

For each interface, Lochbridge will create a context diagram that will describe the relationship of the interface with the application. During the JAD sessions, the Gap/Fit analysis will determine what part of the Business Entities Electronic Filing and Imaging system needs to be changed to integrate with the interface. A technical design will be created for each of the interface which will be used by development.

### **Template and Mail Merge Approach**

For the templates and mail-merge, the application will use Word documents using mail-merge fields. The merge with data will be done programmatically using a third-party component called Apose.Words. Using this method, any user with Microsoft Word knowledge will be able to modify the templates. Apose.Words includes the capability of transforming Word documents into PDFs so the user will get a user-friendly document from the resulting operation. These PDF's could also be stored in the system as-is and be used as images for documentation purposes.

## **iii. User-Interface Design**

Lochbridge will implement the new requirements based on the current eMichigan Standards. The eMichigan standards require that development will need to be:

- Mobile-friendly
- Responsive when applicable
- Accessible and ADA compliant

### **Approach**

The Mobile-friendly and responsive design will depend on the existing COFS UI. The new development will be done in the confine of the existing system but will follow best practices to create simple designs that are mobile-friend and responsive according to the eMichigan standards. The State declared that while RWD is preferred, it may not be practical with an existing system. The application currently works with most tablets, which provides some mobile functionality. Conversion of the code to full RWD, with smartphone support, would be considered as a future enhancement.

If new user interfaces are required, Lochbridge will present a Visual Prototype of the new features to State of Michigan team members for validation.

ADA compliance will be provided for new requirements. The focus will be put on:

- Text-reader friendliness (skipping menus, alt tags on images, etc.)
- Color-blind friendliness (no overlapping colors, etc.)
- Vision-impaired friendliness (different font-size, etc.)

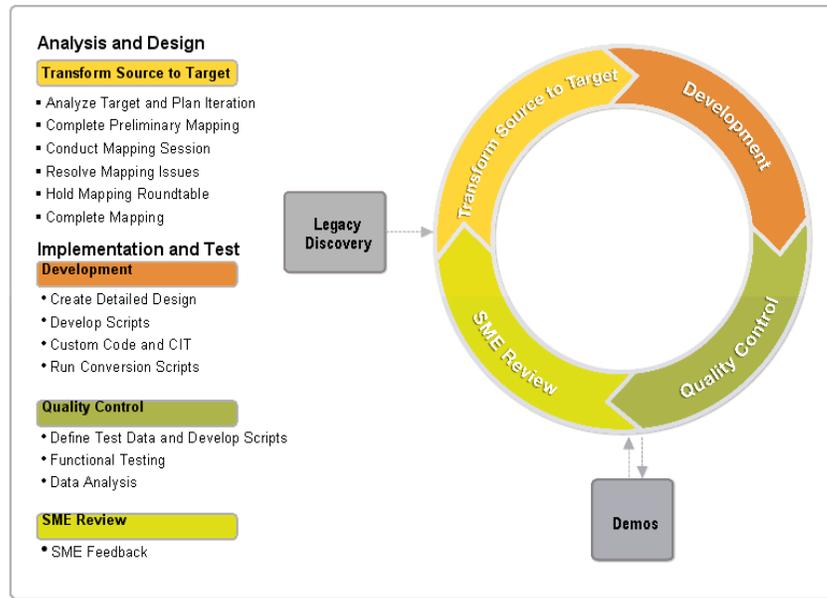
## **iv. Data Migration Design Approach**

Lochbridge will utilize the State of Michigan’s Suite Methodology Conversion document (SEM –0601) to develop a plan to convert the appropriate data for the Corporation filing system. As part of the Technical Design phase Lochbridge will identify the conversion requirements for each table and data element in the Conversion Requirements Document. During the development phase the Technical Lead will work with the Lochbridge Test Lead to continually update the conversion documents to accurately depict any changes that have been made.

The graphic below depicts the standard Lochbridge data conversion methodology. However, Lochbridge will work with the State to determine the most efficient and appropriate way to migrate the data into the database structure and build scripts, programs or batch jobs to facilitate the data migration. If tailoring of this approach is needed to map to SUITE, the Lochbridge Technical Lead will work with the State Data Migration Coordinator to help ensure compliance with State standards.

## Data Conversion Iterations

Reduce Risk By Continuous Collaboration with Application Development



### Data Conversion Iterations

Lochbridge’s data conversion and migration approach begins with the legacy discovery- identification and analysis of existing data. The identification and analysis activities continue throughout the conversion iterations as a part of the data mapping activity. During each step of the conversion process, both State and Lochbridge resources will review the data mapping, conversion, cleansing approach, and the final converted data.

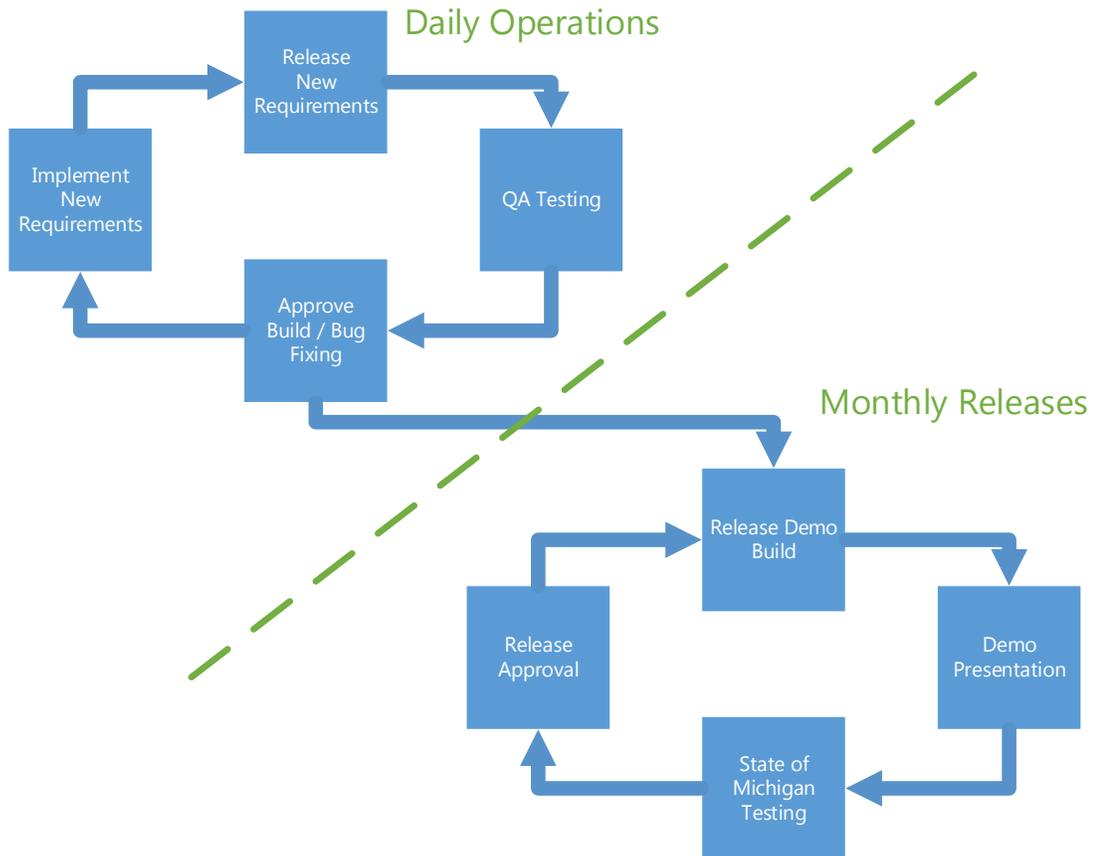
During Quality Control, all conversion scripts, programs and jobs are tested before the final production conversion, as well as load tested to help ensure that the final conversion will run in a timely and efficient manner.

It is Lochbridge’s experience that this iterative data conversion methodology helps ensure the quality of the data conversion to be significantly better than traditional approaches due to the integration with the development process.

#### d. Application Development Plan

## Approach

Following the modified agile methodology presented above, development will follow a similar process during each cycle. The development team will deliver rapid builds to the QA team to test features as they are developed. At the end of each cycle an official build will be released and deployed to a test server. A demo will be presented to State of Michigan to validate each requirement. The build will then be available for State of Michigan to test.



## Builds and continuous integration

Two different build definitions will be created. A continuous integration build will be created that will fire after each commit of the application and will run the unit tests. In the case of an error, a defect will automatically be created and assigned to the person who committed the change.

A nightly build will be run after business hours each day. The build will run the unit tests, static code analysis using the default Visual Studio 2013 quality profile and code coverage will be calculated. A package will be created to deploy to the QA environment. This build will be used by development when they need to give the testing team a new version of the application.

It is possible that the current system already has its own build definition and Lochbridge will work with State of Michigan to determine if those builds provide the necessary quality expectations.

## e. Implementation Plan

The Lochbridge Implementation Plan contains those elements necessary for the successful implementation of the COFS application in the State of Michigan environment. It includes the activities and deliverables

necessary to meet contractual requirements associated with the project. The Implementation Plan and detailed WBS is provided in Schedule D Pricing.

#### **f. Enterprise Architecture (EA) Solution Assessment (EASA) Worksheet**

The Enterprise Architecture Solution Assessment (EASA) will be filled during the Gap/Fit Workshops. A context diagram and a network diagram will be built to describe the current system. The architecture inventory will be completed during the first month. Some of those items are already known but other information will require information from the State. Some items that are already known:

- Database: SQL Server
- User Access: Internet, Intranet and Public Facing Internet
- Data Classification: Non-sensitive and Sensitive w/ personal ID info
- PCI-DSS compliance required
- Development Framework (.Net 4.0)
- Development Platform: Visual Studio 2013
- Etc.

#### **g. System Maintenance Plan**

Lochbridge will develop the SEM-0301 Maintenance Plan initially during the Initiation and Planning Phase of the project and update it, at a minimum, during the Implementation Phase of the project as shown in the WBS in Schedule D Pricing. This deliverable provides information on solution status, roles and responsibilities of the maintenance team, management approach and the technical approach to be used during the maintenance period. More specifically, the SEM-0301 will detail:

- Maintenance Overview, Scope
- Solution Status
- Maintenance Team (including roles and responsibilities)
- Maintenance Management Approach (includes task descriptions, assumptions, constraints and dependencies)
- Maintenance Technical Approach (includes types of activities, configuration management, risk assessment, testing, system protection, special processes, records and reports, training)
- Documentation
- Quality Assurance Activities
- Related forms

One of the related forms will be a Business Function/Service/Application Criticality Request that Lochbridge will create and manage during the maintenance period. Lochbridge will work with the SOM to modify the SEM-0931 System Maintenance Document to capture necessary information to properly support CSCL/DTMB requests and detail the processes of that support within the System Maintenance Plan, including overall management of the requests (priorities, status reporting, etc.).

#### **h. Transition Plan**

Development of the SEM-0701 Transition Plan will occur once the SOM communicates their desire to proceed with the system transition (shown in the Implementation Phase so as to show related tasks in the schedule/WBS). This deliverable provides information on transition overview, infrastructure services, operational scenarios, transition planning, data migration, problem resolution, and schedule. See Section 2.G Transition Services where Lochbridge describes overall approach, Transfer Evaluation Report Creation and Walkthrough, Ongoing Project Updates, State & Contractor roles, Deliverables and Acceptance Criteria.

#### **i. Disaster Recovery Plan**

During the first month of the project, the project team will define the Disaster Recovery Plan. Since the Corporations On-Line Filing System is state-hosted, these guidelines will be limited to the software

components of the solution.

### Approach

The Disaster Recovery Plan will include the Incident Response, the Roles and Responsibilities and the procedures to repair the software.

The incident response section will include the typical scenarios to expect in case of major problems and the implications of such scenarios. Typical scenarios include: single server crashing (unrecoverable) such as the Web server or the database, services being down (reporting service, IIS, etc.).

The Roles and Responsibilities section will determine who should take action in case of disaster. Here is an example of a Roles and Responsibilities table:

Title	Entity	Responsibility
System Administrator	State of Michigan	- Rebuild servers - Restart servers and services - Install software
Power User	State of Michigan	- Manage application settings
Tester	State of Michigan	- Helps ensure application is fully operational
Developer (Maintenance phase)	Lochbridge	- Configure software

The procedures to repair the software will include conditional steps to repair the system in order of priority. An example of priority is shown below:

1. The Web Servers hosting the application should be brought up so the user receives meaningful error messages and not a server error.
2. The application database server should be started to get the most functionality out of the system. The user can now start operating normally with minimal delay.
3. The other auxiliary systems should be running (fax, scanning software) to have all the user able to work.
4. The report server is last since it doesn't impact daily operations.

### j. Issue/Risk Management Plan

Issues are events that are occurring now or have already occurred. An issue is not an event or item that may occur at a time in the future. If something is definitely going to happen or it has already happened, then it is an issue. If it is something that might happen – whether it is very likely or very unlikely – then it is a risk. An issue can turn into a risk and risk may result from an issue. An issue can be associated to a risk. Prompt issue resolution can minimize project changes.

As part of the overall Project Plan, Lochbridge will create the Issue/Risk Management sub-plan during the Initiation and Planning stage of the project. This sub-plan will contain the following:

- Issue/Risk Management methodology to be used (i.e., SUITE PMM)
- Issue/Risk Assumptions/Assessments
- Roles and Responsibilities
- Timings
- Issue/Risk Process
- Communications (i.e., Changepoint, logs, reporting, escalation)

Lochbridge will use the SOM instance of Changepoint to capture, manage and report project issues.

SOW Section 2.J describes the Initial Issue and Risk Assessment, Issue and Risk Management Strategy, and the Issue/Risk Process. SOW Sections 2.L and 2.M describes various communications/timings (Reports and Meetings respectively) as part of Issue and Risk Management. These areas will be incorporated into the Issue/Risk Management Plan.

**k. Cutover Plan**

Going “live” with a new application requires detailed planning since there can be literally hundreds of tasks (some very minor and some very major), open issues needing resolution, involvement of varied groups and individuals, business and technical dependencies, etc.

The Cutover Plan takes the form of a WBS specific to the system cutover with a supporting contingency WBS in the event a backout is required during go-live. The Cutover Plan will be created during the Testing Phase and managed/executed throughout the Implementation Phase of the project. These items include (but are not limited to):

- Tracking of tests yet to be performed
- Corrected defects, verified
- Acceptable system performance
- Preparation of the State production environment
- Definition and do-ability of Installation tasks
- External work on system interfaces verified
- Stakeholder/user communications
- Training and reference activities
- Detailed system access procedures
- Conversion activities
- Preparedness for Warranty and Maintenance
- Checkpoints to properly mark Implementation progress, cutover plan updates

There is a distinct relationship between the Cutover Plan, the Deployment Checklist (see SOW Section 2.D.b) and the Implementation Schedule/System Availability deliverable (see SOW Section 2.D.c):

- Cutover Plan (created during the Testing Phase and updated, if necessary, during the Implementation Phase)
- Deployment Checklist (summarizes, at any given point in time, the status of the elements of the Cutover Plan that determine the overall readiness of the solution for Production – i.e., once all items successfully completed/resolved, the project can then proceed to “go-live”)
- Implementation Schedule/System Availability (the detailed tasks to be performed to move the solution into Production, with detailed timings over the deployment horizon (usually the “go-live” weekend) culminating in the date/time the system is available for end users)

**I. Change Management Plan**

As part of the overall Project Plan, Lochbridge will create the Change Management sub-plan during the Initiation and Planning stage of the project. This sub-plan will contain the following details:

- Roles and Responsibilities
- Change Management Governance
- Process Description
- Capturing and Monitoring Project Changes
- Communicating Project Changes

Again, Lochbridge will use the SOM instance of Changepoint to capture, manage and report project changes.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section,.

Responsible Role	Responsibilities
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<b>State Responsibility</b>	
State PMs	<ul style="list-style-type: none"> <li>• Conduct regular and ongoing review of the project to confirm that it meets original objectives and requirements</li> <li>• Provide acceptance and signoff of deliverables/milestones</li> <li>• Utilize change control procedures</li> <li>• Make key decisions needed by the project</li> <li>• Schedule Change Control Board (CCB) meetings</li> <li>• Initiate change requests</li> <li>• Work with the Lochbridge PM to determine appropriate assignment of change requests to team members for analysis, documentation and estimation</li> <li>• Work with the Lochbridge PM and/or others to execute or assign for execution of approved changes (contract modification, schedule adjustment, re-base lining, etc.)</li> </ul>
State SMEs	<ul style="list-style-type: none"> <li>• Review and approve all documentation</li> <li>• Initiate change requests</li> <li>• Assist in the analysis and documentation of assigned change requests</li> </ul>
Change Control Board (CCB)	<ul style="list-style-type: none"> <li>• Meet on a regular basis to review, approve or reject proposed project changes</li> </ul>
<b>Lochbridge Responsibility</b>	
Lochbridge PM	<ul style="list-style-type: none"> <li>▪ Establish Lochbridge team communication protocols</li> <li>▪ Develop the charter, project plan and schedule, and update as needed</li> <li>▪ Serve as the point person for all project issues</li> <li>▪ Assess and report project feedback and status</li> <li>▪ Manage project issues, project risks, and other concerns (escalate if needed)</li> <li>▪ Document and archive all important project decisions</li> <li>▪ Proactively propose/suggest options and alternatives for consideration</li> <li>• Utilize change control procedures</li> <li>• Initiate change requests</li> <li>• Work with State PMs to determine appropriate assignment of change requests to team members for analysis, documentation and estimation</li> <li>• Prepare agenda/materials for CCB meetings</li> <li>• Communicate CCB decisions/resolutions to appropriate stakeholders</li> <li>• Work with State PMs and/or others to execute or assign for execution of approved changes (contract modification, schedule adjustment, re-base lining, etc.)</li> </ul>
Lochbridge SMEs	<ul style="list-style-type: none"> <li>• Work with State SMEs to create plans and update as necessary</li> <li>• Initiate change requests</li> <li>• Analyze, document and estimate impacts of assigned change requests</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
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<p>Project Charter (PMM-0101)</p>	<p>The Project Charter will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (PMM-0101)</p> <p>Provides a high level description of the project and initial project planning estimates</p> <p>Be completed during the Initiation and Planning phase for review by the State</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Project Management Plan (PMM-0102)</p>	<p>The Project Management Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Leverage the SUITE template provided by the State of Michigan (PMM-0102)</p> <p>Document how the project will be planned, executed, monitored, controlled and closed including the following sub-plans::</p> <ul style="list-style-type: none"> <li>o Resource Management Plan (i.e. Staffing Plan)</li> <li>o Project Budget Estimate</li> <li>o Communication Management Plan</li> <li>o Change Management Plan</li> <li>o Quality Management Plan (i.e. includes Test Plan)</li> <li>o Issue/Risk Management Plan</li> </ul> <p>Be completed at the end of the Initiation and Planning phase for review by the State</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Detailed Project Schedule (WBS)</p>	<p>The Detailed Project Schedule will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Depict the work to be completed by the project team including tasks, deliverables, and milestones.</p> <p>Be completed at the end of the Initiation and Planning phase for review by the State</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>System Maintenance Plan (SEM-0301)</p>	<p>The System Maintenance Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Provide information on solution status, roles and responsibilities of the maintenance team, management approach and the technical approach to be used during the maintenance period.</p> <p>Be drafted at the end of the Initiation and Planning phase and finalized during the Implementation phase</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Application Design Plan</p>	<p>The Application Design Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Include the configuration and installation design, integration design, user interface design, and data migration design.</p> <p>State corrections/comments/feedback addressed appropriately</p>

<p>Application Development Plan</p>	<p>The Application Development Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Include how the application will be developed, what features will go into each build, and technical and business SME involvement.</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Software Configuration Management Plan (SEM-0302)</p>	<p>The Software Configuration Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Provide information on user roles and levels of access, working hours for quality of service, URI of services and third parties, and configuration strings for databases.</p> <p>Have the initial draft at the end of the Initiation and Planning phase and be finalized during the Requirements/Design phase.</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Installation Plan (SEM-0702)</p>	<p>The Installation Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Provide information on installation environment, entry and exit criteria, installation schedule, backup plan, and test procedures.</p> <p>Have the initial draft at the end of the Construction phase and be finalized during the Testing phase.</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Implementation Plan</p>	<p>The Implementation Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Outline the elements necessary for the successful implementation</p> <p>Includes the activities and deliverables necessary to meet contractual requirements associated with the project</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Engineering Architecture Solution Assessment (EASA)</p>	<p>The EASA will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Define the current environment and the target environment and the steps to be taken to transition from the current to the target.</p> <p>Have the initial draft at the end of the initiation and Planning phase and be finalized during the Testing phase.</p> <p>State corrections/comments/feedback addressed appropriately</p>
<p>Transition Plan</p>	<p>The Transition Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Complete the sections of SEM-0701, including functional, technical and infrastructure related areas to be transitioned</p> <p>Detail activities identified to address SOM readiness to support the COFS solution</p> <p>Transition activities documented in a WBS format, including milestones, tasks, timings, resources</p> <p>State corrections/comments/feedback addressed appropriately</p>

Disaster Recovery Plan	<p>The Disaster Recovery Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Include the Incident Response, the Roles and Responsibilities and the procedures to repair the software.</p> <p>State corrections/comments/feedback addressed appropriately</p>
Risk Management Plan	<p>The Risk Management Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Provide details on Initial Issue and Risk Assessment, Issue and Risk Management Strategy and the Issue/Risk process</p> <p>State corrections/comments/feedback addressed appropriately</p>
Cutover Plan	<p>The Cutover Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Have the initial draft by the end of the Testing Phase and managed/executed throughout the Implementation Phase of the project.</p> <p>Include (but are not limited to):</p> <ul style="list-style-type: none"> <li>o Tracking of tests yet to be performed</li> <li>o Corrected defects, verified</li> <li>o Acceptable system performance</li> <li>o Preparation of the State production environment</li> </ul> <p>State corrections/comments/feedback addressed appropriately</p>
Change Management Plan	<p>The Change Management Plan will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Be included in the overall Project Plan</p> <p>Contain the following details:</p> <ul style="list-style-type: none"> <li>o Roles and Responsibilities</li> <li>o Change Management Governance</li> <li>o Process Description</li> <li>o Capturing and Monitoring Project Changes</li> <li>o Communicating Project Changes</li> </ul> <p>State corrections/comments/feedback addressed appropriately</p>

L. Reports

- a. Gap/Fit Analysis Report
- b. Weekly Status Report
- c. Monthly Project Update Report
- d. Monthly Budget Tracking Report
- e. Issue/Risk report
- f. Test Type Approach and Report (Test results for each type of test)

**a. Gap/Fit Analysis Report**

a. Gap/Fit Analysis Report

Gap/Fit Workshops will be conducted to identify and analyze the degree of gap and fit between the COFS system and the business requirements. In the workshop, participants:

- Identify business event-driven process scenarios
- Perform a walk-through of each business process from beginning to end for each process scenario
- Verify with Subject Matter Experts (SME) that process steps are complete and that no steps have been left out
- Show how the steps are supported by the COFS system to the maximum extent feasible.
- Identify as “gaps” any parts of a process not met by the COFS system
- Document the gaps, noting detailed functional requirements and noting required interfaces with legacy data systems or required system-to-system data migrations
- Record any action item or issue raised within the workshop for follow-up and resolution

Workshop findings are summarized into a detailed Gap/Fit Analysis Report structured to mirror the business process. The following information should be present in the analysis:

- Process Identifier
- Process Name: The process being analyzed
- Gap: Name of the process task
- Gap Analysis: Each gap is fully described and the shortcomings noted
- Gap Resolution Strategy: The options for resolving the gap are described. They need to be of sufficient detail to be used by other migration team members who are responsible for resolving the gap. The implications of using each option are documented. This includes an estimate of the implementation effort (time and resources). From the options the strategy for resolving the gap is selected and documented.

Below is a sample excerpt from a proposed Gap/Fit Analysis Report. A similar report will be used for this project:

Process identifier: F02
Process Name: Document Processing
Gap: They system does not provide the ability to manipulate the pages in the image of the submitted documents.
Gap Analysis: The system only allows reviewers to view the pages in the image of submitted document.
Gap Resolution Strategy: The system will be modified to allow reviewers to perform the following functions on the pages in the images of submitted documents: A. Allow changing the sequence of the pages in the image of submitted documents B. Allow delete or adding pages in the image of the submitted documents C. Will not allow to manipulate the content of the pages in the image of the submitted documents D. Will allow to combine multiple images into one image E. Will allow to separate an image into multiple images F. Will allow image manipulation capabilities such as page rotation etc.

**b. Weekly Status Report**

Lochbridge will use the capabilities of Changepoint to report weekly status and to use those capabilities to review with the State PMs and team online during status meetings. In that way, updates can be captured immediately and feedback incorporated as well. In addition, project status is available on demand for those with access to the Changepoint project. If desired, Lochbridge can also produce hard-copy reports for distribution. Below is an example of the use of Changepoint reporting capabilities. The status report for this project will be customized to fit the needs of this project. Status report content in both cases will follow the requirements set by SUITE.

**Project Status Report PMM-13: Changepoint Phase 1 PM Rollout**

Agency / Client	Project Manager	PM Health Assessment	As Of Date
<b>EPMO - Enterprise Portfolio Management Office</b>	Diane Toscano	<b>Yellow</b>	3/9/2012

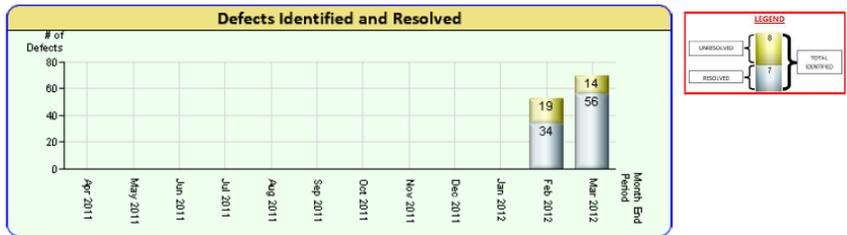
**Project Key Milestones**

Key Milestone	Baseline Finish	Revised Finish	Actual Finish	Status
MS: Stage Exit Approval for Project Planning	2/20/2012	2/28/2012		<b>GREEN</b>
MS: Stage Exit Approval for Training	4/16/2012	4/16/2012		<b>GREEN</b>
MS: Stage Exit Approval for Conversion	4/16/2012	4/16/2012		<b>GREEN</b>
MS: Stage Exit Approval for Testing	4/16/2012	4/16/2012		<b>GREEN</b>
MS: Stage Exit Approval for Project Closeout	4/20/2012	4/20/2012		<b>GREEN</b>

**Project Budget / Cost**

Initial Budgeted Cost	Actual Cost
\$208,000.00	\$0.00

**12 Month Bug / Defect Summary**



**Current Activity Status**

Current Activity Status

Weekly team meetings to gauge the six pilot teams' progress against their objectives (managing one or more projects in CP). Providing support (defect resolution, implementation of small enhancements, training)

**Major Project Accomplishments / Next Steps**

Accomplishments / Next Steps

Accomplishment: Demo for Budgeting Group

Accomplishment: Finalize pilot groups to rollout CP PM

Accomplishment: ORS PM Training

Next Step: February and March - Provide ongoing pilot group support

Next Step: March 30th - Conduct Lessons Learned with Pilot Rollout Group

**Key Issues/Risks**

Issue/Risk

Issue: Licensing: Timing on move to an enterprise license? Effective time tracking (starting in this phase) plus expanded time tracking/resource management (next phase) assumes many more licenses in place.

Issue: Change Management: Uncertainty expressed by various Agency Services PMOs regarding whether to invest time, effort and dollars if there is a risk that direction may change (receiving mixed messages)

**Corrective Action Plan**

Request Number	Describe why a Corrective Action Plan is Needed	Recommendations	Corrective Action Plan (including due dates and responsibility)	Corrective Action Plan Status	Lessons Learned

**c. Monthly Project Update**

Lochbridge will use the capabilities of Changepoint to report monthly on the project. Monthly project updates will be needed and provided by Lochbridge for the Executive Steering Committee meetings and/or for posting on the State’s project website. Below is a snapshot of a Changepoint-generated 4UP status report used on a recent project for executive level updates.

**Project Executive Status – eProcurement (Implementation - Phase II)**

<b>Project Status:</b>		<b>G</b>			
<b>Key Milestones</b>	<b>Start Date</b>	<b>Revised Comp Date</b>	<b>Actual Comp Date</b>	<b>Comp %</b>	<b>Status</b>
Requirements Analysis & Confirmation	N/A		1/22/13	N/A	G
Functional Design & Requirement Specifications – Non-Interface	N/A	5/29/13	6/10/13	N/A	C
Functional Design & Requirement Specifications – Interface	N/A	6/24/13	7/12/13	N/A	C
BuySpeed/MAIN R’S STARS Interface Development Complete	N/A	7/30/14		N/A	G
Application and Non-R’S STARS Interface Development Complete:	5/22/13	9/10/14		40	G
Build 11.5 major components include Vendor Performance, Contract Management, and User ID Request.	5/22/13	1/16/14		100(for development phase)	G
Build 11.75 I major components include CS-138, PO and Audit Closeout.	9/25/13	1/29/14		100 (for development phase)	G
Build 12.0/12.25 major components include Retainage, Credit Memos, AARTs and Remedy.	12/30/13	9/10/14		20 (for development phase)	G
Testing Complete	N/A	1/8/15		N/A	G
Training for Pilot Agencies Complete	N/A	2/20/15		N/A	G
Pilot Agency Go-Live	N/A	3/2/15		N/A	G
Enterprise Go-Live	N/A	7/15/15		N/A	G

**Key Executive Issues:**

Period Ending 1/17/2014

- **Issues # - I - 028** – : Delay testing for AART and Periscope Development for Remedy and potentially MAIN interface development and testing.
- **Owner:** Pamela Price and David Tharp
- **Recommendation and Mitigation:** Working with Periscope and SOM Cyber Security to enable testing without impacting project schedule. Resolution required by February 26, 2014 to prevent delay in implementation. Escalated to (name of Cyber Security).
- **Issue: # I – 018** – Vendors registered multiple times
- **Owner:** Natalie Spanio
- **Recommendation and Mitigation:** Periscope provided a report that identifies all duplicate entries. 928 vendors have 2 or more registrations. Manually deleting duplicate records. Estimate time of completion March 31<sup>st</sup>.

**Major Project Accomplishments:**

- Development completed for Sprint Build 11.75; document management Single Single-Sign on, Non-Dollar Change Orders, User Account Suspended Feature
- Completed three day session January 7, 8, and 9 with Periscope on Contract and compliance. Completed the review and approval sessions for 11.5 Maintenance, Software Configuration and Conversion Plans
- Completed lesson learned training for Sprint Build 11.75.

**Next Steps:**

- Sprint Build 11.75 Pre-test results.
- Conduct additional 12.25 user stories.
- Security Assessment status.
- Organizational Change Management Plan update.
- Complete Phase I lessons learned.
- Continue DIT- 0170 (Security ) including DIT–090 (firewall) document review sessions.

**Key Project Metrics: (non-interface and Interface)**

- Kickoff for Phase II – March 4, 2013.
- Interface requirements for non interface and interface approved
- June 10, 2013 and July 7 2013 respectively.
- Sprint Build 11.5 and 11.75 ; development is completed in now ready for test. On September 28, 2013.
- +10,000 vendor IDs were corrected in Buy4MI.

**d. Monthly Budget Tracking Report**

The project financials will be tracked and reported via the SOM instance of Changepoint. Lochbridge will use those capabilities to produce a monthly budget tracking report. The Lochbridge PM will work closely with the State PMs to capture financial information that may not be available directly (i.e., SOM infrastructure costs, SOM resource rates, etc.).

**e. Issue/Risk Report**

Lochbridge will use the capabilities of Changepoint to provide issue/risk status (open and closed items, etc.) and to use those capabilities to review with the State PMs and the team online during status meetings. In that way, updates can be captured immediately and feedback incorporated as well. If desired, Lochbridge can also produce hard-copy reports for distribution to other stakeholders as well.

**f. Test Type Approach and Report (Test Results for each type of test)**

SOW Section 2.C Testing, provided Lochbridge approach to the different types of tests to be performed. For reporting results by test type, Lochbridge will extract various metrics form TFS to provide a snapshot at a given time as shown below:

- Test Execution Status will provide an overview of what work has been completed, and what work is left to perform



Fixed	- Developer has fixed the bug and reassigns to proxy for deployment
Retest	- Proxy assigns to Tester after deployment
Verified	- Tester confirms the bug has been resolved
Retest Failed	- Retest failed and reassigned back to the Proxy
Canceled	- Bug reported was deemed not to be a bug
Closed	- Bug is closed

Test Plan, using SEM-0602, will further detail each test type and corresponding report formats while incorporating elements from various sections of the SEM-0603 Test Type Approach and Report template.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section..

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State SMEs	<ul style="list-style-type: none"> <li>Participate in and support the activities related to the creation, review of Reports</li> </ul>
State PM	<ul style="list-style-type: none"> <li>Assist in the establishment of protocols, cadence, format and content for various reporting requirements</li> <li>Assist in the preparation and review of project reporting</li> </ul>
	<b>Lochbridge Responsibility</b>
Lochbridge PM	<ul style="list-style-type: none"> <li>Responsible for the establishment of protocols, cadence, format and contents regarding project reporting</li> <li>Produce timely, meaningful, project reports</li> <li>Ensure appropriate distribution/storage of reports</li> </ul>
Lochbridge SMEs	<ul style="list-style-type: none"> <li>Participate in and support the activities related to the creation, review of Reports</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Gap/Fit Analysis Report	<p>The Gap/Fit Analysis Report will:</p> <p>Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</p> <p>Summarize gaps/fit results from workshops</p> <p>Address all State corrections/comments/feedback appropriately</p>
Weekly Status Report	<p>The Weekly Status Report will:</p> <p>Use Changepoint for reporting status.</p> <p>Include the status of the project</p>
Monthly Project Update	<p>The Monthly Project Update Report will:</p> <p>Use Changepoint for reporting project updates.</p> <p>Include the status of the project</p>

Monthly Budget Tracking Report	The Monthly Budget Tracking Report will: Use Changepoint for financial reporting Include the current budget status for the project.
Issue/Risk Report	The Issue/Risk Report will: Use Changepoint for reporting issues and risks Address State corrections/comments/feedback as appropriate
Test Type Approach Report	The Test Type Approach Report will: Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt). Will include testing status and defect tracking Address State corrections/comments/feedback as appropriate

M. Meetings

- a. Kick-off
- b. Weekly Status Reporting meetings
- c. Executive Steering Committee meetings
- d. Deliverable Review meetings
- e. Stage Exit Review meetings
- f. Change Control Board meetings

Lochbridge will facilitate all meetings and deliver all Services and Deliverables from those meetings necessary to support this project.

**a. Kick-Off**

The Project kick-off meeting will be held within 10 business days after contract execution in the Lansing area at a State location. The content to be reviewed during the meeting will be primarily built from the approach within this proposal and reviewed by the State PM prior to the kickoff meeting.

Kick-Off Meeting Agenda items to be covered:

- Introductions
- Background/Overview of the Project
- Project Deliverables/Timeline
- Project Organization/Roles/Expectations
- Project Communications
- Upcoming Events needing State involvement
- Issues and Challenges
- Wrap-Up and Q&A

During the Kick-Off, the need for close collaboration between the State and Lochbridge will be emphasized, fostered by the processes that will be employed on the project and reflected in the detailed project planning. At a minimum, State PMs, State SMEs and Lochbridge key resources will be in attendance. This meeting will begin the process of building strong working relationships between the State and Lochbridge.

**b. Weekly Status Reporting meetings**

Stakeholders need to be informed of project status. Weekly team status reporting meetings are an effective

way to bring visibility to all areas of the project. These meetings provide an opportunity to discuss important issues and make management decisions on the project with input from several sources. As mentioned earlier Lochbridge have found the display of the online Changepoint Weekly Status Report to be an effective means for the Lochbridge PM to conduct the meetings. Areas from the online Weekly Status Report become the topics for discussion/review and the drill-down capabilities can provide further detail upon inquiry on a specific topic. Supporting information can be distributed as well (RTM status, etc.) A typical agenda below:

- Welcome
- Summary of the Health of the Project
- Schedule Review (i.e., “we are here”)
- Major Accomplishments
- Current Activity
- Key Issue/Risks (open and recently closed)
- Metric review (for example, if in heavy testing period, provide a defect summary chart showing the last several weeks)
- Next Steps (i.e., “where we are going”)

Lochbridge also proposes that the State and Lochbridge PMs meet weekly as well (at a minimum) to discuss status. Scheduled time for these PM Status Meetings will occur both before and after the Team Weekly Status Meeting. Benefits from this approach include:

- Minimizes PM surprises
- Helps to confirm that Team Meeting information is correct before presentation
- Helps to align messages
- Helps in attaining mutual understanding (i.e., did you hear what I heard?)
- Provides a mechanism to develop an approach to items requiring joint PM participation/ decision-making

### **c. Executive Steering Committee meetings**

A monthly Executive Steering Committee Meeting, composed of senior subject matter experts representing CSCL, DTMB-IT and Lochbridge. For Lochbridge, Diane Toscano, Lansing-based Solutions Delivery Director, would be a member with State members to be identified during the Initiation and Planning Phase of the project.

Lochbridge would take the lead in preparing/presenting materials (Changepoint 4UP Report, other materials), collaborating with the State Project Managers in revising, finalizing and presenting these materials. An initial duration of 1.5 hours for these monthly meeting are allocated but if more time is needed it will be provided at no additional cost. Similar to the approach described within the Weekly Status meetings, Changepoint 4UP monthly report will be used to drive the base agenda, using the Changepoint drill-down features to provide further detail if required. A typical agenda below:

- Opening Remarks
- Summary of the Health of the Project
- Schedule Review (at the milestone level)
- Major Accomplishments
- Key Executive Issues
- Key Project Metrics
- Next Steps

It is understood that State’s Executive Steering Committee members have appropriate decision-making authority, providing an escalation path for the Project Managers to resolve troublesome issues.

#### **d. Deliverable Review meetings**

Again, Lochbridge will use a structured walkthrough meeting process for the review, evaluation and revision of major project deliverables. The walkthrough process is intended to improve the quality of the deliverable, reduce misunderstandings, and reduce the time and costs resulting from future rework.

Attendees will be decided upon by the project PMs based upon functional or technical expertise levels relating to the deliverable. Attendees will prepare for the meeting by reading through the draft materials and noting their concerns with clarity, contractual concerns, functional content and accuracy, performance impact, project standards/format, scope, technical content and/or value/benefit.

Lochbridge will facilitate the deliverable review meeting, soliciting feedback on each section of the materials that comprise the deliverable. Feedback will be captured during the meeting and sent out post-meeting for verification by attendees. Feedback can take several forms, including:

- Action items
- Errors
- Issues/Risks
- Suggestions/Omissions

Lochbridge will use the verified meeting results to revise the deliverable and re-submit for approval. If there are still concerns, an additional meeting(s) may be needed to repeat the process.

#### **e. Stage Exit Review meetings**

Per the overall “modified agile” approach to the project, Lochbridge has defined the following 5 phases/stages in the Implementation Plan/WBS:

- Initiation and Planning
- Requirements and Design
- Construction
- Testing
- Implementation

At the end of each of these 5 stages, a stage exit review meeting will be held wherein the appropriate stakeholders will review the corresponding stage deliverables (see WBS in Schedule D for a complete list of deliverables by stage) in detail and accept or reject the work (or accept with noted revisions). Lochbridge will use the SEM-0189 form to formalize stage exit approval or rejection. Stage exit approval is required before formally proceeding to the next stage.

#### **f. Change Control Board Meetings**

The Change Control Board (CCB) meets on a regular basis to review, approve or reject proposed project changes. The project managers may convene a special session if the need exists for review/decision outside the normal meeting timing. Types of changes needing CCB review include:

- Changes to the approved project charter or project plan
- Changes or additions to milestones in the project schedule
- Changes to contract deliverables
- Changes to approved requirements or functional designs
- Increases to costs, including such things as changed infrastructure needs, etc.

Prior to the meeting, the Lochbridge PM readies the change request materials to be reviewed. This includes use of the Change point summary and detailed change request information as well as any supporting impact analyses, State and Lochbridge PM recommendations, etc. This information is communicated and discussed at the CCB meeting in which a decision is made to approve or reject the change. The Lochbridge PM documents the decision within Change point and includes this information in the appropriate status reports.

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section,

Responsible Role	Responsibilities
	<b>State Responsibility</b>
State SMEs	<ul style="list-style-type: none"> <li>Participate in team meetings, deliverable review meetings and other meetings as required</li> <li>Review necessary materials prior to the actual meetings</li> <li>Make pertinent and timely decisions when needed</li> <li>Follow up on assigned action items</li> </ul>
State PM	<ul style="list-style-type: none"> <li>Arrange for SOM facilities, as needed</li> <li>Coordinate SOM resources for necessary meetings (Weekly status, Executive Steering Committee, Deliverable Reviews, Stage Exit Reviews, Structured Walkthroughs, Change Control Board)</li> <li>Facilitate communication between different SOM Departments/Agencies</li> <li>Coordinate participation of SOM resources</li> <li>Schedule Change Control Board (CCB) meetings, Executive Steering Committee meetings</li> </ul>
	<b>Lochbridge Responsibility</b>
Lochbridge PM	<ul style="list-style-type: none"> <li>Schedule team meetings, weekly status meetings, etc.</li> <li>Document and archive all important meeting decisions</li> <li>Distribute materials before and after meetings</li> <li>Prepare necessary documents, agendas</li> <li>Prepare agenda/materials for CCB meetings, Executive Steering Committee meetings – review with State PM</li> <li>Communicate meeting decisions/resolutions to appropriate stakeholders</li> </ul>
Lochbridge SMEs	<ul style="list-style-type: none"> <li>Participate in team meetings, deliverable review meetings and other meetings as required</li> <li>Review necessary materials prior to the actual meetings</li> <li>Make pertinent and timely decisions when needed</li> <li>Follow up on assigned action items</li> </ul>

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
Meetings	Kickoff Meeting held Weekly Status Reporting Meetings held Executive Steering Committee Meetings held Deliverable Review Meetings held Stage Exit Review Meetings held Change Control Board Meetings held

- N. Additional Documentation
- d. User Training Guide
  - e. Operations Manual

**a. User Training Guide**

Training Guide

Lochbridge will create the following training/user manuals:

- COFS Administration Manual that includes system maintenance and manage users sections.
- User Manual that includes all functionality
- User Manual for corporations that includes Submission of documents, re-submission of documents,

and assumed name renewals

Lochbridge will develop all training manuals to incorporate navigational information and procedures with specific process data. An instructor manual will be developed that includes all the necessary instruction notes, guides and tips to properly train instructor-led training classes. All training materials will be linked to Online Policy documentation where appropriate. The idea is for the trainee to use these materials to help transition to the new system easily both in a classroom setting and through online self-paced study, and to provide step-by-step tools to clearly and correctly perform specific actions in the system.

Manuals will:

- a. Include curriculum by functionality, with sufficient examples and exercises to accomplish the stated training objective of assuring that end users gain the skills necessary to perform their job functions in the new COFS system.
- b. Include sections on how to use online training aids.
- c. Be available online with roles that prevent non-administrators from accessing the Administration Manuals.
- d. Reflect fictitious information to protect confidentiality of corporations/individuals unless specifically authorized by CFLS management.

All training materials shall be delivered to and become the property of the State of Michigan, upon the completion of the system implementation.

#### **Training Material Format(s)**

Lochbridge will create all training materials in an electronic format that can be modified by the State as well as hard copies as required for training sessions and/or review. Materials that require hard copies such as training manuals will be created using tools such as MS Word and PowerPoint or other tools if so approved by the State Project Manager.

#### **b. Operations Manual**

Lochbridge will develop an Operations Manual to explain the components, features, and use of the hardware and software.

The Operations Manual will provide a brief description of the system including its purpose and uses and describe the operation of the system using charts that depict operations and interfaces/relationships.

At a minimum, the following additional topics will be included in the Operations Manual:

- Software Inventory - List the software units, to include name, identification, and security considerations. Identify software necessary to resume operation of the system in case of emergency.
- Information Inventory - Provide information about data files and databases that are produced or referenced by the system
- Resource Inventory - List all permanent files and databases that are referenced, created, or updated by the system
- Processing Overview - Provide information that is applicable to the processing of the system. Include system restrictions, waivers of operational standards, and interfaces with other systems
- Security - Describe the security considerations associated with the system
- Run Inventory - List the runs showing the software components, the job control batch file names, run jobs and purpose of each run if any portion of the system is run in batch mode. For online transaction-based processing, provide an inventory of all software components that must be loaded for the software system to be operational.
- Run Sequence - Provide a schedule of acceptable phasing of the software system into a logical series of operations. If the system is a batch system, provide the execution schedule, which shows, at a minimum, the following:
  - Job Dependencies
  - Diagnostic Procedures - Describe the diagnostic or error-detection features of the system, the purpose of the diagnostic features and the setup and execution procedures for any software diagnostic procedures

- Control Inputs - Describe all operator job control inputs - for example, starting the run, selecting run execution options, activating an online or transaction-based system, and running the system through remote devices, if appropriate.
- Data Inputs
- Restart/Recovery Procedures - Provide instructions by which the operator can initiate restart or recovery procedures for the run.
- Backup Procedures
- Problem Reporting/Escalation Procedure - Provide instructions for reporting problems to a point of contact. Include the person's name and phone numbers (that is, office, home, mobile, pager, etc.)

Below is the overall mapping of roles to responsibilities for both State and Lochbridge resources, followed by Deliverables and Acceptance Criteria for this Section..

Responsible Role	Responsibilities
<b>State Responsibility</b>	
State PM	<ul style="list-style-type: none"> <li>• Schedule appropriate people (i.e., functional and technical expertise) to assist in the development, review and approval of the User Training Guide and Operations Manual</li> </ul>
State SMEs	<ul style="list-style-type: none"> <li>• Participate in the development, review and approval of the User Training Guide and Operations Manual</li> </ul>
<b>Lochbridge Responsibility</b>	
Lochbridge PM	<ul style="list-style-type: none"> <li>▪ Provide overall schedule/timings for the development, review and approvals of the User Training Guide and Operations Manual</li> <li>▪ Ensure appropriate distribution/storage of relevant deliverables/artifacts</li> <li>• Review all final deliverables prior to formally submitting for approval</li> </ul>
Lochbridge Solution/Business Process Lead	<ul style="list-style-type: none"> <li>• Create the User Training Guide</li> <li>• Create the Operation Manual</li> <li>• Address feedback appropriately and resubmit for approval</li> </ul>
Lochbridge Technical Lead	

**Deliverables and acceptance criteria:**

Deliverable	Acceptance Criteria
User Training Guide	<p>The User Training Guide will:</p> <ul style="list-style-type: none"> <li>• Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</li> <li>• Include curriculum by functionality, with sufficient examples and exercises to accomplish the stated training objective of assuring that end users gain the skills necessary to perform their job functions in the new COFS system.</li> <li>• Include sections on how to use online training aids.</li> <li>• Be available online with roles that prevent non-administrators from accessing the Administration Manuals.</li> <li>• Reflect fictitious information to protect confidentiality of corporations/individuals if so required</li> <li>• Address all State corrections/comments/feedback appropriately</li> </ul>

Operations Manual	<p>The Operations Manual will:</p> <ul style="list-style-type: none"> <li>• Be in an electronic format compatible with the State of Michigan software (e.g., Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt).</li> <li>• Describe components, features, and use of the hardware and software.</li> <li>• Address all State corrections/comments/feedback appropriately</li> </ul>
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### 3. Acceptance Testing and Acceptance.

- Documents to be transmitted for approval must reference the specific deliverable number.
- Documents must be provided in electronic format; Standard Microsoft Office formats version 2010 – 2013, .pdf, .jpeg, .txt. Additional formats will be agreed upon by the project team.
- Documents requiring a signature will be provided in an electronic format and will provide an area within the document for signatures.
- A transmittal document will accompany all deliverables (physical or task/work related). This document will reference the deliverable item(s), the specific deliverable number(s), the cost of the (or each) deliverable contained within, the planned or scheduled delivery date(s), actual delivery date(s), a section for notes/comment and a section for exceptions.
- In the case of application component deliverables, in addition to the transmittal document, a testing checklist will be included to identify the functionality provided in the deliverable. Functionality will be tested in the State of Michigan environment prior to signing the deliverable.
- The transmittal document will have a section for signatures of acceptance, with date. The following signatures are required on all transmittals:
  - Contractor representative (Project Manager)
  - State of Michigan Project Manager
  - State of Michigan CSCL Management Representative
  - State of Michigan DTMB Management Representative, based on integration points
- The transmittal document and the deliverables noted within are only deemed “Accepted and Approved by the State of Michigan” if all 4 signatures are signed on the transmittal document and distributed to the Contractor and State PM’s. No other means of acceptance or approval; i.e. verbal, written, email, etc., will be valid for the acceptance and approval of a deliverable related to the project as outlined in this Scope of Work document.
- Deliverables associated with weekly or regularly scheduled updates, reports, schedules, etc., will not require a transmittal document. These updates must reference the subject matter and date in the title, (for instance; weekly project status update 4-15-2014.doc). The Project Manager for the Contractor and the Project Manager for the State will define these deliverables at the start of the project. These documents must be emailed to the State PM based on the agreed upon schedule. Acceptance by the State PM will be assumed for these document types and only exceptions, or rejected documents, will be noted by the State PM in the form of a response email.

### 4. State Resources.

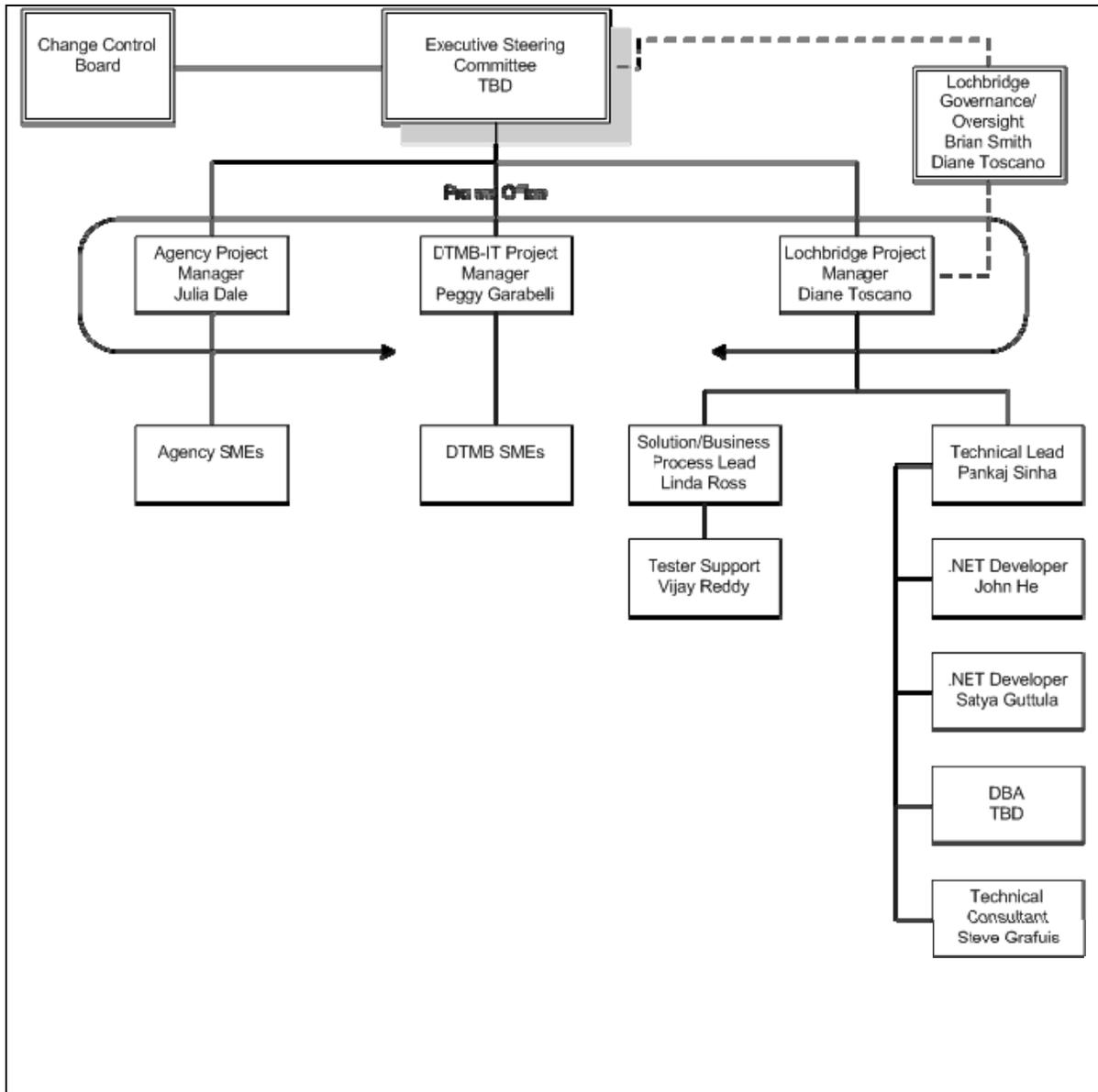
Throughout the Statement of Work roles and responsibilities for State resources have been provided at the end of each major area of Section 2

It is expected that for the Project (project start through end of Warranty) Agency and DTMB-IT resources can expect to support the projects at the level shown in the chart below.

<b>State Resources</b>		
<b>Resource Name</b>	<b>Project Role</b>	<b>6/2015 through 4/2016</b>
Julia Dale	Agency Project Manager	0.5
Peggy Garabelli	DTMB-IT Project Manager	0.5
TBD	Agency Subject Matter Experts	0.3
TBD	DTMB-IT Subject Matter Experts	0.3
TBD	Executive Steering Committee	0.1
TBD	Change Control Board	0.1

Timing and number of resources will vary based upon the level of needed State support in any given stage of the project. It is expected heavier Agency involvement in the Requirements and Testing stages of the project. For DTMB-IT, it is expected that heavier involvement in the first two months of the project (installation, EASA, DIT-170, etc.) followed by increased levels of support during our conversion planning efforts, integration testing timeframes (last four months leading up to go-live) may be needed. These are projections and will depend upon numbers of SMEs involved.

The following project organization chart shows the structure proposed for the overall project (through end of Warranty)



## 5. Contractor Resources.

The Lochbridge resource plan is comprised of three separate parts: Project (Project Start through Warranty), Maintenance and Support, and Supplemental Services.

For the Project, a June 15, 2015 start with go-live scheduled for March 1, 2016 followed by 60 days of Warranty services. The resource plan shown below details planned staffing levels for key and non-key resources, roles and timings:

Resource Name	Project Role	Project	Project	Project	Project	Project	Project	Project	Project	Project	Project GO-LIVE/Warranty	Warranty	Warranty
		Month 1 6/15/15	Month 2 7/15/15	Month 3 8/15/15	Month 4 9/15/15	Month 5 10/15/15	Month 6 11/15/15	Month 7 12/15/15	Month 8 1/15/16	Month 9 2/15/16	Month 10 3/15/16	Month 11 4/15/16	
Linda Ross	Solution/Business Process Lead	1	1	1	1	1	1	1	1	1	1	1	.5
Pankaj Sinha	Technical Lead	1	1	1	1	1	1	1	1	1	1	1	.5
John He	.NET Developer	.5	1	1	1	1	1	1	1	1	1	1	.5
Satya Guttula	.NET Developer	.5	1	1	1	1	1	1	1	1	1	1	.5
Vijay Reddy (non-key)	Tester	1	1	1	1	1	1	1	1	1	1	1	.5
TBD (non-key)	DBA							1	1	1	1		
Steve Grafuis (non-key)	Technical Consultant							.1	.1	.1	.1		
Diane Toscano	Project Manager	1	1	1	1	1	1	1	1	1	1	1	.5
Brian Smith (non-key)	Governance/Oversight	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Projected resource staffing levels for both Maintenance and Support and Supplemental Services are for 39 months – May 2016 through July 2019. For this 39 months, Lochbridge total staffing levels are:

- One full-time .NET Developer (Satya Guttula)
- One full-time .NET Developer/DBA
- One full-time Solution Business Process Lead/Tester (Linda Ross)
- One part-time (10%) Governance/Oversight (Diane Toscano)

The chart below depicts the use of these resources for this time period:

Maintenance and Support (39 months)		
Resource Name	Project Role	5/2016 through 7/2019
Satya Guttula	.NET Developer	1
TBD	.NET Developer/DBA	0.5
Linda Ross	Solution Business Process Lead/Tester	0.5
Diane Toscano	Governance/Oversight	0.1
Supplemental Services (39 months)		
Resource Name	Project Role	5/2016 through 7/2019
TBD	.NET Developer/DBA	0.5
Linda Ross	Solution Business Process Lead/Tester	0.5

Again, if it is mutually determined and agreed upon that the work load in Maintenance and Support and Supplemental Services does not warrant the above resources, Lochbridge will re-size the team to what would be needed to full-fill the obligations during this Phases and adjust their prices accordingly to Schedule D Pricing.

6. **Key Personnel.** The Contractor must appoint a Project Manager who will be directly responsible for the day to day operations of the Contract. All other Key Personnel must be specifically assigned to the Final Statement of Work, and be knowledgeable on the contractual requirements. Key Personnel for the project are:

Contractor Key Personnel – Position	Contractor Key Personnel
1. Project Manager	Diane Toscano, Project Manager

<p>The Contractor's Project Manager Responsibilities include, at a minimum:</p> <ul style="list-style-type: none"> <li>• Conduct weekly status meetings to discuss project schedule and progress, project issues and action items</li> <li>• Participate in Executive Steering Committee meetings</li> <li>• Provide written meeting minutes for all project-related meetings within 48 hours throughout the life of the project</li> <li>• Develop, communicate and manage the plans and schedules, and update throughout the life of the project.</li> <li>• Manage and report on the project's issues and risks throughout the life of the project.</li> <li>• Serve as the point person for all project issues</li> <li>• Escalate project issues, risks, and other concerns</li> <li>• Coordinate and oversee the day-to-day project activities of the project team</li> <li>• Manage all defined contractor responsibilities in this scope of services</li> <li>• Manage contractor's subcontractors, if any</li> <li>• Prepare project documents and materials</li> <li>• Review all project deliverables and provide feedback</li> <li>• Proactively propose/suggest options and alternatives for consideration</li> <li>• Utilize change control procedures</li> <li>• Manage and report on the project's budget</li> </ul>	
<p><b>2. Technical Lead</b> Responsibilities include, at a minimum:</p> <ul style="list-style-type: none"> <li>• <b>Define technical architecture</b></li> <li>• Provide technical direction throughout the project lifecycle</li> <li>• Prepare technical documents</li> <li>• Participate in weekly status meetings</li> <li>• Participate in Executive Steering Committee meetings</li> <li>• Collaborate with DTMB support team</li> </ul>	Pankaj Kumar Sinha, Senior Application Architect
<p><b>3. Solution/Business Process Lead</b> Responsibilities include, at a minimum:</p> <ul style="list-style-type: none"> <li>• Participate in weekly status meetings</li> <li>• Facilitate Business Requirements Validation sessions</li> <li>• Facilitate Gap/Fit Analysis</li> <li>• Create Functional Design Document</li> <li>• Create Test Cases</li> <li>• Conduct System Integration Testing</li> <li>• Facilitate User Acceptance Testing</li> <li>• Document Test Results</li> <li>• Record Defects</li> </ul>	Linda Ross, Senior Business Analyst

<ul style="list-style-type: none"> <li>• Manage Defect Resolution</li> <li>• Create State Staff Training Plan</li> <li>• Conduct On-site Training for State Staff</li> </ul>	
<b>4. .NET Application Developers</b> <ul style="list-style-type: none"> <li>• Follow the technical design documentation to make system changes</li> <li>• Conduct Unit Testing</li> <li>• Conduct Regression Testing</li> <li>• Participate in System Testing</li> <li>• Participate in User Acceptance Testing</li> <li>• Correct assigned defects</li> <li>• Update system documentation</li> </ul>	Satya Guttula, Senior .NET Developer John He, Senior .NET Developer

For key resources listed above, the following will be provided:

Name	Project Role	% on Project Overall	% of Project On-Site	% of Project Off-site
Linda Ross	Solution/Business Process Lead	100%	100%	0%
Pankaj Kumar Sinha	Technical Lead	100%	100%	0%
Satya Guttula	.NET Developer	100%	100%	0%
John He	.NET Developer	100%	100%	0%
Diane Toscano	Project Manager	100%	100%	0%

For non-key resources: DBA, DBA Consultant and Governance/Oversight, the following will be provided:

Name	Project Role	% on Project Overall	% of Project On-Site	% of Project Off-site
TBD	Tester – reporting to and supporting our Solution/Business Process Lead	100%	100%	0%
TBD	DBA – reporting to and supporting our Technical Lead during Conversion Planning and execution	35%	100%	0%
Steve Grafuis	DBA Consultant –on a consultative basis, reporting to and supporting our Technical Lead during Conversion Planning and execution	5%	100%	0%

#### 7. Disclosure of Subcontractors:

Business Name: Grafuis Consulting, Inc.  
Address: 3655 Bayou Pl., Holt, MI 48842  
Phone: (517) 882-0804  
Contact Name: Steve Grafuis

Services provided: Grafuis Consulting specializes in maintaining computer systems that process all forms of Corporation data and the conversion to new platforms using Oracle databases.

Company abilities: Steve Grafuis has been in the computer industry for over 37 years, and most recently has maintained the programs, procedures, personal computers, printers, Fax Over Internet Protocol (FOIP), and databases associated with the Corporations Division of the State of Michigan.

**8. Work Location Requirements**

The work is to be performed between 8:00 a.m. to 5:00 p.m. EST Monday through Friday, excluding State holidays, with work performed as necessary, as determined by the State, after those hours to meet project deadlines. Holiday pay and overtime is not authorized and will not be paid. The work must be performed at the following minimum locations: 222 N. Washington Square, Lansing MI 48933; 2501 Woodlake Circle, Okemos, MI 48864.

Where appropriate and as agreed upon by the State, Contractor may perform work at their location.

No travel or expenses will be reimbursed. This includes travel costs related to training provided to the State by Contractor.

**8. Additional Security and Background Check Requirements:**

Contractor must present certifications to the DTMB Contract Administrator prior to contract execution evidencing satisfactory Michigan State Police Background checks (ICHAT) and drug tests for all key personnel identified for assignment to this project.

Contractor will pay for all costs associated with ensuring their staff meets all requirements.

**9. Contract Administrators.** The Contract Administrators are the only persons authorized to approve a **Change Notice** under this Contract. The Contract Administrators are:

DTMB – Procurement	Contractor
Whitnie Zuker 525 W. Allegan Lansing, MI 48933 (517) 284-7030 <a href="mailto:ZukerW@michigan.gov">ZukerW@michigan.gov</a>	Brian Smith 110 West Michigan Avenue Suite 650 Lansing, MI 48933 (517) 267-5255 <a href="mailto:Brian.smith@lochbridge.com">Brian.smith@lochbridge.com</a>

**10. Project Manager.** The Contractor will carry out this project under the direction and control of both the DTMB-IT and Agency Project Manager. The Project Managers are:

DTMB-IT	Agency
Peggy Garabelli 222 N. Washington Square Lansing, MI 48933 (517) 284-5362 <a href="mailto:garabellip@michigan.gov">garabellip@michigan.gov</a>	Julia Dale 2501 Woodlake Circle Okemos, MI 48864 (517) 241-6463 <a href="mailto:Dalej@michigan.gov">Dalej@michigan.gov</a>

**DTMB-IT Project Manager.** The DTMB-IT Project Manager will be responsible for:

- Facilitating between the Contractor, and State agencies and external contractors
- Coordinating necessary State resources
- Utilizing change control procedures
- Conducting regular and ongoing review of the project to confirm that it meets original objectives and requirements
- Coordinating and assuring that all deliverables are compliant with DTMB-IT contractual requirements
- Documenting and archive all important project decisions
- Acceptance and sign-off of deliverable/milestones
- Acceptance and sign-off on timesheets and invoices
- Point of contact in the resolution of project issues

- Escalating outstanding/high priority issues
- Supporting the management of the Contract

**Agency Project Manager.** The Agency Project Manager will be responsible for:

- Allocating necessary State resources
- Providing State facilities, as needed
- Documenting and archiving all important project decisions
- Acceptance and sign-off of deliverable/milestones
- Acceptance and sign-off on timesheets and invoices
- Participating in the resolution of project issues
- Escalating outstanding/high priority issues
- Supporting the management of the Contract

**11. Payment Card Industry Data Security Standard**

Lochbridge will comply with PCI standards so that the system will comply with PCI standards.

**12. Terms and Conditions**

This Contract will be performed pursuant to, at a minimum, the terms and conditions of the primary Contract 071B4300106 and the terms of Schedule C Maintenance and Support and apply to all work performed under this contract 071B5500109.

**ATTACHMENT A – A.1 SAMPLE GAP/FIT WORKSHOP REVIEW PACKAGE**



Attachment A.1  
Sample GapFit Work

**ATTACHMENT A – A.2 EXAMPLE RTM**



Attachment A.2  
Example RTM.xlsx

## ATTACHMENT A – A.3 EXAMPLE TEST PLAN



Attachment A.3  
Example Test Plan.doc

## ATTACHMENT A – A.4 EXAMPLE DATA DICTIONARY



Attachment A.4  
Example Data Dictio



# STATE OF MICHIGAN

## SOFTWARE MODERNIZATION PRE-QUALIFICATION PROGRAM

### Schedule B Business and Technical Requirements

*Corporations On-Line Filing System Project*



LARA  
COFS\_Schedule B - I

**SCHEDULE C**  
**MAINTENANCE AND SUPPORT**

Definitions. For purposes of this Schedule, the following terms have the meanings set forth below. All initial capitalized terms in this Schedule that are not defined in this **Section 0** shall have the respective meanings given to them in the contract to which this Schedule relates ("**Contract**").

**"Contact List"** means a current list of Contractor contacts and telephone numbers set forth in the attached **Exhibit A** to enable the State to escalate its Support Requests, including: (a) the first person to contact; and (b) the persons in successively more qualified or experienced positions to provide the support sought.

**"Error"** means any failure of the Software to operate in all material respects in accordance with the Specifications and, to the extent consistent with and not limiting of the Specifications, the Documentation, including any problem, failure or error referred to in the Service Level Table.

**"First Line Support"** means the initial level of support for a Support Request typically provided by a help desk and which is the human single-point-of-contact for all Errors (including, but not limited to, issues with network connectivity and end-user devices) and Support Requests. First Line Support is primarily involved in Support Request and Error case management (excluding Contractor's Service Level reporting requirements); management of end-user interactions and requests (e.g., password resets); monitoring Error resolution activities; providing end-user Software training and support; identifying and Resolving Errors covered in Contractor-provided user guides or documented training; and management of installations, transitions, and basic changes relative to routine work performed on computer equipment and Software configurations for which the State is responsible.

**"Out-of-scope Services"** means any of the following: (a) any services requested by the State and performed by Contractor in connection with any apparent Software Error that the State and Contractor agree in writing has been caused by a State Cause; and (b) any Second Line Support requested by the State and provided by an individual requested by the State whose qualification or experience is greater than that reasonably necessary to resolve the relevant Support Request, provided that an appropriately qualified or experienced individual was available at the time when the Second Line Support was sought.

**"Resolve"** and the correlative terms, **"Resolved"**, **"Resolving"** and **"Resolution"** each have the meaning set forth in **Section 0**.

**"Schedule"** means this Schedule C to the Contract.

**"Second Line Support"** is provided by Contractor and means the resources needed to troubleshoot, diagnose, and Resolve Errors requiring specialized knowledge. Second Line Support Resolves Errors that require greater depth of knowledge than First Line Support can deliver, and includes, but is not limited to, Errors that have prescribed solutions, existing patches,

prior fixes, etc.; any Software Errors or other issues (e.g. configuration requests) not covered in Contractor-provided user guides, documented training, or Contractor's public website; Resolving Errors that do not have documented solutions or fixes; and any Errors requiring Resolution through original code writing, scripts or patch writing. All Second Line Support shall be provide on-site by qualified Contractor personnel designated on the Contact List.

**"Service Credits"** means the service credits specified in **Section 0**.

**"Service Levels"** means the defined Error severity levels and corresponding required service level responses, response times, Resolutions and Resolution times referred to in the Service Level Table.

**"Service Level Table"** means the table set out in **Section 0**.

**"Severity Level 1 Error"** has the meaning set forth in the Service Level Table.

**"Severity Level 2 Error"** has the meaning set forth in the Service Level Table.

**"Severity Level 3 Error"** has the meaning set forth in the Service Level Table.

**"State Cause"** means any of the following causes of an Error, except, in each case, any such causes resulting from any action or inaction that is authorized by this Schedule or the Contract, specified in the then-current Specifications or Documentation, or otherwise authorized in writing by Contractor: (a) any grossly negligent or improper use, misapplication, misuse or abuse of, or damage to, the Software by the State; (b) any maintenance, update, improvement or other modification to or alteration of the Software made solely by the State; or (c) any use by the State of any Third-party Materials that Contractor has not provided or caused to be provided to the State.

**"State Systems"** means the State's information technology infrastructure, including the State's computers, software, databases, electronic systems (including database management systems) and networks.

**"Support Fees"** has the meaning set forth in **Section 0**.

**"Support Hours"** means 24 hours a day, seven days a week, excluding State holidays.

**"Support Period"** means the period of time beginning on the date the State has Accepted the Aggregate Software under the Contract and ending on the date the Contract expires or is terminated.

**"Support Request"** has the meaning set forth in **Section 0**.

**"Support Services"** means Contractor's support of the Software, including providing access to technical information on the Contractor's website for proper use of the Software, and Second Line Support, but excluding any Out-of-scope Services.

**"Third-party Products"** means all third-party software, computer hardware, network hardware, electrical, telephone, wiring and all related accessories, components, parts and devices that Contractor has not provided or caused to be provided to the State under the Contract.

Support Services. The State will perform all First Line Support. Contractor will provide all Second Line Support and other Support Services during the Support Hours throughout the Support Period in accordance with the terms and conditions of this Schedule and the Contract, including the Service Levels and other Contractor obligations set forth in this **Section 0**.

Support Service Responsibilities. Contractor shall:

respond to and Resolve all Support Requests in accordance with the Service Levels;

provide Second Line Support to the State in accordance with **Sections 0** and **0**;

provide the State with online access to technical support bulletins and other user support information and forums, to the full extent Contractor makes such resources available to its other customers; and

provide to the State all such other services as may be necessary or useful to correct an Error or otherwise fulfill the Service Level requirements, including defect repair, programming corrections and remedial programming.

Second Line Support Service Levels. Response and Resolution times will be measured from the time Contractor receives a Support Request until the respective times Contractor has (a) responded to that Support Request, in the case of response time and (b) Resolved that Support Request, in the case of Resolution time. "**Resolve**", "**Resolved**", "**Resolution**" and correlative capitalized terms mean, with respect to any particular Support Request, that Contractor has corrected the Error that prompted that Support Request and that the State has confirmed such correction and its acceptance of it in writing. Contractor shall respond to and Resolve all Support Requests within the following times based on the State's designation of the severity of the associated Error, subject to the parties' written agreement to revise such designation after Contractor's investigation of the reported Error and consultation with the State:

<b>Severity Level of</b>	<b>Definition</b>	<b>Required Service Level Response and</b>	<b>Required Service Level Resolution</b>
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Error		Response Time	Time
<p data-bbox="280 275 297 296">1</p>	<p data-bbox="370 275 589 380"><b>Business Critical Failures:</b> An Error that:</p> <p data-bbox="370 428 618 617">(a) materially affects the operations of the State's business or marketability of its service or product;</p> <p data-bbox="370 659 618 764">(b) prevents necessary work from being done; or</p> <p data-bbox="370 806 618 1079">(c) disables or materially impairs (i) any major function of the Software or (ii) the State's use of any major function of the Software.</p>	<p data-bbox="646 275 784 296"><b>Response:</b></p> <p data-bbox="646 344 906 533">Contractor shall acknowledge receipt of a Support Request within sixty (60) minutes, and;</p> <p data-bbox="646 575 906 680">Contractor shall work on the problem continuously and:</p> <p data-bbox="646 722 906 1163">(a) restore the Software to a state that allows the State to continue to use all functions of the Software in all material respects within three (3) hours after the Level 1 Response time has elapsed; and</p> <p data-bbox="646 1205 906 1394">(b) exercise best efforts to Resolve the Error until full restoration of function is provided.</p>	<p data-bbox="933 275 1193 617">Contractor shall Resolve the Support Request as soon as practicable and no later than four (4) hours after Contractor's receipt of the Support Request.</p> <p data-bbox="933 659 1193 1058">If the Contractor Resolves the Support Request by way of a work-around accepted in writing by the State, the severity level assessment will be reduced to a Severity Level of Error 2.</p>
<p data-bbox="280 1428 297 1449">2</p>	<p data-bbox="370 1428 618 1491"><b>System Defect with Work-around:</b></p> <p data-bbox="370 1539 618 1854">(a) a Severity Level 1 Error for which the State has received, within the Resolution time for Severity Level 1 Errors, a work-around that the State has accepted</p>	<p data-bbox="646 1428 784 1449"><b>Response:</b></p> <p data-bbox="646 1497 906 1854">Contractor shall acknowledge receipt of a Support Request or, where applicable, the State's written acceptance of a Severity Level 1 Error work-around, within sixty (60) minutes,</p>	<p data-bbox="933 1428 1193 1896">Contractor shall Resolve the Support Request as soon as practicable and no later than one (1) Business Day after Contractor's receipt of the Support Request or, where applicable, the State's written acceptance of a</p>

	<p>in writing; or</p> <p>(b) an Error, other than a Severity Level 1 Error, that affects operations of the State's business or marketability of its service or product.</p>	<p>and;</p> <p>Contractor shall, within one (1) Business Day after the Level 1 Response time has elapsed, provide:</p> <p>(a) an emergency Software fix or work-around; or</p> <p>(b) temporary Software release or update release,</p> <p>that allows the State to continue to use all functions of the Software in all material respects.</p>	<p>Severity Level 1 Error work-around.</p>
<p><b>3</b></p>	<p><b>Minor Error Requiring Second Line Support:</b></p> <p>An isolated or minor Error in the Software that meets each of the following requirements:</p> <p>(a) does not significantly affect Software functionality;</p> <p>(b) can or does impair or disable only certain non-essential Software functions;</p> <p>(c) does not</p>	<p><b>Response:</b></p> <p>Contractor shall acknowledge receipt of the Support Request within sixty (60) minutes.</p>	<p>Contractor shall Resolve the Support Request as soon as practicable and no later than five (5) Business Days after Contractor's receipt of the Support Request.</p>

	<p>materially affect the State's use of the Software; and</p> <p>(d) has no or no more than a minuscule effect on the operations of the State's business or marketability of its service or product.</p>		
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Second Line Support Personnel. Contractor shall ensure that all Second Line Support is provided by personnel designated in the Contact List who have the appropriate qualifications, skills and experience to fully and efficiently Resolve the State's Support Request within the Resolution time specified for such Support Request in the Service Level Table.

Escalation to Parties' Project Managers. If Contractor does not respond to a Support Request within the relevant Service Level response time, the State may escalate the Support Request to the parties' respective Project Managers and then to their respective Contract Administrators.

Time Extensions. The State may, on a case-by-case basis, agree in writing to a reasonable extension of the Service Level response or Resolution times.

Contractor Updates. Contractor shall give the State monthly electronic or other written reports and updates of:

the nature and status of its efforts to correct any Error, including a description of the Error and the time of Contractor's response and Resolution;

its Service Level performance, including Service Level response and Resolution times;  
and

the Service Credits to which the State has become entitled.

Time of the Essence. Contractor acknowledges and agrees that time is of the essence with respect to its performance under this Schedule and that Contractor's prompt and timely performance hereunder, including its performance of the Service Levels, is strictly required.

Fees.

Support Fees. In consideration of Contractor's performance of the Support Services in accordance with the terms and conditions of this Schedule and the Contract, the State shall pay

to Contractor the fees set forth in the attached Exhibit B (the "**Support Fees**"). Payment to Contractor of the Support Fees pursuant to this **Section 0** will constitute payment in full for the performance of the Support Services and the State will not be responsible for paying any other fees, costs, expenses or other charges for or in connection with the Support Services. The Support Fees set forth in this Schedule are firm and will not be modified during the Support Period.

Warranty Period. No Support Fees shall be owed to Contractor under this Schedule during the Warranty Period for the Software, as specified under the Contract, it being understood and agreed to by Contractor that Support Services during the Warranty Period are at Contractor's sole cost and expense.

Support Requests and State Obligations.

Support Requests. The State may request Support Services by way of a Support Request. The State shall classify its requests for Error corrections in accordance with the severity level numbers and definitions of the Service Level Table set forth in **Section 0** (each a "**Support Request**"). The State shall notify Contractor of each Support Request by e-mail or telephone or such other means as the parties may agree to in writing. The State shall include in each Support Request a description of the reported Error and the time the State first observed the Error.

State Obligations. The State shall provide the Contractor with each of the following to the extent reasonably necessary to assist Contractor to reproduce operating conditions similar to those present when the State detected the relevant Error and to respond to and Resolve the relevant Support Request:

direct access at the State's premises to the State Systems and the State's files, equipment and personnel;

output and other data, documents and information, each of which is deemed the State's Confidential Information as defined in the Contract; and

such other reasonable cooperation and assistance as Contractor may request.

Service Credits.

Service Credit Amounts. If the Contractor fails to respond to a Support Request within the applicable Service Level response time or to Resolve a Support Request within the applicable Service Level Resolution time, the State will be entitled to the corresponding service credits specified in the table below ("**Service Credits**"), provided that the relevant Error did not result from a State Cause.

<b>Severity Level of</b>	<b>Service Credits For Response Time</b>	<b>Service Credits For Resolution Time</b>
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<b>Error</b>	<b>Service Level Failures</b>	<b>Service Level Failures</b>
<b>1</b>	An amount equal to 5% of the then current monthly Support Fee for each hour by which Contractor's response exceeds the required Response time.	An amount equal to 10% of the then current monthly Support Fee for each hour by which Contractor's Resolution of the Support Request exceeds the required Resolution time.
<b>2</b>	An amount equal to 3% of the then current monthly Support Fee for each Business Day, and a pro-rated share of such percentage for each part of a Business Day, by which Contractor's response exceeds the required Response time.	An amount equal to 7% of the then current monthly Support Fee for each hour by which Contractor's Resolution of the Support Request exceeds the required Resolution time.
<b>3</b>	No Service Credits are Available for Severity Level 3 Response Time Service Level Failures.	No Service Credits are Available for Severity Level 3 Resolution Time Service Level Failures.

**Service Credits for any Severity Level 1 and 2 Errors during a monthly billing period shall not exceed 50% of the then current monthly Support Fee.**

Compensatory Purpose. The parties intend that the Service Credits constitute compensation to the State, and not a penalty. The parties acknowledge and agree that the State's harm caused by Contractor's delayed delivery of the Support Services would be impossible or very difficult to accurately estimate as of the Effective Date, and that the Service Credits are a reasonable estimate of the anticipated or actual harm that might arise from Contractor's breach of its Service Level obligations.

Issuance of Service Credits. Contractor shall, for each invoice period under the Contract, issue to the State, together with Contractor's invoice for such period, a written acknowledgment setting forth all Service Credits to which the State has become entitled during that invoice period. Contractor shall pay the amount of the Service Credit as a debt to the State within fifteen (15) Business Days of issue of the Service Credit acknowledgment, provided that, at the State's option, the State may, at any time prior to Contractor's payment of such debt, deduct the Service Credit from the amount payable by the State to Contractor pursuant to such invoice.

Additional Remedies for Service Level Failures. Contractor's failure to meet the Service Levels for Resolution of any Severity Level 1 Errors or Severity Level 2 Errors, or any combination of such Errors, within the applicable Resolution time set out in the Service Level

Table will constitute a material breach under the Contract. Without limiting the State's right to receive Service Credits under this **Section 0**, the State may at its option:

use any previous version or release of the Software in which such Severity Level 1 or Severity Level 2 Error does not occur or can be worked around if the then-current Software exhibits an un-Resolved Severity Level 1 Error or un-Resolved Severity Level 2 Error, and Contractor shall perform all Support Services for such previous version or release until the Contractor Resolves such Severity Level 1 Error or Severity Level 2 Error for the then-current Software; and

obtain such other remedies as may be available to it under this Schedule, the Contract or otherwise at law or in equity, including the right to terminate the Contract for cause in accordance with Section 15.1 of the Contract.

Communications. In addition to the mechanisms for giving notice specified in Section 30.12 of the Contract, unless expressly specified otherwise in this Schedule or the Contract, the parties may use e-mail for communications on any matter referred to herein.

## **EXHIBIT A**

### **CONTRACTOR CONTACTS**

*First Person to Contact: Linda Ross, Business Analyst*

*2nd Person to Contact: Satya Guttula, .Net Developer*

*3rd Person to Contact: Diane Toscano, Project Manager*

*4th Person to Contact: Brian Smith, Account Executive*

**EXHIBIT B**

**SUPPORT FEES**

Maintenance and Support*		After warranty Period. Ongoing, through support period	Fixed Monthly Fee of \$36,890 Total for 39 months - \$1,438,710
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\*If it is mutually determined and agreed upon that the work load in Maintenance and Support does not warrant 2 fulltime resources, Lochbridge will re-size the team to what would be needed to full-fill the obligations during these Phases and adjust their prices as set below. Such as, if it is determined that the work can be done by 1 fulltime resource, the monthly pricing would be \$18,445 a month. If it is agreed upon that the work can be completed by .5 fulltime resource, the monthly pricing will be \$11,067.

<b>Pricing for Maintenance &amp; Support</b>			
	<b>2 Fulltime Resources</b>	<b>1 Fulltime Resource</b>	<b>.5 Fulltime Resource</b>
<b>Maintenance and Support</b>	Fixed Monthly Fee of \$36,890 for 2 Resources (Total for 39 months - \$1,438,710)	Fixed Monthly Fee of \$18,445 for 1 Resources (Total for 39 months - \$719,35)	Fixed Monthly Fee of \$11,067 for .5 Resource (Total for 39 months - \$431,613)



# STATE OF MICHIGAN

## SOFTWARE MODERNIZATION PRE-QUALIFICATION PROGRAM

### Schedule D Pricing

#### *Corporations On-Line Filing System Project*

**Implementation Plan.** The following table identifies milestone events and deliverables, the associated schedule, any associated payments, any retainage amounts, and net payments.

This contract is a fixed, firm priced contract, and shall be paid on completion of Milestone Event. No Partial deliverable payments will be made.

Milestone Event	Associated Milestone Deliverable(s)	Schedule	Payment	Payment % of total contract to be paid upon Milestone Acceptance
Initiation & Planning Stage Exit	<ul style="list-style-type: none"> <li>• Kick-off Presentation</li> <li>• Project Charter</li> <li>• Project Plan (including all sub plans) – Resource Management Plan, Project Budget estimate, Change Management Plan, Quality Mgmt Plan (includes Test Plan) and Risk Mgmt Plan</li> <li>• Detailed Project Schedule (WBS)</li> <li>• Disaster Recovery Plan</li> <li>• Implementation Plan</li> <li>• EASA (initial)</li> <li>• Stage Exit</li> </ul>	Project Execution + 31 calendar days (23 business days)	\$150,368	10%
Requirements & Design Exit	<ul style="list-style-type: none"> <li>• Requirements Traceability Matrix</li> </ul>	Project Execution + 92	\$150,368	10%

	<ul style="list-style-type: none"> <li>• (initial) Requirements Specifications</li> <li>• Business Workflows</li> <li>• Gap/Fit Analysis Report</li> <li>• Software Configuration Mgmt Plan (final)</li> <li>• Conversion Plan (initial)</li> <li>• Design Document</li> <li>• Stage Exit</li> </ul>	calendar days (66 business days)		
Construction Stage Exit	<ul style="list-style-type: none"> <li>• Test Plan</li> <li>• Installation Plan (initial)</li> <li>• Training Plan (initial)</li> <li>• Requirements Traceability Matrix (updated)</li> <li>• Stage Exit</li> </ul>	Project Execution+213 calendar days (153 business days)	\$300,737	20%
Testing Stage Exit	<ul style="list-style-type: none"> <li>• Requirements Traceability Matrix (final)</li> <li>• EASA (final)</li> <li>• Test Reports (final)</li> <li>• Installation Plan (final)</li> <li>• Training Plan (final)</li> <li>• Cutover Plan (final)</li> <li>• Stage Exit</li> </ul>	Project Execution+234 calendar days (168 business days)	\$300,737	20%
Implementation and Acceptance	<ul style="list-style-type: none"> <li>• System Maintenance Plan (final)</li> <li>• Security Plan (final)</li> <li>• Conversion Plan (final)</li> <li>• Transition Plan</li> <li>• Deployment Checklist</li> <li>• Go-Live</li> <li>• Post Implementation Evaluation Report</li> <li>• Project Closure Report</li> <li>• Stage Exit</li> <li>• Acceptance</li> </ul>	Project Execution + 319 calendar days (229 business days)	\$601,474	40%

Maintenance and Support*		After warranty Period. Ongoing, through support period	Fixed Monthly Fee of \$36,890 Total for 39 months - \$1,438,710	
Supplemental Services *		After warranty Period. Ongoing, through support period	Fixed Monthly Fee of \$22,135 Total for 39 months - \$863,265	

\*If it is mutually determined and agreed upon that the work load in Maintenance and Support does not warrant 2 fulltime resources, Lochbridge will re-size the team to what would be needed to full-fill the obligations during these Phases and adjust their prices as set below. Such as, if it is determined that the work can be done by 1 fulltime resource, the monthly pricing would be \$18,445 a month. If it is agreed upon that the work can be completed by .5 fulltime resource, the monthly pricing will be \$11,067.

<b>Pricing for Maintenance &amp; Support</b>			
	<b>2 Fulltime Resources</b>	<b>1 Fulltime Resource</b>	<b>.5 Fulltime Resource</b>
<b>Maintenance and Support</b>	Fixed Monthly Fee of \$36,890 for 2 Resources (Total for 39 months - \$1,438,710)	Fixed Monthly Fee of \$18,445 for 1 Resources (Total for 39 months - \$719,35)	Fixed Monthly Fee of \$11,067 for .5 Resource (Total for 39 months - \$431,613)

<b>Pricing for Supplemental Services</b>		
	<b>1 Fulltime Resource</b>	<b>.5 Fulltime Resources</b>
<b>Supplemental Services</b>	Fixed Monthly Fee of \$22,135 for 1 Resource (Total for 39 months - \$863,265)	Fixed Monthly Fee of \$11,067 for .5 Resource (Total for 39 months - \$431,613)

\*If it is mutually determined and agreed upon that the work load in Supplemental Services does not warrant 1 fulltime resource, Lochbridge will re-size the team to what would be needed to full-fill the obligations during these Phases and adjust their prices as set below. Such as, if it is determined that the work can be done by .5 fulltime resource, the monthly pricing would be \$11,067.

### **Events and Tasks for Each Milestone.**

The following table identifies project milestone events and deliverables in a Work Breakdown Structure format.

ID	Task Name	Duration	Start	Finish	Predecessors	Resource M
0	<b>Corporations On-Line Filing Systems Project</b>	<b>231 d</b>	<b>Mon 6/15/15</b>	<b>Mon 5/2/16</b>		
1	<b>Initiation and Planning</b>	<b>24 d</b>	<b>Mon 6/15/15</b>	<b>Thu 7/16/15</b>		
2	Conduct Project Kickoff meeting with Stakeholders	1 d	Mon 6/15/15	Mon 6/15/15		LB PM
3	<b>Create project charter in compliance with SUITE processes</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
4	Prepare draft Project Charter	4 d	Tue 6/16/15	Fri 6/19/15	2	LB PM
5	State Review and gather feedback	10 d	Mon 6/22/15	Fri 7/3/15	4	SoM PM,L
6	Incorporate feedback and prepare final draft	8 d	Mon 7/6/15	Wed 7/15/15	5	LB PM
7	Obtain Project Charter approval	1 d	Thu 7/16/15	Thu 7/16/15	6	SoM PM,L
8	<b>Develop detailed Project Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
9	Prepare draft detailed Project Plan	4 d	Tue 6/16/15	Fri 6/19/15	2	LB PM
10	State Review and gather feedback	10 d	Mon 6/22/15	Fri 7/3/15	9	SoM PM,L
11	Incorporate feedback and prepare final draft	8 d	Mon 7/6/15	Wed 7/15/15	10	LB PM
12	Obtain Project Plan approval	1 d	Thu 7/16/15	Thu 7/16/15	11	SoM PM,L
13	<b>Develop Detailed Project Schedule (WBS)</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
14	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
15	Obtain Project Schedule / WBS Approval	1 d	Thu 7/16/15	Thu 7/16/15	14	SoM PM,L
16	<b>Develop Change Management Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
17	Prepare draft / review/ feedback/final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
18	Obtain Change Management Plan approval	1 d	Thu 7/16/15	Thu 7/16/15	17	SoM PM,L
19	<b>Develop Security Plan (initial)</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
20	Prepare draft/ review with client	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tech L
21	Obtain security plan (initial) feedback	1 d	Thu 7/16/15	Thu 7/16/15	20	SoM PM,L
22	<b>Develop Resource Management Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
23	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
24	Obtain Resource Management Plan approval	1 d	Thu 7/16/15	Thu 7/16/15	23	SoM PM,L
25	<b>Develop Issue Management Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
26	Prepare initial issue and risk assessment	4 d	Tue 6/16/15	Fri 6/19/15	2	LB PM
27	Review issues/risks and gather feedback	10 d	Mon 6/22/15	Fri 7/3/15	26	LB PM
28	Escalate issues/ risks in Executive Steering Committee	8 d	Mon 7/6/15	Wed 7/15/15	27	SoM PM,L
29	Obtain Issue Management Plan approval	1 d	Thu 7/16/15	Thu 7/16/15	28	SoM PM,L
30	<b>Develop Risk Management Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
31	Prepare initial issue and risk assessment	4 d	Tue 6/16/15	Fri 6/19/15	2	LB PM
32	Review issues/risks and gather feedback	10 d	Mon 6/22/15	Fri 7/3/15	31	SoM PM, LB PM
33	Escalate issues/ risks in Executive Steering Committee	8 d	Mon 7/6/15	Wed 7/15/15	32	SoM PM, LB PM
34	Obtain Risk Management Plan approval	1 d	Thu 7/16/15	Thu 7/16/15	33	SoM PM, LB PM
35	<b>Develop Quality Management (Test) Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
36	Prepare draft/ review with client	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tester
37	Obtain quality management/ test plan (initial) approval	1 d	Thu 7/16/15	Thu 7/16/15	36	SoM PM, LB PM
38	Conduct base package regression testing	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tester
39	<b>Develop Implementation Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
40	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
41	Obtain implementation plan approval	1 d	Thu 7/16/15	Thu 7/16/15	40	SoM PM, LB PM
42	<b>Develop System Maintenance Plan (initial)</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
43	Prepare draft/ review with client	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
44	Obtain system maintenance plan (initial) feedback	1 d	Thu 7/16/15	Thu 7/16/15	43	LB PM
45	<b>Develop Project Budget Estimate</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
46	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
47	Obtain project budget estimate approval	1 d	Thu 7/16/15	Thu 7/16/15	46	SoM PM, LB PM
48	<b>Develop Disaster Recovery Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
49	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tech Lead
50	Obtain disaster recovery plan approval	1 d	Thu 7/16/15	Thu 7/16/15	49	SoM PM, LB PM
51	<b>Develop Communication Management Plan</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
52	Prepare draft/ review/ feedback/ final	22 d	Tue 6/16/15	Wed 7/15/15	2	LB PM
53	Obtain communication management plan approval	1 d	Thu 7/16/15	Thu 7/16/15	52	SoM PM, LB PM
54	<b>Develop Software Configuration Management Plan (initial)</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
55	Prepare draft/ review with the client	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tech Lead
56	Obtain software configuration management plan (initial) feedback	1 d	Thu 7/16/15	Thu 7/16/15	55	SoM PM, LB PM
57	<b>Develop Engineering Architecture Solution Assessment (initial)</b>	<b>23 d</b>	<b>Tue 6/16/15</b>	<b>Thu 7/16/15</b>		
58	Prepare draft/ review with the client	22 d	Tue 6/16/15	Wed 7/15/15	2	LB Tech Lead
59	Obtain EASA (initial) feedback	1 d	Thu 7/16/15	Thu 7/16/15	58	SoM PM
60	Update Project Documentation as required	22 d	Tue 6/16/15	Wed 7/15/15	2	Lochbridge

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
61	<b>Initiation and Planning Stage Exit: Construct Structured Walkthrough/Phase Exit Review and obtain client sign-off</b>	0 d	Thu 7/16/15	Thu 7/16/15	2,7,12,15,18,	SoM PM,LB PM
62	<b>Requirements &amp; Design</b>	43 d	Fri 7/17/15	Tue 9/15/15		
63	JAD Sessions Kick-Off/ Usability Review	1 d	Fri 7/17/15	Fri 7/17/15	61	LB Solution/BP Lead
64	Organize requirements into functional areas	42 d	Mon 7/20/15	Tue 9/15/15	63	Team
65	Conduct facilitated sessions to validate/ verify business requirements	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead
66	Create/ Maintain requirements traceability matrix/ specification	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead
67	Document gaps and provide a gap/fit review package	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead
68	Create prototypes (if applicable)	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
69	Create database design/ business workflow	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
70	Complete and document Gap/Fit Analysis Report	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead,LB
71	Comply with eMichigan Standards	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
72	Obtain Requirements Client Signoff	0 d	Tue 9/15/15	Tue 9/15/15	63,64,65,66,67	LB PM,LB Solution/BP L
73	<b>Application Architecture Design</b>	42 d	Mon 7/20/15	Tue 9/15/15		
74	Create Functional Design Plan to include workflow, work queues, assignment, escalation rules	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead,LB Tech Lead
75	Document As-Is and To-Be Process Diagrams	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead
76	Create Data Mapping from current application to new application	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
77	Document technical architecture plan	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
78	Define Report Layouts, Screens/ Pages	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Solution/BP Lead,LB
79	Document data conversion requirements	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
80	Define data access/ retrieval requirements	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
81	Document required interfaces	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
82	Complete & Final Approval - Software Configuration Management Plan	42 d	Mon 7/20/15	Tue 9/15/15	63	SoM,Lochbridge
83	Create technical design document, in compliance with SUITE processes, to include configuration and installation, integration, application interfaces, user interfaces, data migration	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
84	Comply with State of Michigan IT Security Policy and Procedures	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead
85	Review/ Feedback/ Finalize Architecture System Design Document	42 d	Mon 7/20/15	Tue 9/15/15	63	LB Tech Lead,SoM
86	Update Project Documentation as required	42 d	Mon 7/20/15	Tue 9/15/15	63	Lochbridge
87	<b>Requirements and Design Stage Exit: Conduct Structured Walkthrough/ Phase Exit Review and obtain client sign-off</b>	0 d	Tue 9/15/15	Tue 9/15/15	72,85,86	SoM PM,LB PM
88	<b>Construction</b>	129 d	Mon 7/20/15	Thu 1/14/16		
89	Setup, validate and verify development environment	7 d	Mon 7/20/15	Tue 7/28/15	63	LB Tech Lead
90	Modify code to develop required interfaces	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers,LB Tech

ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names
91		Develop application customization defined in Gap Fit Analysis	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers Lead
92		Develop conversion code	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
93		Develop interfaces to other CSCL applications	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
94		Complete image migration	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
95		Complete application configuration	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
96		Complete 3rd party integration	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
97		Implement interfaces to other CSCL applications	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
98		Complete & Obtain Final Approval - Test Plan	122 d	Wed 7/29/15	Thu 1/14/16	89	SoM SME, LB T
99		Complete Unit Testing	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
100		Create Initial Installation Plan	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tech Lead
101		Create periodic application build for Development environment	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tech Lead
102		Create periodic application build for Test/ QA environment & demo to client	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tech Lead
103		Create Initial Training Plan	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Solution/BP
104		Update Requirements Traceability Matrix	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Solution/BP
105		Update Project Documentation as required	122 d	Wed 7/29/15	Thu 1/14/16	89	Lochbridge
106		Construction Phase Exit: Conduct Structured Walkthrough / Phase Exit Review and obtain client sign-off	0 d	Thu 1/14/16	Thu 1/14/16	89,90,91,92,93	SoM PM, LB PM
107		<b>Testing</b>	<b>145 d</b>	<b>Fri 7/17/15</b>	<b>Thu 2/4/16</b>		
108		Develop Test Cases/ Scripts (SIT, Regression)	42 d	Fri 7/17/15	Mon 9/14/15	61	LB Tester
109		Complete Engineering Architecture Solution Assessment (EASA)	42 d	Fri 7/17/15	Mon 9/14/15	61	LB Tech Lead
110		<b>System Integration Testing</b>	<b>122 d</b>	<b>Wed 7/29/15</b>	<b>Thu 1/14/16</b>		
111		Execute SIT Test Cases/ Scripts	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
112		Document defects	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
113		Generate SIT Testing Results Report	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
114		Correct/ Fix defects	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers
115		Complete SIT Testing in compliance with approved Test Plan	122 d	Wed 7/29/15	Thu 1/14/16	89	Lochbridge
116		<b>Regression Testing</b>	<b>122 d</b>	<b>Wed 7/29/15</b>	<b>Thu 1/14/16</b>		
117		Execute Test Cases/ Scripts	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
118		Document defects	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
119		Generate Testing Results Report	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
120		Correct/ Fix defects	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names
121	Complete Regression Testing in compliance with ADA	122 d	Wed 7/29/15	Thu 1/14/16	89	Lochbridge
122	<b>SOM System Testing</b>	<b>122 d</b>	<b>Wed 7/29/15</b>	<b>Thu 1/14/16</b>		
123	Perform User Testing	122 d	Wed 7/29/15	Thu 1/14/16	89	SoM SME
124	Create User testing defect list	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
125	Generate User Testing Results Report	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Tester
126	Correct/ Fix User testing defects	122 d	Wed 7/29/15	Thu 1/14/16	89	LB Developers, LB Tester
127	Complete User Testing in compliance with approved Test Plan	122 d	Wed 7/29/15	Thu 1/14/16	89	Team
128	Complete & Obtain Final Approval - Installation Plan	5 d	Fri 1/8/16	Thu 1/14/16	127FS-5 d	LB PM, SoM PM
129	<b>Training Plan</b>	<b>123 d</b>	<b>Wed 7/29/15</b>	<b>Fri 1/15/16</b>		
130	Develop Operations Manual	123 d	Wed 7/29/15	Fri 1/15/16	89	LB Solution/BP Lead
131	Create System documentation	123 d	Wed 7/29/15	Fri 1/15/16	89	LB Solution/BP Lead, LB
132	Develop Application User Training Guide	123 d	Wed 7/29/15	Fri 1/15/16	89	LB Solution/BP Lead
133	Complete & Obtain Final Approval - Training Plan	10 d	Mon 1/4/16	Fri 1/15/16	132FS-10 d	LB PM, SoM PM
134	Create comprehensive Training schedule for CSCL users and DTMB Support staff to include course objectives, class agenda, recommended audience, pre-requisite skills and level of expertise required, duration and schedule for each class	10 d	Mon 1/4/16	Fri 1/15/16	132FS-10 d	LB Solution/BP Lead
135	<b>User Acceptance Testing</b>	<b>15 d</b>	<b>Fri 1/15/16</b>	<b>Thu 2/4/16</b>		
136	Perform UAT	15 d	Fri 1/15/16	Thu 2/4/16	127	SoM SME, LB Tester
137	Ensure acceptable system performance/response times. Average internal and external page load times of 4 seconds with a maximum load time of 10 seconds	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Tech Lead, LB Tester
138	Create UAT defect list	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Tester
139	Generate UAT Results Report	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Tester
140	Correct/Fix UAT defects	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Developers, LB Tester
141	Complete User Acceptance Testing in compliance with approved Test Plan	15 d	Fri 1/15/16	Thu 2/4/16	127	Team
142	Develop & Produce Final Test Report	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Tester
143	Update Requirements Traceability Matrix	15 d	Fri 1/15/16	Thu 2/4/16	127	LB Solution/BP Lead
144	Update & Obtain Final Approval - Cutover Plan	15 d	Fri 1/15/16	Thu 2/4/16	127	SoM PM, LB PM
145	Update Project Documentation as required	15 d	Fri 1/15/16	Thu 2/4/16	127	Lochbridge
146	Testing Phase Exit: Conduct Structured Walkthrough / Phase Exit Review and obtain client sign-off	0 d	Thu 2/4/16	Thu 2/4/16	141	SoM PM, LB PM
147	<b>Implementation &amp; Acceptance</b>	<b>121 d</b>	<b>Mon 11/16/15</b>	<b>Mon 5/2/16</b>		
148	<b>Data Conversion and Migration</b>	<b>77 d</b>	<b>Mon 11/16/15</b>	<b>Tue 3/1/16</b>		
149	Implement conversion / population of database	77 d	Mon 11/16/15	Tue 3/1/16		DBA, LB Tech Lead
150	Complete & final Approval - Data Conversion Plan	77 d	Mon 11/16/15	Tue 3/1/16		SoM PM, LB PM

ID		Task Name	Duration	Start	Finish	Predecessors	Resource Names
151		Complete data migration	77 d	Mon 11/16/15	Tue 3/1/16		DBA, LB Tech Lead
152		Deliver User Training in compliance with approved Training Plan	25 d	Mon 1/25/16	Fri 2/26/16	151SS+50 d	LB Solution/BP Lead
153		Develop deployment checklist	20 d	Tue 1/26/16	Mon 2/22/16	151FS-26 d	LB PM
154		Prepare draft implementation schedule/time line	20 d	Tue 1/26/16	Mon 2/22/16	151FS-26 d	LB PM
155		Obtain final deploy dates from client	1 d	Tue 2/23/16	Tue 2/23/16	154	SoM PM, LB PM
156		Review / Update the implementation plan timeline	2 d	Wed 2/24/16	Thu 2/25/16	155	SoM PM, LB PM
157		Execute & Monitor Production deploy implementation	3 d	Fri 2/26/16	Tue 3/1/16	156	Team
158		Distribute Production Implementation status report	0 d	Tue 3/1/16	Tue 3/1/16	157	LB PM
159		Perform Smoke/Sanity Testing in the new system	0 d	Tue 3/1/16	Tue 3/1/16	157	LB Tester
160		<b>Go-Live</b>	<b>31 d</b>	<b>Tue 1/19/16</b>	<b>Tue 3/1/16</b>		
161		New System goes live	0 d	Tue 3/1/16	Tue 3/1/16	157	Team
162		Obtain Production Acceptance - Go Live from Client	0 d	Tue 3/1/16	Tue 3/1/16	157	SoM PM, LB PM
163		Update and Complete Security Plan	31 d	Tue 1/19/16	Tue 3/1/16	162SS-31 d	LB Tech Lead
164		Update and Complete Transition Plan	31 d	Tue 1/19/16	Tue 3/1/16	162SS-31 d	LB PM
165		Update and Complete System Maintenance Plan	31 d	Tue 1/19/16	Tue 3/1/16	162SS-31 d	LB PM
166		Update Project Documentation as required	31 d	Tue 1/19/16	Tue 3/1/16	162SS-31 d	Lochbridge
167		Conduct Structured Walkthrough / Phase Exit Review and obtain client sign-off	0 d	Tue 3/1/16	Tue 3/1/16	162	SoM PM, LB PM
168		<b>System Documentation/ Warranty</b>	<b>44 d</b>	<b>Wed 3/2/16</b>	<b>Mon 5/2/16</b>		
169		Support/Maintain/Fix the system for any problems	44 d	Wed 3/2/16	Mon 5/2/16	167	Lochbridge
170		Update User Training Guide (if required)	44 d	Wed 3/2/16	Mon 5/2/16	167	LB Solution/BP Lead
171		Update Operations Manual (if required)	44 d	Wed 3/2/16	Mon 5/2/16	167	Lochbridge
172		Update Project Documentation as required	44 d	Wed 3/2/16	Mon 5/2/16	167	Lochbridge
173		Post Implementation Evaluation Report	44 d	Wed 3/2/16	Mon 5/2/16	167	LB PM
174		Complete Project Closure	44 d	Wed 3/2/16	Mon 5/2/16	167	LB PM, SoM PM
175		<b>Implementation &amp; Acceptance</b>	<b>0 d</b>	<b>Mon 5/2/16</b>	<b>Mon 5/2/16</b>		
176		Implementation and Acceptance Phase Exit: Obtain Project Acceptance	0 d	Mon 5/2/16	Mon 5/2/16	174	SoM PM, LB PM
177							
178		<b>Ongoing Project Activities</b>	<b>229 d</b>	<b>Tue 6/16/15</b>	<b>Fri 4/29/16</b>		
179		Maintain project status in Changepoint	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM
180		Generate 4UP status report in Changepoint for delivery in Executive Steering Committee Meeting	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	
							5/31
181	Maintain monthly budget performance report for delivery to DTMB leadership & LARA Finance	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM	
182	Create issue/risk Report for review in project team status meetings	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM	
183	Generate weekly status report which includes action items, issues/risks, milestones, accomplishments, next steps	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM	
184	Conduct weekly project status meeting	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM,SoM PM	
185	Present project status in SOM Executive Steering Committee Meeting	229 d	Tue 6/16/15	Fri 4/29/16	2	LB PM,SoM PM	



# STATE OF MICHIGAN

## SOFTWARE MODERNIZATION PRE-QUALIFICATION PROGRAM

### Exhibit C Approved Third Party Materials/Background Technology, Open Source *Corporations On-Line Filing System Project*

#### Approved Third-party Materials.

##### Hardware

- Development Laptop

##### OS

- Windows 7 Enterprise (or later version) (Included with laptop)

##### Software

- Office (Word, Excel, Outlook)
  - Documentation, COFS output and communication
- Visio 2013 Standard
  - Architecture and design diagrams
- Camstasia
  - Recording training sessions that can be accessed for playback at a trainees convenience
- Changepoint
  - Project Management

##### Development Environment

- Visual Studio 2013 – Ultimate (Technical Lead, QA Lead (Automation))
  - Development platform
- Visual Studio 2013 – Premium (Developers, QA)
  - Development platform
- Microsoft Test Manager (Included in Visual Studio 2013)
  - Testing tool that simplifies QA operations
- TFS CAL License (BA, PM)
  - Access to TFS for business analyst and project manager
- SQL Server 2012 Developer Edition (or later version)
  - Test Database and database access
- Report Builder 3.0 (Free)
  - SSRS reports creation tool
- Team Foundation Server 2013 (State Provided)
  - Project tracking, continuous integration, code repository, test plan repository, bug tracking

##### COFS Components

- ABCPDF.Net Pro, version 8 (Included in the solution)
  - Existing COFS component

- PixTools v 7.5 (Included in the solution)
  - Existing COFS component
- ASP Encrypt v2.3 (Included in the solution)
  - Existing COFS component
- Crystal Reports Runtime (Included in the solution)
  - Existing COFS component (legacy reporting)
- Enterprise Library (Included in the solution)
  - Existing COFS component (exception handling, logging configuration, database access)
- Log4Net (Included in the solution)
  - Existing COFS component (logging)
- Aspose.Words (Site OEM License)
  - Templating / Mail-Merge component. Creates easy to modify templates by end-user and merge with data from the application

While DTMB will provide licenses and or software for the server environment (including individual licenses required to access those components) and Crystal Reports Runtime, Lochbridge will provide and support replacement/additional third-party COFS Components software in support of this project

**Alternatives:**

Aspose, ImageMagick, Sandcastle and Sandcastle Help File Builder are not currently on the state technology roadmap. If an exception is not approved, the alternative plan for each of the components shall be as detailed below:

- Aspose provides templating using Word documents. Lochbridge did not see components in the State technology roadmap to provide templating functionalities. Building a templating component from scratch would significantly increase the price of the estimate. If the State has a preferred templating solution on the technology roadmap, Lochbridge will use that solution as an alternative to Aspose.
- ImageMagick provides image transformation to be used during the data migration. Other open-source alternatives exist which could provide image transformation capabilities. Lochbridge did not see components in the State technology roadmap to provide such image transformation. If the State has a preferred image transformation solution on the technology roadmap, Lochbridge will use that solution as an alternative to ImageMagick.
- Sandcastle and Sandcastle Help File Builder provides API documentation at the code-level. If the State doesn't approve these, Lochbridge will use the approved State's code-level documentation tool. If the State doesn't have an approved documentation tool, the code documentation will be only available in the code.

**1. Background Technology.**

**Lochbridge Response:**

- Microsoft .NET 4.0
  - Runtime platform
- ASP .NET Web Form
  - Microsoft Web technology used in COFS
- .NET Web Services
  - Web services technology used in COFS
- .NET Windows Services
  - Windows services
- VPN Connection

- Access State of Michigan environment remotely

## 2. Open Source Components.

- Oracle SQL Developer
  - Access Oracle legacy database
- Python for Windows
  - Scripting language used to call ImageMagicks and convert images
- ImageMagick
  - Convert images to PDF